BRIEF DOCUMENT OF 65 WETLANDS IN TAMIL NADU

TAMIL NADU STATE WETLAND AUTHORITY
DEPARTMENT OF ENVIRONMENT,
CLIMATE CHANGE AND FOREST

Funded by
TAMIL NADU WETLANDS MISSION



Report Prepared by
CENTRE FOR ENVIRONMENTAL STUDIES
Anna University, Chennai – 600 025

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Preface

This report presents the findings of comprehensive studies on 65 wetlands across Tamil Nadu. Led by **Dr. S. Kanmani**, Professor and Director, Centre for Environmental Studies, Anna University, Chennai, and co-investigated by **Dr. Saranya Kuppusamy**, Visiting Professor, and **Dr. A. Merline Sheela**, Associate Professor, both from the Centre for Environmental Studies, Anna University. This study aims to provide a thorough overview of the wetlands in the region, shedding light on their identification, jurisdiction, location, physical characteristics, biodiversity, pre-existing rights and privileges, as well as the present and potential threats they face. This research was undertaken with the goal of raising awareness about the vital role that these wetlands play in maintaining ecological balance and supporting local communities. By documenting the key aspects of each wetland, the report seeks to encourage informed decision-making and further conservation efforts.

We extend our sincere thanks to the **Tamil Nadu State Wetland Authority (TNSWA)** for their immense support throughout this project. Their invaluable cooperation and guidance have played a pivotal role in ensuring the success of this study. Special thanks to **Thiru. Deepak Srivastava, I.F.S.**, Principal Chief Conservator of Forests and Member Secretary, TNSWA, for his unwavering support. We also acknowledge the dedication of our research team, whose unwavering commitment to data collection, fieldwork, and analysis has been integral to the completion of this report. This document is intended as a resource for researchers, policymakers, environmentalists, and anyone interested in the conservation of Tamil Nadu's wetlands. We hope that it will contribute to greater recognition of the importance of these ecosystems and inspire continued efforts to preserve them for future generations.



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"நிலமூட்டும் காற்று, நீரின் முத்துக்கள், பறவைகளின் அழகிய மெல்லிய கீறல்கள் — WETLANDS என்பது இயற்கையின் கண் திறக்கும் நம்பிக்கை. இவை உயிரின் சமநிலை, வாழ்க்கையின் ஊற்றுகளை மீட்டெடுக்கின்றன. ஏரிகள், குளங்கள், நதி கரைகள் தங்கள் மௌனத்தில் புரிந்தும் பிரகாசிக்கும் அற்புதங்கள்."

Anna University Research Team

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1. Introduction

Wetlands are among the most productive and ecologically significant ecosystems on Earth. Characterized by the presence of water, either permanently or seasonally, these areas support a wide variety of plant and animal life that is uniquely adapted to the specific conditions found in Wetland environments. Wetlands come in various forms, such as marshes, swamps, bogs, and fens, and are typically found in areas like coastal regions, riverbanks, floodplains, and inland depressions. These ecosystems are critical to maintaining ecological balance and supporting biodiversity, playing a vital role in the regulation of water quality, flood control, groundwater recharge, carbon sequestration, and climate change mitigation. The ecosystem services provided by Wetlands are invaluable and diverse. They act as natural filters, purifying water by trapping pollutants, sediments, and excess nutrients. Wetlands regulate water flow, reducing the risk of floods and droughts, and support biodiversity by providing habitat for many species, including those that are migratory, endangered, or endemic. Furthermore, Wetlands offer cultural, recreational, and economic benefits to local communities, supporting livelihoods through activities such as fishing, agriculture, tourism, and resource extraction. Despite their immense ecological, economic, and cultural importance, Wetlands face significant threats from anthropogenic activities, including urbanization, agricultural expansion, industrial development, and pollution. Climate change further exacerbates these threats, contributing to altered hydrological cycles, sea-level rise, and changes in species distribution. As a result, Wetlands are increasingly being lost or degraded, leading to a reduction in the vital services they provide. This makes their conservation and sustainable management more crucial than ever.



This document provides a detailed, science-based framework for the conservation and sustainable management of 65 Wetlands across Tamil Nadu, following the guidelines set forth by the National Conservation and Preservation Authority (NCPA). The primary objective is to assess the current status of these Wetlands in terms of their identification, location, site characteristics, biodiversity, and ecosystem services, and to highlight the rights and privileges of the local communities that rely on them. By documenting these key aspects, this work aims to promote informed decision-making for their protection and sustainable use. A significant part of the effort has been dedicated to gathering both primary and secondary data through extensive collaboration with a range of stakeholders, including State and District Wetland Authorities, academicians, researchers, non-governmental organizations (NGOs), civil society organizations (CSOs), government departments (such as the Forest Department, Public Works Department, Pollution Control Board, Agriculture and Horticulture Departments, and Revenue Department), and local

Panchayats. This inclusive approach ensures that the collected data is comprehensive, accurate, and reflects the concerns of all involved parties.

The document highlights the current and potential threats to Wetland ecosystems, identifying both immediate challenges and long-term risks. By assessing the Wetlands' biodiversity, water quality, hydrology, and socio-economic roles, the document also proposes actionable recommendations for the protection and sustainable management of these vital ecosystems. Furthermore, it outlines a set of regulations and permissible activities to strike a balance between conservation needs and the socio-economic interests of local communities, ensuring that Wetland resources continue to provide benefits without compromising their ecological integrity. In addition to proposing conservation measures, this document also includes scientific resources, such as field surveys, project reports, policy papers, and gazettes, which support the findings and recommendations presented. These resources offer a well-rounded view of the Wetlands' status and their importance to the environment, helping to guide future management decisions and strengthen the capacity of stakeholders to take appropriate action. By providing a clear, scientifically grounded framework for Wetland conservation, this document aims to contribute to the long-term preservation of Tamil Nadu's Wetlands. Through collaborative efforts and effective management strategies, we can ensure that these crucial ecosystems continue to support biodiversity, improve water quality, regulate climate, and provide essential resources for local communities, now and in the future.

2. Methodology

The methodology for preparing the detailed brief document on the Wetland involved a comprehensive approach that combined various data collection methods, analytical techniques, and scientific resources. The process is broken down into key sections as outlined below:

2.1. Wetland Identification and Jurisdiction

To begin, the identification, location, and jurisdiction of the Wetland were determined through a combination of official documentation and digital mapping tools. The order copy Ref.No.TNSWA2/343/2023, dated 11.06.2024, provided essential information such as the name of the Wetland, district, and geographical coordinates. Additional geographic data, including village, tehsil, and municipal boundaries, were sourced from the Village Master Dashboard managed by the Tamil Nadu e-Governance Agency. Furthermore, a questionnaire survey was conducted to identify the government department or agency with jurisdiction over the Wetland or Wetland complex, ensuring clarity on management and legal oversight.

2.2. Site Characteristics Analysis

For the site characteristics analysis, a combination of GIS-based tools, field surveys, and laboratory analysis was employed. Using ArcGIS software, the Wetland's spatial extent and its zone of influence were mapped, with a specific radius defined based on drainage profiles and surrounding land use patterns. Climate data, relevant to the Wetland's environmental context, was obtained from the Tamil Nadu Climate Change Mission, Department of Environment, which provided insights into seasonal weather patterns that influence the Wetland ecosystem. To assess the hydrological and ecological status of the Wetland, data on the water regime, depth, and type were gathered through secondary data collection and field observations. Additionally, water quality parameters such as pH, salinity, and nutrient levels were analyzed through laboratory testing to assess the overall health of the water body.



2.3. Biodiversity Assessment

A systematic approach was employed to evaluate the Wetland's biodiversity, consistent with the Wetlands (Conservation and Management) Rules, 2017. Flora was assessed using quadrat sampling, transect studies, and remote sensing-based vegetation mapping, allowing for the documentation of species composition, richness, and the presence of endangered or invasive plant species. Fauna assessment involved point count surveys for bird species, camera trapping

for terrestrial mammals, and netting techniques for capturing aquatic species. Light traps were also used to document the diversity of insects. To supplement the field data and ensure a comprehensive understanding, secondary data from authoritative sources such as the Zoological Survey of India (ZSI), Botanical Survey of India (BSI), National Biodiversity Authority (NBA), and Ramsar site documentation were integrated.

2.4. Ecosystem Services Evaluation

The assessment of ecosystem services provided by the Wetland involved a combination of ground truthing, community-based surveys, and secondary data collection. This study aimed to identify key ecosystem services such as water provision for drinking and irrigation, support for fisheries, and the provision of aquatic food plants. The Wetland's role as a habitat for migratory birds, fish, and amphibians was also examined, alongside its cultural and religious significance to local communities. These findings highlighted the importance of Wetlands in maintaining local livelihoods, supporting biodiversity, and providing essential ecosystem functions, in accordance with the Wetland Conservation and Management Rules, 2017.

2.5. Threat Assessment

To evaluate the threats to Wetland ecosystems, an assessment was conducted using field surveys, questionnaire-based interviews with local stakeholders, and the analysis of secondary data. The study identified several ongoing threats to the Wetland, including pollution from domestic, agricultural, and industrial activities, unsustainable resource extraction, encroachment, and the spread of invasive species. Mining, siltation, and the alteration of natural water flows were also identified as significant risks to Wetland integrity. These threats, which violate the Wetland Conservation and Management Rules, 2017, underscored the need for targeted conservation interventions and stricter regulatory enforcement to mitigate further degradation.

2.6. Prohibited and Permitted Activities

Based on the threat assessment and in alignment with conservation objectives, the study proposed activities to be prohibited within the Wetland. These included unregulated water withdrawal, over-exploitation of resources, unrestricted grazing, uncontrolled discharge of sewage and effluents, and unsustainable agricultural and aquaculture practices. These prohibitions were deemed necessary to reduce human impact on the Wetland and maintain its ecological health for future generations. In contrast, the study also identified activities that could be permitted under the Wetland Conservation and Management Rules, 2017, provided they adhere to sustainable practices. Eco-tourism, sustainable fishing practices, organic farming, agroforestry, and the continuation of traditional livelihood activities such as grazing and harvesting Wetland products, when managed responsibly, were recognized as compatible with the goal of Wetland conservation.

2.7. Data Sources and Scientific Foundations

The methodology for this study was informed by a comprehensive review of scientific literature and data from various authoritative sources. Key references included peer-reviewed journals, government reports, and data from recognized research institutions and conservation

organizations. These resources provided the scientific foundation for the study, ensuring that the findings and recommendations were based on the latest research and aligned with the Wetland Conservation and Management Rules, 2017. By integrating multiple data sources, field assessments, and scientific analysis, this methodology ensured a thorough and evidence-based evaluation of the Wetland's ecological, social, and cultural significance, guiding the development of informed conservation strategies.

Table 2.1. List of 65 Wetlands Designated for Brief Document Preparation

S. No.	Name of the Wetland	District	Significance
1	Karaivetti Birds Sanctuary	Ariyalur	Ramsar Site
2	Otteri Lake	Chengalpattu	
3	Mahabalipuram Backwaters		
4	Vedanthangal Birds Sanctuary		Ramsar Site
5	Karikili Birds Sanctuary		Ramsar Site
6	Adyar Creek	Chennai	
7	Pallikaranai Marsh Reserve Forest		Ramsar Site
8	Achankulam	Coimbatore	
9	Then Pennai River Mouth	Cuddalore	
10	Gadilam Estuary		
11	Pichavaram Mangrove		Ramsar Site
12	Pidarankarai	Dindigul	
13	Jambhakulam		
14	Konalaru Marsh		Ramsar Site Proposal Prepared
15	Vellode Birds Sanctuary	Erode	Ramsar Site
16	Ponneri Lake	Kancheepuram	
17	Muttukadu Backwaters		
18	Vembannur Wetland Complex	Kanniyakumari	Ramsar Site
19	Suchindram Theroor Wetland Complex		Ramsar Site
20	Rajakamangalam		
21	Manakudy Estuary		
22	Thirumullaivasal Mangrove Forest	Mayiladuthurai	
23	Puthupattinam - Mayiladuthurai		

24	Point Calimere Wildlife & Birds Sanctuary	Nagapattinam	Ramsar Site
25	Agayagangi	Namakkal	Ramsar Site Proposal Prepared
26	Manamalkudi Talik Grama Kodiyakarai	Pudukkottai	
27	Pambar Estuary		
28	Gandhi Nagar	Ramanathapuram	
29	Kadaloor		
30	Kannamunnai		
31	Moorpannai		
32	Mullimunai		
33	Pathanenthal - Sambai		
34	Pudhupattinam		
35	Soliyakudi - Sambai		
36	Thiruppalaikudi		
37	Muthuregunathapuram		
38	Melaselvanur - Kilaselvanur Birds Sanctuary	Ramanathapuram	
39	Karankadu		
40	Kothandaramar Lagoon		
41	Gulf of Mannar marine Biosphere Reserve		Ramsar Site
42	Kanjirankulam Birds Sanctuary		Ramsar Site
43	Chitrangudi Birds Sanctuary		Ramsar Site
44	Theerthangal Birds Sanctuary		Proposed Ramsar Site
45	Sakkarakotai Birds Sanctuary		Proposed Ramsar Site
46	Vellarvelli Eri	Salem	
47	Yercaud Eri		
48	Vagaikulam	Tenkasi	
49	Agni River Mouth	Thanjavur	
50	Ambuliyar River Mouth		
51	Longwood Shola	Nilgiris	Ramsar Site

52	Udhayamarthandapuram Bird Sanctuary	Thiruvarur	Ramsar Site
53	Vaduvur Birds Sanctuary		Ramsar Site
54	Melputhukudi Sunai	Thoothukudi	
55	Thirupani Chettikulam		
56	Keelpuliyangualm		
57	Punnakayal & palayakayal Complex		
58	Sivagalai & Periyakulam Wetland Complex		
59	Koonthankulam Bird Sanctuary	Thirunelveli	
60	Nanjarayan Tank Birds Sanctuary	Tiruppur	
61	Ennore Creek	Tiruvallur	
62	Odiyur Lagoon	Villupuram	
63	Yedayanthittu Estuary		
64	Oussudu Lake Birds Sanctuary		Ramsar Site
65	Kazhuveli Birds Sanctuary		

3. Brief Document

3.1. KARAIVETTI BIRD SANCTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Karaivetti Bird Sanctuary

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Karaivetti, Kunthapuram, Vettankudi,Avansuthamalli, Tirupayar, Keezhakavattankurichi, Venganur, Ariyalur

1.3 *Name of the District (s) in which Wetlands complex located:* Ariyalur

1.4 *Geographical coordinates:*

- ► Latitude: 10˚58’53.8824” N
- ► Longitude: 79˚2’43.0368” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 456 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	✓ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands

	❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2; Maximum - 3.5

2.4 *Elevation (m above mean sea level):* 52

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)

- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 184.4

b) Temperature (°C): Minimum 26.05 ; Maximum 36.6

c) Humidity (%) Minimum 69.9 ; Maximum 73.6

2.7 *Area of zone of influence (in ha):* 3230.56 ha (with an irregular radius of 3.42 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	0%
Agriculture	:	85%
Settlements (Rural)	:	7%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	1%
Waste Land	:	7%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 1 (Fig. 3.1.1-3.1.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 70 species (refer to Table 3.1.1 in Annexure 3.1).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 158 recorded species. This includes 2 mammal species, 8 reptile species, 2 amphibian species, 100 bird species, and 46 species of butterflies (refer to Table 3.1.2-3.1.3 in Annexure 3.1).

3.3 *Species of conservation significance:* Highlighted in Table 3.1.1-3.1.3

3.4 *Major plant invasive alien species:* The Wetland supports 10 plant invasive species (refer to Table 3.1.4 in Annexure 3.1).

3.5 *Major animal invasive alien species:* Not available

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.1.5 in Annexure 3.1
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	✓ Yes ❒ No	Results into purification
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	❒ Yes ❒ No	
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No	

		❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium ❒Low	❒Present ❒Potential	
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	

Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.1.4 in Annexure 1
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Tourism development		✓ Wetland/ Wetlands complex boundary ❒ Zone of influence	May be permitted

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). *A checklist of reptiles of India* (Version 3.0, 35 pp.). Zoological Survey of India. Available at www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). *The book of Indian birds* (13th revised ed.). Oxford University Press.
3. Grimmett, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press.
4. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa*, *11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009

ANNEXURE 3.1

Fig 3.1.1. Zone of Influence of Karaivetti Bird Sanctuary

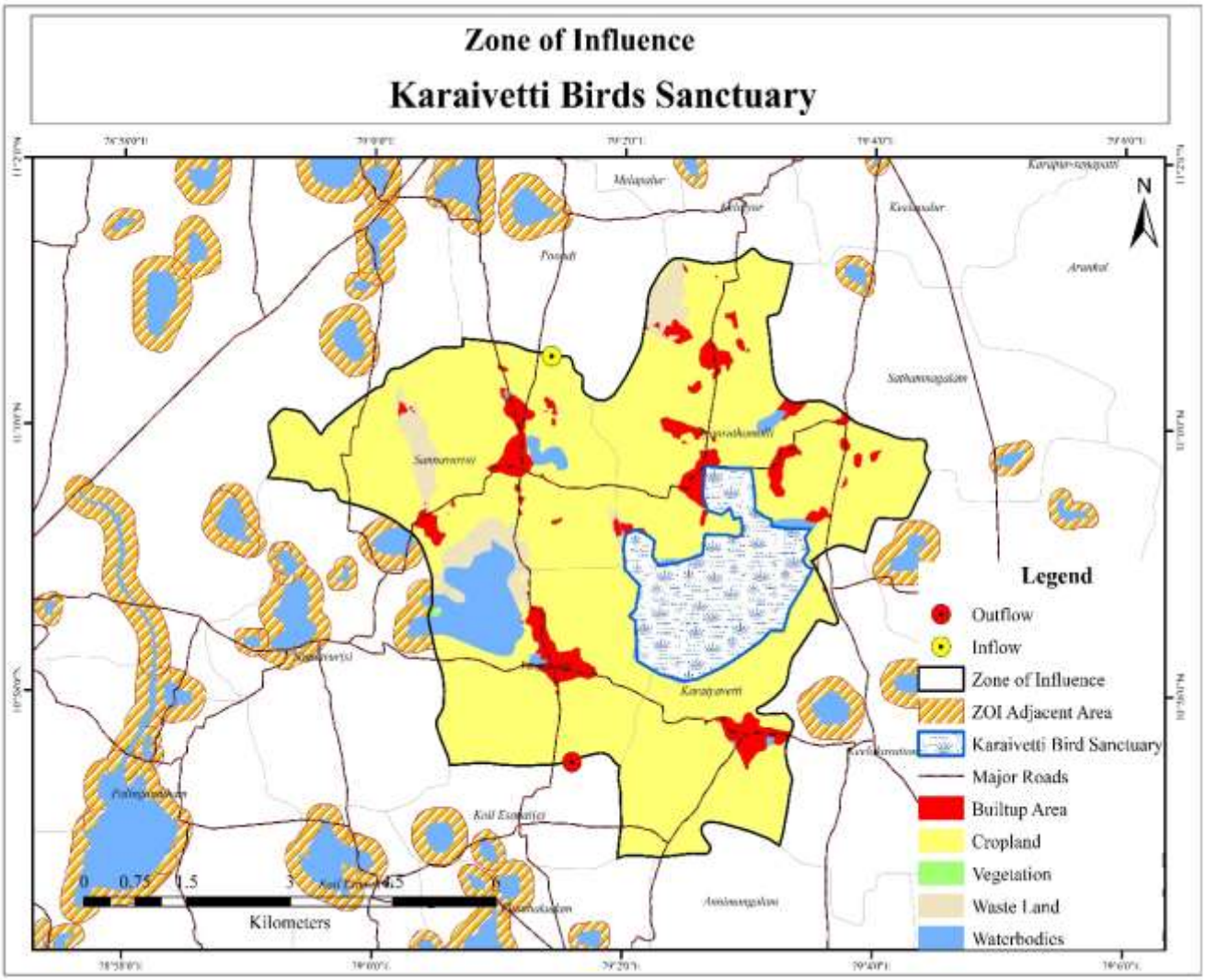


Fig 3.1.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Karaivetti Bird Sanctuary

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

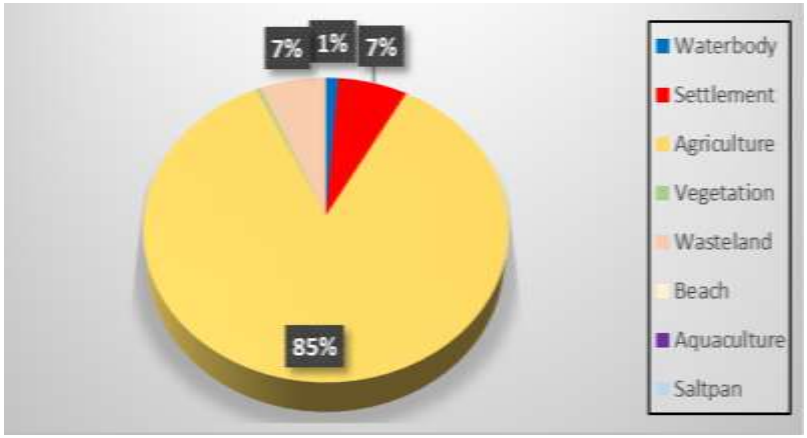


Table 3.1.1. IUCN Status of Floral Species in Karaivetti Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
2.	*Brachiaria ramosa*	Poaceae		Grass	NE
3.	*Boswellia serrate*	Burseraceae		Tree	LC
4.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
5.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC
6.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
7.	*Cordia domestica*	Cordiaceae		Tree	LC
8.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
9.	*Crateva magna*	Capparaceae		Tree	LC
10.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
11.	*Cyperus iria*	Cyperaceae		Sedge	NE
12.	*Dolichandrone atrovirens*	Bignoniaceae		Tree	LC
13.	*Diospyros montana*	Ebenaceae		Tree	LC
14.	*Diospyros malabarica*	Ebenaceae		Tree	LC
15.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
16.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
17.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
18.	*Erythrina suberosa*	Papilionaceae		Tree	LC
19.	*Ficus tinctoria*	Moraceae	Kallathi	Tree	LC
20.	*Isachne miliacea*	Poaceae	-	Grass	LC
21.	*Ischaemum indicum*	Poaceae	-	Grass	LC
22.	*Ludwigia adscendens*	Onagraceae		Herb	NE
23.	*Mallotus nudiflorus*	Euphorbiaceae		Tree	LC
24.	*Mitragyna parvifolia*	Rubiaceae		Tree	LC
25.	*Pandanus amaryllifolius*	Pandanaceae		Tree	LC
26.	*Pongamia pinnata*	Papilionaceae	Pungai	Tree	LC

27.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
28.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
29.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC
30.	*Terminalia arjuna*	Combretaceae		Tree	LC
31.	*Terminalia chebula*	Combretaceae		Tree	LC
32.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
33.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
34.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
35.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
36.	*Brachiaria ramosa*	Poaceae		Grass	NE
37.	*Boswellia serrata*	Burseraceae		Tree	LC
38.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
39.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC
40.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
41.	*Cordia domestica*	Cordiaceae		Tree	LC
42.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
43.	*Crateva magna*	Capparaceae		Tree	LC
44.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
45.	*Cyperus iria*	Cyperaceae		Sedge	NE
46.	*Dolichandrone atrovirens*	Bignoniaceae		Tree	LC
47.	*Diospyros montana*	Ebenaceae		Tree	LC
48.	*Diospyros malabarica*	Ebenaceae		Tree	LC
49.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
50.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
51.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
52.	*Erythrina suberosa*	Papilionaceae		Tree	LC
53.	*Ficus tinctoria*	Moraceae	Kallathi	Tree	LC

54.	*Isachne miliacea*	Poaceae	-	Grass	LC
55.	*Ischaemum indicum*	Poaceae	-	Grass	LC
56.	*Ludwigia adscendens*	Onagraceae		Herb	NE
57.	*Mallotus nudiflorus*	Euphorbiaceae		Tree	LC
58.	*Mitragyna parvifolia*	Rubiaceae		Tree	LC
59.	*Pandanus amaryllifolius*	Pandanaceae		Tree	LC
60.	*Pongamia pinnata*	Papilionaceae	Pungai	Tree	LC
61.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
62.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
63.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC
64.	*Terminalia arjuna*	Combretaceae		Tree	LC
65.	*Terminalia chebula*	Combretaceae		Tree	LC
66.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
67.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
68.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
69.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
70.	*Brachiaria ramosa*	Poaceae		Grass	NE

Table 3.1.2. IUCN Status of Selected Fauna Species in Karaivetti Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. Reptile				
1.	*Cnemaspis yercaudensis*	Gekkonidae		LC
2.	*Cnemaspis mysoriensis*	Gekkonidae		LC

3.	*Cyrtodactylus speciosus*	Gekkonidae	Forest spotted gecko	LC
4.	*Hemidactylus graniticolus*	Gekkonidae		LC
5.	*Calotes versicolor*	Agamidae	Oriental garden lizard	LC
6.	*Eutropis allapallensis*	Scincidae		LC
7.	*Uropeltis dindigalensis*	Uropeltidae		LC
8.	*Trimeresurus gramineus*	Viperidae		LC
C. Amphibian				
1.	*Duttaphrynus melanostictus*	Bufonidae		LC
2.	*Indosylvirana sreeni*	Ranidae		LC
D. Butterfly				
1.	*Common rose*	Pachliopta aristolochiae	Papilionidae	LC
2.	*Crimson rose*	Pachliopta hector	Papilionidae	LC
3.	*Common Mormon*	Papilo polymnestor cramer	Papilionidae	LC
4.	*Great Eggfly*	Hypolimnas bolina	Papilionidae	LC
5.	*Common bluebottle*	Graphium sarpedon	Papilionidae	LC
6.	*Common emigrant*	catopsilia Pomona	Peridae	LC
7.	*Psyche*	Leptosia nina	Peridae	LC
8.	*Mottled emigrant*	Catopsilia pyranthe	Peridae	LC
9.	*Common grass yellow*	Eurema hecabe	Peridae	LC
10.	*Common Gull*	Cepora nerissa	Peridae	LC
11.	*Small Salmon Arab*	Colotis amata	Peridae	LC
12.	*Pioneer*	Belenois aurota	Peridae	LC
13.	*Small grass yellow*	Eurema brigitta	Lycaenidae	LC
14.	*Dark grass blue*	Zizeeria karsandra	Lycaenidae	LC
15.	*Tiny grass blue*	Zizula hylax	Lycaenidae	LC
16.	*Zebra blue*	Leptotus plinius	Lycaenidae	LC
17.	*Forget –me –not*	Catochrysops Strabo	Lycaenidae	LC
18.	*Small grass jewel*	Chilades putli	Lycaenidae	LC
19.	*Plain hedge blue*	Celastrina lavendularis	Lycaenidae	LC
20.	*Tailless line blue*	Prosotas dubiosa	Lycaenidae	LC

21.	*Gram blue*	Euchrysops cnejus	Lycaenidae	LC
22.	*Pale grass blue*	Pseudozizeeria maha	Lycaenidae	LC
23.	*Lime blue*	Chilades lajus	Lycaenidae	LC
24.	*Common line blue*	Prosotas nora	Lycaenidae	LC
25.	*Plumbeous silverline*	Spindasis schistacea	Lycaenidae	LC
26.	*Plains cupid*	Chilades pandava	Lycaenidae	LC
27.	*Bright babul blue*	Azanus ubaldus	Lycaenidae	LC
28.	*Lesser grass blue*	Zizina Otis indica	Lycaenidae	LC
29.	*Common pierrot*	Castalius rosimon	Lycaenidae	LC
30.	*Plain tiger*	Danus chrysippus	Nymphalidae	LC
31.	*Blue tiger*	Tirumala limniace	Nymphalidae	LC
32.	*Dark blue tiger*	Tirumala septentrionis	Nymphalidae	LC
33.	*Striped tiger*	Danus genutia	Nymphalidae	LC
34.	*Blue admiral*	kaniska canace	Nymphalidae	LC
35.	*Common Indian crow*	Euploea core	Nymphalidae	LC
36.	*Common crow*	Euploea core	Nymphalidae	LC
37.	*White fourring*	Ypthima ceylonica	Nymphalidae	LC
38.	*Common fourring*	Ypthima huebneri	Nymphalidae	LC
39.	*Tawny coster*	Acraea violae	Nymphalidae	LC
40.	*Common fivering*	Ypthimia	Nymphalidae	LC
41.	*Chocolate pansy*	Junonia iphita	Nymphalidae	LC
42.	*Lemon pansy*	Junonia lemonias	Nymphalidae	LC
43.	*Danaid eggfly*	Hypolimnas misippus	Nymphalidae	LC
44.	*Angled castor*	Ariadne Ariadne	Nymphalidae	LC
45.	*Hermit*	Chazara briseis	Nymphalidae	LC
46.	*Nigger*	Orsotrioena medus	Nymphalidae	LC

LC – Least Concern; * - Yes

Table 3.1.3. IUCN Status of Bird Species in Karaivetti Bird Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Acridotheres tristis*	Common Myna	T	LC

2.	*Alcedo atthis*	Common Kingfisher	T	LC
3.	*Amaurornis phoenicurus*	White-breasted Waterhen	D	LC
4.	*Anthus rufulus*	Paddy-field Pipit	D	LC
5.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
6.	*Coracias benghalensis*	Indian Roller	T	LC
7.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC
8.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
9.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
10.	*Dicrurus adsimilis*	Black Drongo	T	LC
11.	*Dinopium benghalense*	Black-rumped Flameback	T	LC
12.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
13.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC
14.	*Eudynamys scolopacea*	Asian Koel	T	LC
15.	*Falco tinnunculus*	Common Kestrel	T	LC
16.	*Francolinus pondicerianus*	Grey Francolin	T	LC
17.	*Gallinula chloropus*	Common Moorhen	A	LC
18.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
19.	*Glareola maldivarum*	Oriental Pratincole	A	LC
20.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
21.	*Haliastur indus*	Brahminy Kite	T	LC
22.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
23.	*Hirundo rustica*	Barn Swallow	T	LC
24.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
25.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
26.	*Lonchura malacca*	Black-headed Munia	D	LC
27.	*Merops orientalis*	Green Bee-eater	T	LC
28.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
29.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
30.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC
31.	*Milvus migrans*	Black Kite	T	LC

32.	*Motacilla flava*	Yellow Wagtail	D	LC
33.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC
34.	*Nectarinia lotenia*	Loten's Sunbird	T	LC
35.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
36.	*Orthotomus sutorius*	Common Tailorbird	T	LC
37.	*Passer domesticus*	House Sparrow	T	LC
38.	*Phalacrocorax niger*	Little Cormorant	A	LC
39.	*Plegadis falcinellus*	Glossy Ibis	A	LC
40.	*Ploceus manyar*	Streaked Weaver	T	LC
41.	*Pluvialis squatarola*	Grey Plover	A	LC
42.	*Prinia inornate*	Plain Prinia	T	LC
43.	*Psittacula krameria*	Rose-ringed Parakeet	T	LC
44.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
45.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
46.	*Saxicola caprata*	Pied Bush Chat	T	LC
47.	*Streptopelia chinensis*	Spotted Dove	T	LC
48.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
49.	*Tringa glareola*	Wood Sandpiper	A	LC
50.	*Vanellus indicus*	Red-wattled Lapwing	D	LC
51.	*Acridotheres tristis*	Common Myna	T	LC
52.	*Alcedo atthis*	Common Kingfisher	T	LC
53.	*Amaurornis phoenicurus*	White-breasted Waterhen	D	LC
54.	*Anthus rufulus*	Paddy-field Pipit	D	LC
55.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
56.	*Coracias benghalensis*	Indian Roller	T	LC
57.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC
58.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
59.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
60.	*Dicrurus adsimilis*	Black Drongo	T	LC
61.	*Dinopium benghalense*	Black-rumped Flameback	T	LC
62.	*Elanus caeruleus*	Black-shouldered Kite	T	LC

63.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC
64.	*Eudynamys scolopacea*	Asian Koel	T	LC
65.	*Falco tinnunculus*	Common Kestrel	T	LC
66.	*Francolinus pondicerianus*	Grey Francolin	T	LC
67.	*Gallinula chloropus*	Common Moorhen	A	LC
68.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
69.	*Glareola maldivarum*	Oriental Pratincole	A	LC
70.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
71.	*Haliastur indus*	Brahminy Kite	T	LC
72.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
73.	*Hirundo rustica*	Barn Swallow	T	LC
74.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
75.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
76.	*Lonchura malacca*	Black-headed Munia	D	LC
77.	*Merops orientalis*	Green Bee-eater	T	LC
78.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
79.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
80.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC
81.	*Milvus migrans*	Black Kite	T	LC
82.	*Motacilla flava*	Yellow Wagtail	D	LC
83.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC
84.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC
85.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
86.	*Orthotomus sutorius*	Common Tailorbird	T	LC
87.	*Passer domesticus*	House Sparrow	T	LC
88.	*Phalacrocorax niger*	Little Cormorant	A	LC
89.	*Plegadis falcinellus*	Glossy Ibis	A	LC
90.	*Ploceus manyar*	Streaked Weaver	T	LC
91.	*Pluvialis squatarola*	Grey Plover	A	LC
92.	*Prinia inornate*	Plain Prinia	T	LC

93.	*Psittacula krameria*	Rose-ringed Parakeet	T	LC
94.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
95.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
96.	*Saxicola caprata*	Pied Bush Chat	T	LC
97.	*Streptopelia chinensis*	Spotted Dove	T	LC
98.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
99.	*Tringa glareola*	Wood Sandpiper	A	LC
100.	*Vanellus indicus*	Red-wattled Lapwing	D	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.1.4. IUCN Status of major plant invasive alien species in Karaivetti Bird Sanctuary

S. No.	Species	Family	Tamil Name
1.	*Agave americana*	Agavaceae	Kathazhai
2.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
3.	*Cassia siamea*	Caesalpiniaceae	Manjakondrai
4.	*Casuarina equisetifolia*	Casuarinaceae	Savukku
5.	*Hyptis suaveolens*	Labiatae	
6.	*Lantana camara*	Verbenaceae	Unnichedi
7.	*Leucaena leucocephala*	Fabaceae	
8.	*Nerium oleander*	Apocynaceae	Karaviram
9.	*Prosopis juliflora*	Fabaceae	Seemaikaruvai
10.	*Senna occidentalis*	Caesalpiniaceae	Thagarai

Table 3.1.5. IUCN Status of major medicinal plant species in Karaivetti Bird Sanctuary

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Acalypha ciliata*	Euphorbiaceae	Agal	Herb
3.	*Acalypha fruticosa*	Euphorbiaceae	Sinni	Herb
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
5.	*Acanthospermum hispidum*	Compositae		Herb
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb

7.	*Aegle marmelos*	Rutaceae	Vilvam	Tree
8.	*Azadirachta indica*	Meliaceae	Vaembu	Tree
9.	*Bacopa monnieri*	Scrophulariaceae	Neerbrahmi	Herb
10.	*Borassus flabellifer*	Arecaceae	Pania	Tree
11.	*Cissus quadrangularis*	Vitaceae	Pirandai	Climber
12.	*Citrullus colocynthis*	Cucurbitaceae	Aattrukumatti	Climber
13.	*Clitoria ternatea*	Fabaceae	Kaarkataan	Climber
14.	*Coccinia grandis*	Cucurbitaceae	Kovai	Climber
15.	*Cocculus hirsutus*	Menispermaceae	Kattukodi	Climber
16.	*Leucas aspera*	Labiatae	Thumbai	Herb
17.	*Ocimum basilicum*	Labiatae	Karpura thulasi	Herb
18.	*Ocimum sanctum*	Labiatae	Thulasi	Herb
19.	*Solanum americanum*	Solanaceae	Manatakkali	Herb
20.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
21.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
22.	*Tridax procumbens*	Compositae	Vettukkaayam	Herb
23.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.2. OTTERI LAKE

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Otteri Lake

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Vandalur, Tambaram Corporation

1.3 *Name of the District (s) in which Wetlands complex located:* Chengalpattu

1.4 *Geographical coordinates:*

► Latitude: 12˚53’5.1821” N

► Longitude: 80˚5’3.3864” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 6 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological systems

❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 32

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify:
- ❒ Name of River/ Canal System:

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ❒ Feeds groundwater river to sea
- ✓ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-20 g/l)
- ❒ Euhaline (20-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ✓ Eutrophic
- ❒ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 262.1

b) Temperature (°C): Minimum 24.55 ; Maximum 39.5

c) Humidity (%) Minimum 70 ; Maximum 75.5

2.7 *Area of zone of influence (in ha):* 3031 ha (with an irregular radius of 3.11 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	23%
Agriculture	:	0%
Settlements (Rural)	:	0%
Settlements (Urban)	:	54%
Industrial	:	0%
Waterbody	:	2%
Waste Land	:	19%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 2 (Fig. 3.2.1-3.2.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 59 species. (refer to Table 3.2.1 in Annexure 3.2).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 129 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 100 bird species, and 11 species of butterflies (refer to Table 3.2.2-3.2.3 in Annexure 3.2).

3.3 *Species of conservation significance:* Highlighted in Table 3.2.1-3.2.3

3.4 *Major plant invasive alien species:* The Wetland supports 10 plant invasive species (refer to Table 3.2.4 in Annexure 3.2).

3.5 *Major animal invasive alien species:* Not Available

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.2.5 in Annexure 3.2
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing activity is done by deer
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High	✓ Present	Listed in Table 3.2.4 in Annexure 3.2

	❒Medium ✓ Low	❒ Potential	
Any others	❒High ❒Medium ❒Low	❒Present ❒Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Tourism development		✓ Wetland/ Wetlands complex boundary ❒ Zone of influence	May be permitted

Section 9: Listing of Available Scientific Resources Used

1. Abhisheka, K., David, J. P., Prashanth, M. B., Seshadri, K. S., & Ganesh, T. (2013). First detailed survey of waterbirds in Tirunelveli and Tuticorin districts, Tamil Nadu, India. *Journal of Threatened Taxa*, *5*(12), 4641–4652. http://dx.doi.org/10.11609/JoTT.o3125.4641-52
2. Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). *A checklist of reptiles of India* (Version 3.0, 35 pp.). Zoological Survey of India. Available at www.zsi.gov.in (Last update: May 2018).
3. Ali, S. (2002). *The book of Indian birds* (13th revised ed.). Oxford University Press.
4. Bibby, C. J., Burgess, N. D., & Hill, D. A. (1993). *Bird census techniques*. Academic Press Limited.

5. Gamble, J. S., & Fischer, C. E. C. (1915–1935). *Flora of presidency of Madras* (Vols. 1–3). Adlard and Son.
6. Grimmett, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press.
7. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa*, *11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009
8. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
9. Mathew, K. M. (1981). *The material for the flora of the Tamil Nadu Carnatic*. Madras, India.
10. Ratnam, K. *Bird of Tamil Nadu*.
11. Sudhakaran, M. R., & Ramarajan, S. (2022). Status of aquatic birds and flora of Vagaikulam, Tenkasi, Tamil Nadu. *Indian Journal of Fundamental and Applied Life Sciences, 12*, 5–11.

ANNEXURE 3.2

Fig 3.2.1. Zone of Influence of Otteri Lake

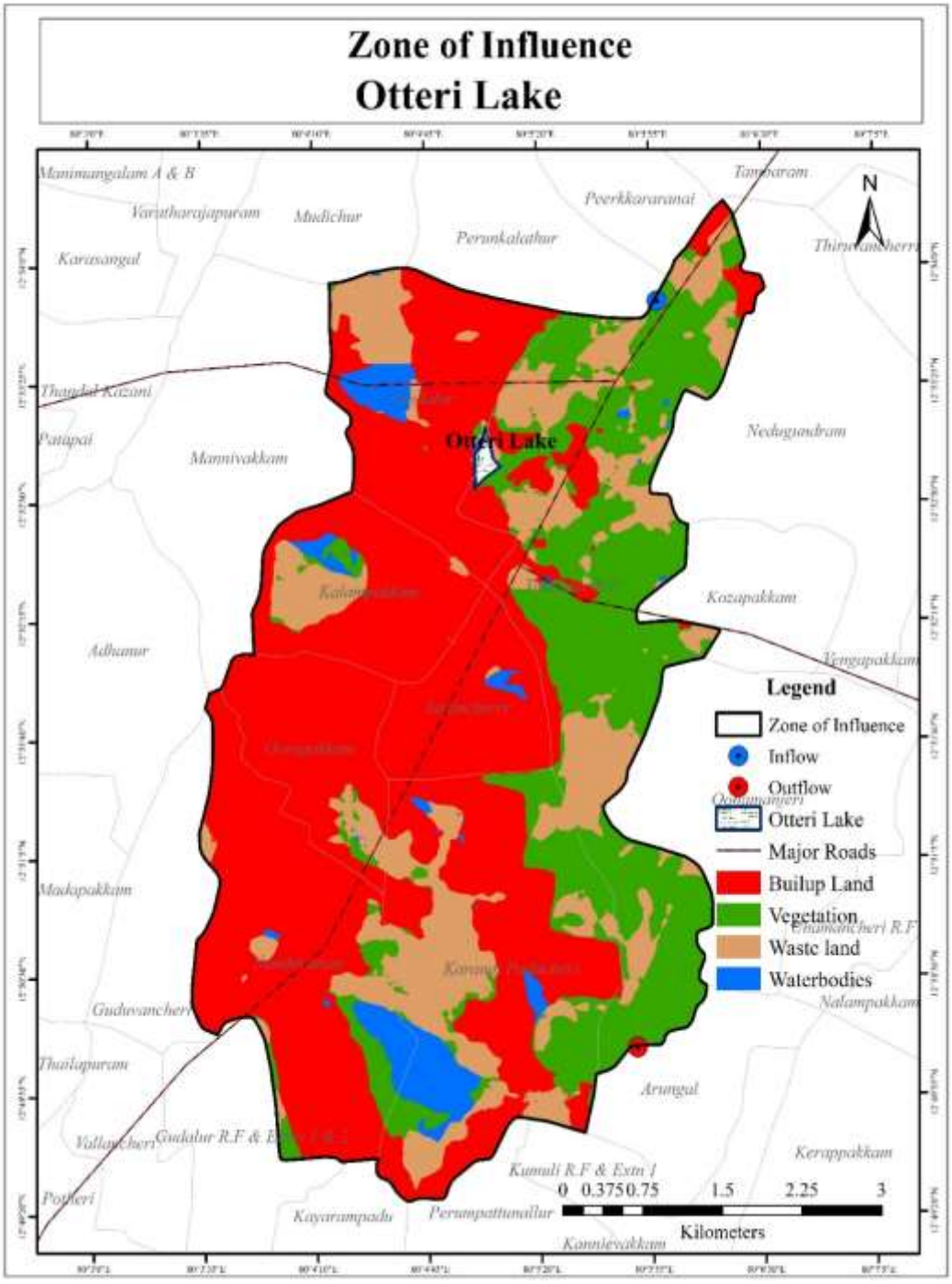


Fig 3.2.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Otteri Lake

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

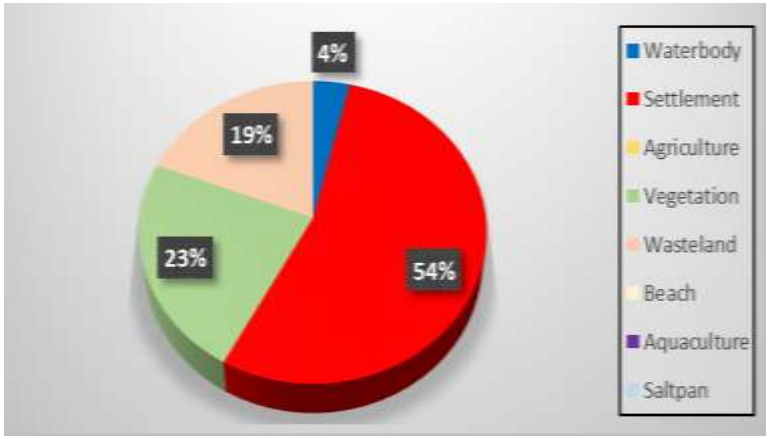


Table 3.2.1. IUCN Status of Floral Species in Otteri Lake

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
9.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
10.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
11.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Brachiaria ramosa*	Poaceae		Grass	NE
14.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
15.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
16.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
17.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
18.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
19.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
20.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
21.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
22.	*Cyperus iria*	Cyperaceae		Sedge	NE
23.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
24.	*Digitaria abludens*	Poaceae		Grass	NE

25.	*Digitaria ciliaris*	Poaceae		Grass	NE
26.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
27.	*Hyptis suaveolens*	Labiatae		Shrub	NE
28.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
29.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
30.	*Isachne miliacea*	Poaceae	-	Grass	LC
31.	*Ischaemum indicum*	Poaceae	-	Grass	LC
32.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
33.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
34.	*Justicia prostrata*	Acanthaceae		Herb	NE
35.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
36.	*Leptochloa fusca*	Poaceae	Mandaipul	Grass	LC
37.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
38.	*Ludwigia adscendens*	Onagraceae		Herb	NE
39.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
40.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
41.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
42.	*Nymphaea pubescens*	Nymphaeaceae		Herb	LC
43.	*Ottelia alismoides*	Hydrocharitaceae		Herb	LC
44.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
45.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
46.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
47.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
48.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
49.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
50.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
51.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE

52.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
53.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
54.	*Trachys muricata*	Poaceae	-	Grass	LC
55.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
56.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
57.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
58.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
59.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.2.2. IUCN Status of Selected Fauna Species in Otteri Lake

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
3.	*Rattus argentiventer*	Muridae	Field Rat	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC
5.	*Ophisops leschenaultia*	Lacertidae	Leschenault's snake-eye	LC
6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC

C. Amphibian				
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Papilionidae	LC
2.	*Catopsilia Pomona*	Pieridae	Papilionidae	NE
3.	*Melanitis leda*	Nymphalidae	Papilionidae	LC
4.	*Eurema hecabe*	Pieridae	Papilionidae	LC
5.	*Papilio demoleus*	Papilionidae	Papilionidae	NE
6.	*Papilio polytes*	Papilionidae	Peridae	NE
7.	*Junonia lemonias*	Nymphalidae	Peridae	NE
8.	*Catopsilia pyranthe*	Pieridae	Peridae	NE
9.	*Pseudozizeeria maha*	Lycaenidae	Peridae	NE
10.	*Junonia almanac*	Nymphalidae	Peridae	LC
11.	*Danaus chrysippus*	Nymphalidae	Peridae	LC

Table 3.2.3. IUCN Status of Bird Species in Otteri Lake

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	Status
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	D	LC	*
3.	*Alauda gulgula*	Oriental Skylark	T	LC	

4.	*Alcedo atthis*	Common Kingfisher	T	LC	*
5.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
6.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
7.	*Anastomus oscitans*	Asian Openbill	A	LC	
8.	*Anhinga melanogaster*	Darter	A	LC	
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Ardea cinerea*	Grey Heron	A	LC	*
11.	*Ardea purpurea*	Purple Heron	A	LC	
12.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
13.	*Bubulcus ibis*	Cattle Egret	D	LC	*
14.	*Casmerodius albus*	Great Egret	A	LC	
15.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
16.	*Charadrius dubius*	Little Ringed Plover	A	LC	
17.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
18.	*Circus macrourus*	Pallid Harrier	T	LC	
19.	*Circus melanoleucos*	Pied Harrier	T	LC	
20.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
21.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
22.	*Columba livia*	Rock Pigeon	T	LC	
23.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
24.	*Coracias benghalensis*	Indian Roller	T	LC	*
25.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
26.	*Corvus splendens*	House Crow	T	LC	*
27.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
28.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
29.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
30.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
31.	*Dupetor flavicollis*	Black Bittern	A	LC	
32.	*Egretta garzetta*	Little Egret	A	LC	*
33.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
34.	*Eremopterix grisea*	Ashy-crowned Sparrow	T	LC	

		Lark			
35.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
36.	*Falco tinnunculus*	Common Kestrel	T	LC	
37.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
38.	*Fulica atra*	Coot	A	LC	
39.	*Gallicrex cinerea*	Watercock	A	LC	
40.	*Gallinula chloropus*	Common Moorhen	A	LC	*
41.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
42.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
43.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
44.	*Haliastur indus*	Brahminy Kite	T	LC	*
45.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
46.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
47.	*Hirundo rustica*	Barn Swallow	T	LC	
48.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
49.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
50.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
51.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
52.	*Limosa limosa*	Black-tailed Godwit	A	LC	
53.	*Lonchura Malacca*	Black-headed Munia	D	LC	
54.	*Merops orientalis*	Green Bee-eater	T	LC	*
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
57.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Motacilla flava*	Yellow Wagtail	D	LC	
60.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
61.	*Mycteria leucocophala*	Painted stork	A	NT	
62.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
63.	*Nettapus coromandelianus*	Cotton Pygmy Goose	A	LC	
64.	*Nycticorax nycticorax*	Black-crowned Night	A	LC	

		Heron			
65.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
66.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
67.	*Passer domesticus*	House Sparrow	T	LC	*
68.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
69.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
70.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
71.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
72.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
73.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
74.	*Ploceus manyar*	Streaked Weaver	T	LC	
75.	*Pluvialis squatarola*	Grey Plover	A	LC	
76.	*Porphyrio porphyria*	Purple Swamphen	A	LC	*
77.	*Prinia inornata*	Plain Prinia	T	LC	
78.	*Prinia socialis*	Ashy Prinia	T	LC	*
79.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
80.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
81.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
82.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
83.	*Sarkidiornis melanotos*	Comb Duck			
84.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
85.	*Sterna aurantia*	River Tern	A	LC	
86.	*Sternula albifrons*	Little Tern	A	LC	*
87.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
88.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
89.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
90.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
91.	*Tringa glareola*	Wood Sandpiper	A	LC	*
92.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
93.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
94.	*Zoothera citrine*	Orange-headed Thrush	T	LC	

95.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
96.	*Saxicola caprata*	Pied Bush Chat	T	LC	
97.	*Streptopelia chinensis*	Spotted Dove	T	LC	
98.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	
99.	*Tringa glareola*	Wood Sandpiper	A	LC	
100.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.2.4. IUCN Status of major plant invasive alien species in Otteri Lake

S. No.	Species	Family	Tamil Name
1.	*Albizia lebbeck*	Mimosaceae	Vaagai
2.	*Albizia saman*	Fabaceae	Rain tree
3.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
4.	*Hyptis suaveolens*	Labiatae	
5.	*Ipomoea carnea*	Convolvulaceae	
6.	*Lantana camara*	Verbenaceae	Unnichedi
7.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
8.	*Thevetia peruviana*	Apocynaceae	Ponnarali
9.	*Typha angustifolia*	Typhaceae	Sambu
10.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.2.5. IUCN Status of major medicinal plant species in Otteri Lake

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb

6.	*Aerva lanata*	Amaranthaceae	Peelai	Herb
7.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Leucas aspera*	Labiatae	Thumbai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Nymphaea pubescens*	Nymphaeaceae		Herb
13.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
14.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
15.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
16.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
17.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.3. MAHABALIPURAM BACKWATER

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Mahabalipuram Backwater or Buckingham Backwaters

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Edaiyur, Kokilamedu, Manamai, Kadambadi, Paiyanur, Poonjeri, Thirukalikundram

1.3 *Name of the District (s) in which Wetlands complex located:* Chengalpattu

1.4 *Geographical coordinates:*

► Latitude: 12˚53'5.1821" N

► Longitude: 80˚5'3.3864" E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 97 ha

2.2 *Wetland type*:

Category	**Subcategory**
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒Permanent freshwater marshes ❒Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 3.5; Maximum - 5

2.4 *Elevation (m above mean sea level):* 0

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify: Backwaters from Bay of Bengal
- ✓ Name of River/ Canal System: Buckingham Canal

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 262.1

b) Temperature (°C) Minimum 24.6 ; Maximum 39.25

c) Humidity (%) Minimum 64.7 ; Maximum 70.9

2.7 *Area of zone of influence (in ha):* 9978 ha (with an irregular radius of 5.67 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	2%
Agriculture	:	32%
Settlements (Rural)	:	0%
Settlements (Urban)	:	21%
Industrial	:	0%
Waterbody	:	38%
Waste Land	:	7%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3 (Fig. 3.3.1-3.3.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 70 species (refer to Table 3.3.1 in Annexure 3.3).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 182 recorded species. This includes 7 mammal species, 21 reptile species, 9 amphibian species, 132 bird species, and 13 species of butterflies (refer to Table 3.3.2-3.3.3 in Annexure 3.3).

3.3 *Species of conservation significance:* Highlighted in Table 3.3.1-3.3.3.

3.4 *Major plant invasive alien species:* The Wetland supports 8 plant invasive species (refer to Table 3.3.4 in Annexure 3.3).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.3.5 in Annexure 3.3).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.3.6 in Annexure 3.3
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is few temples around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving

Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for the site	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a temple around the embankment of the Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium ❒Low	❒Present ❒Potential	
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High	✓ Present	Listed in Table 3.3.4 in Annexure 3.3

	❒Medium ✓ Low	❒ Potential	
Any others	❒High ❒Medium ❒Low	❒Present ❒Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th revised ed.). Oxford University Press.
2. Gamble, J. S., & Fischer, C. E. C. (1915–1935). *Flora of presidency of Madras* (pp. 1–3). Adlard and Son.
3. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India. Series 1: Analysis* (Vol. III). Botanical Survey of India.
4. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009
5. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.

6. Mathew, K. M. (1981). *The material for the flora of the Tamil Nadu Carnatic*. Madras, India.
7. Mathew, K. M. (1982). *Illustrations on the flora of the Tamil Nadu Carnatic* (Vol. II). The Diocesan Press.
8. Mathew, K. M. (1983). *The flora of Tamil Nadu Carnatic* (Vol. III). The Diocesan Press.

ANNEXURE 3.3

Fig 3.3.1. Zone of Influence of Mahabalipuram Backwater

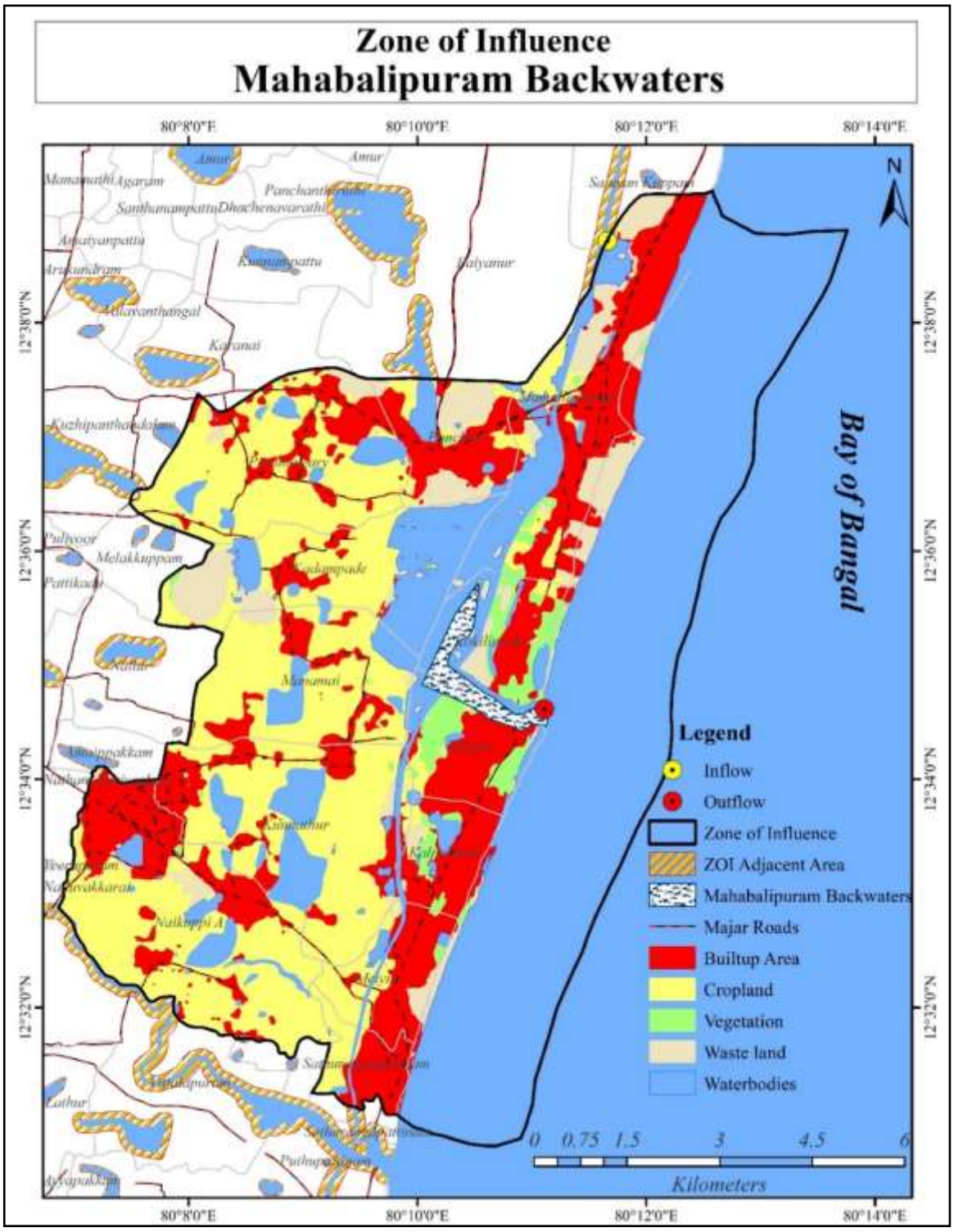


Fig 3.3.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Mahabalipuram Backwater

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

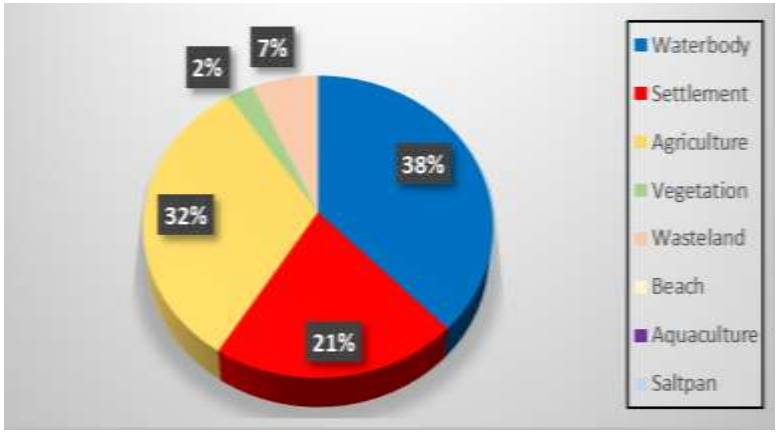


Table 3.3.1 IUCN Status of Floral Species in Mahabalipuram Backwater

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha ciliate*	Euphorbiaceae	Agal	Herb	LC
4.	*Acalypha fruticosa*	Euphorbiaceae	Sinni	Herb	LC
5.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
6.	*Acanthospermum hispidum*	Compositae		Herb	NE
7.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
8.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
9.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
10.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
11.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
12.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
13.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
14.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
15.	*Blumea mollis*	Compositae	-	Herb	LC
16.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
17.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
18.	*Brachiaria mutica*	Poaceae		Grass	NE
19.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
20.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
21.	*Cassia fistula*	Caesalpiniaceae	Kondrai	Tree	LC
22.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
23.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
24.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
25.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
26.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE

27.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
28.	*Cyperus iria*	Cyperaceae		Sedge	NE
29.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
30.	*Digitaria ciliaris*	Poaceae		Grass	NE
31.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
32.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
33.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
34.	*Ischaemum indicum*	Poaceae	-	Grass	LC
35.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
36.	*Justicia prostrata*	Acanthaceae		Herb	NE
37.	*Lannea coromandelica*	Anacardiaceae	Odhiya maram	Tree	LC
38.	*Launaea bellidifolia*	Asteraceae		Herb	LC
39.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
40.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
41.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
42.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
43.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
44.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
45.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
46.	*Pedalium murex*	Pedaliaceae		Herb	NE
47.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
48.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
49.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
50.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
51.	*Senna siamea*	Fabaceae		Tree	LC
52.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
53.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE

54.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
55.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
56.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
57.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
58.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
59.	*Trachys muricata*	Poaceae	-	Grass	LC
60.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
61.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
62.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
63.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
64.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC
65.	*Terminalia chebula*	Combretaceae		Tree	LC
66.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
67.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
68.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
69.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
70.	*Brachiaria ramosa*	Poaceae		Grass	NE

Table 3.3.2. IUCN Status of Selected Fauna Species in Mahabalipuram Backwater

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. *Mammal*				
1.	*Macaca radiata*	Cercopithecidae	Bonnet macaque	
2.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
3.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC
4.	*Bandicota bengalensis*	Muridae	Bandicoot	LC

5.	Rattus rattus	Muridae	House rat	LC
6.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
7.	*Canis aureus*	Canidae	Jackal	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
17.	*Naja naja*	Elapidae	Cobra	LC
18.	*Bungarus caeruleus*	Elapidae	Krait	LC
19.	*Vipera russelli*	Viperidae	Russell's viper	LC
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU
C. Amphibian				
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC

2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Common crow	LC
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
5.	*Papilio demoleus*	Papilionidae	Common lime	NE
6.	*Papilio polytes*	Papilionidae	Common mormon	NE
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC
13.	*Pachliopta aristolochiae*	Papilionidae	Common Rose	NE

LC – Least Concern; * - Yes

Table 3.3.3. IUCN Status of Bird Species in Mahabalipuram Backwater

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	Status
1.	*Accipiter badius*	Shikra	T	LC	*

2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Aegithina tiphia*	Common Iora	T	LC	*
6.	*Alauda gulgula*	Oriental Skylark	T	LC	
7.	*Alcedo atthis*	Common Kingfisher	T	LC	*
8.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
9.	*Anas acuta*	Northern Pintail	A	LC	
10.	*Anas clypeata*	Northern Shoveller	A	LC	
11.	*Anas crecca*	CommonTeal	A	LC	*
12.	*Anas Penelope*	EurasianWigeon	A	LC	
13.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
14.	*Anas querquedula*	Garganey	A	LC	
15.	*Anastomus oscitans*	Asian Openbill	A	LC	*
16.	*Anhinga melanogaster*	Darter	A	LC	
17.	*Anthus richardi*	Richard's Pipit	D	LC	
18.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
19.	*Apus affinis*	House Swift	T	LC	
20.	*Ardea cinerea*	Grey Heron	A	LC	*
21.	*Ardea purpurea*	Purple Heron	A	LC	
22.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
23.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
24.	*Athene brama*	Spotted Owlet	T	LC	
25.	*Bubulcus ibis*	Cattle Egret	D	LC	*
26.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
27.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
28.	*Burhinus oedicnemus*	Stone Curlew	A	LC	
29.	*Butas turteesa*	White-eyed Buzzard	T	LC	
30.	*Buteo buteo*	Common Buzzard	T	LC	
31.	*Butorides striatus*	Little Green Heron	A	LC	

32.	*Cacomantis passerines*	Indian Plaintive Cuckoo	T	LC	
33.	*Calidris minuta*	Little Stint	A	LC	
34.	*Caprimulgus indicus*	Indian Jungle Nightjar	T	LC	
35.	*Casmerodius albus*	Great Egret	A	LC	
36.	*Centropus sinensis*	Greater Coucal	T	LC	
37.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC	*
38.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
39.	*Charadrius alexandrinus*	Kentish Plover	A	LC	
40.	*Charadrius dubius*	Little Ringed Plover	A	LC	
41.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
42.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
43.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
44.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
45.	*Circus macrourus*	Pallid Harrier	T	LC	
46.	*Circus melanoleucos*	Pied Harrier	T	LC	
47.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
48.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
49.	*Columba livia*	Rock Pigeon	T	LC	
50.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
51.	*Coracias benghalensis*	Indian Roller	T	LC	*
52.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
53.	*Corvus splendens*	House Crow	T	LC	*
54.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
55.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
56.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
57.	*Dupetor flavicollis*	Black Bittern	A	LC	
58.	*Egretta garzetta*	Little Egret	A	LC	*
59.	*Elanus caeruleus*	Black-shouldered	T	LC	*

		Kite			
60.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
61.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
62.	*Falco tinnunculus*	Common Kestrel	T	LC	
63.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
64.	*Fulica atra*	Coot	A	LC	
65.	*Gallicrex cinerea*	Watercock	A	LC	
66.	*Gallinula chloropus*	Common Moorhen	A	LC	*
67.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
68.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
69.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
70.	*Haliastur indus*	Brahminy Kite	T	LC	*
71.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
72.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
73.	*Hirundo rustica*	Barn Swallow	T	LC	
74.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
75.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
76.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
77.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
78.	*Limosa limosa*	Black-tailed Godwit	A	LC	
79.	*Lonchura malacca*	Black-headed Munia	D	LC	
80.	*Merops orientalis*	Green Bee-eater	T	LC	*
81.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
82.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
83.	*Milvus migrans*	Black Kite	T	LC	*
84.	*Motacilla flava*	Yellow Wagtail	D	LC	
85.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
86.	*Mycteria leucocephala*	Painted Stork	A	NT	*

87.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
88.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
89.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
90.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
91.	*Passer domesticus*	House Sparrow	T	LC	*
92.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	*
93.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
94.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
95.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
96.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
97.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
98.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
99.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
100.	*Ploceus manyar*	Streaked Weaver	T	LC	
101.	*Pluvialis squatarola*	Grey Plover	A	LC	
102.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
103.	*Prinia inornata*	Plain Prinia	T	LC	*
104.	*Prinia socialis*	Ashy Prinia	T	LC	*
105.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	*
106.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
107.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
108.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
109.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
110.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
111.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC	
112.	*Sterna albifrons*	Little Tern	A	LC	*
113.	*Sterna anaethetus*	Bridled Tern	A	LC	
114.	*Sterna aurantia*	River Tern	A	LC	*

115.	*Sterna caspia*	CaspianTern	A	LC	
116.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
117.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
118.	*Tachybaptus ruficollis*	Little Grebe	A	LC	*
119.	*Tachymarptis melba*	Alpine Swift	T	LC	
120.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC	
121.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
122.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC	
123.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
124.	*Tringa ochropus*	Green Sandpiper	A	LC	*
125.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
126.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
127.	*Turnix suscitator*	Common Buttonquail	T	LC	
128.	*Tyto alba*	Barn Owl	T	LC	*
129.	*Upupa epops*	Hoopoe	T	LC	
130.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
131.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
132.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.3.4. IUCN Status of major plant invasive alien species in Mahabalipuram Backwater

S. No.	Species	Family	Tamil Name
1.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Prosopis julifera*	Fabaceae	Semai karuvel
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Senna siamea*	Fabaceae	

7.	*Typha angustifolia*	Typhaceae	Sambu
8.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.3.5. IUCN Status of major animal invasive alien species in Mahabalipuram Backwater

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.3.6. IUCN Status of major medicinal plant species in Mahabalipuram Backwater

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha ciliata*	Euphorbiaceae	Agal	Herb
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb
8.	*Alternanthera pungens*	Amaranthaceae		Herb
9.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
11.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
12.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
13.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
14.	*Mukia leiosperma*	Cucurbitaceae		Climber
15.	*Pedalium murex*	Pedaliaceae		Herb
16.	*Physalis minima*	Malvaceae	Tholtakkali	Herb
17.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
18.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
19.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber

20.	*Trianthema portulacastrum*	Aizoaceae		Herb
21.	*Tridax procumbens*	Compositae	Vettukkaaya chedi	Herb
22.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.4. VEDANTHANGAL BIRDS SANCTUARY WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Vedanthangal Birds Sanctuary

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Vedanthangal, Valayaputhur, Kunnavakkam, Vedavakkam, Vinayaganallur, Maduranthagam

1.3 *Name of the District (s) in which Wetlands complex located:* Chengalpattu

1.4 *Geographical coordinates:*

► Latitude: 12˚32'47" N

► Longitude: 79˚51'21" E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 40.34 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 122

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify: Valayapudhur lake is one of the sources of water
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ✓ Eutrophic
- ❒ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 262.1

b) Temperature (°C) Minimum 24.55 ; Maximum 39.5

c) Humidity (%) Minimum 70 ; Maximum 75.5

2.7 *Area of zone of influence (in ha):* 356.16 ha (with an irregular radius of 1.12 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	6%
Agriculture	:	91%
Settlements (Rural)	:	3%
Settlements (Urban)	:	0%
Industrial	:	0%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.4 (Fig. 3.4.1-3.4.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 63 species (refer to Table 3.4.1 in Annexure 3.4).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 183 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 144 bird species, and 21 species of butterflies (refer to Table 3.4.2-3.4.3 in Annexure 3.4).

3.3 *Species of conservation significance:* Highlighted in Table 3.4.1-3.4.3

3.4 *Major plant invasive alien species:* The Wetland supports 8 plant invasive species (refer to Table 3.4.4 in Annexure 3.4).

3.5 *Major animal invasive alien species:* Not available.

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Surplused from the Wetland and then supplied to the fields, only when it reaches full supply level (FSL)
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.4.5 in Annexure 3.4
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	significant runoff from the surrounding catchment area
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple on the bund of Wetland.
Is a site for recreation and tourism	✓ Yes ❒ No	Receives a good population of nature enthusiasts as tourists
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for thesite	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a small Temple on the bund
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	✓Yes ❒ No	❒Yes ❒No ❒Not assessed	When it reaches the FSL
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒ Medium ✓Low	✓Present ❒Potential	
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High	❒Present	Listed in Table 3.4.4 in Annexure

	❒ Medium ✓ Low	✓ Potential	3.4
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundar ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Ahmad, N. (1980). Some aspects of economic resources of Sunderbans mangrove forests of Bangladesh. In P. Soepadmo (Ed.), *Mangrove environment: Research and management* (pp. 50–51). Report on UNESCO Asian Symposium, held at University of Malaya, Kuala Lumpur, Malaysia, 25–29 August 1980.
2. Anonymous. (1991). *India 1990: A reference annual*. Research and Reference Division, Ministry of Information and Broadcasting, Govt. of India.
3. Anonymous. (1993). *Directory of Indian Wetlands*. World Wildlife Federation, New Delhi.
4. Anonymous. (1994). *World development report*. World Bank Development Report.
5. Chopra, R. (1985). *The state of India's environment*. Ambassador Press.
6. Choudhury, B. C. (2000). Conserving Wetlands: Emerging scenario. In R. Badola & B. M. Rathore (Eds.), *Proceedings of the workshop on conserving biodiversity in the 21st century,*

through integrated conservation and development planning on a regional scale (pp. 131–138). LBSNA Mussorie and WII Dehradun.

7. Das, S., Behera, S. C., Kar, A., Narendra, P., & Guha, S. (1997). Hydrogeomorphological mapping in groundwater exploration using remotely sensed data: A case study in Keonjhar District, Orissa. *Journal of the Indian Society of Remote Sensing, 25*, 247–250.
8. Das, K. K., Prasad, S. N., Roy, P. S., & Bhan, S. K. (1994). Mapping of potential crane habitat in Etawah and Mainpuri districts (U.P.) using satellite remote sensing techniques. *A project report: Indian Institute of Remote Sensing, Dehradun and Salim Ali Centre for Ornithology and Natural History, Kalampalayam, Coimbatore*.

ANNEXURE 3.4

Fig. 3.4.1. Zone of Influence of Vedanthangal Wetland

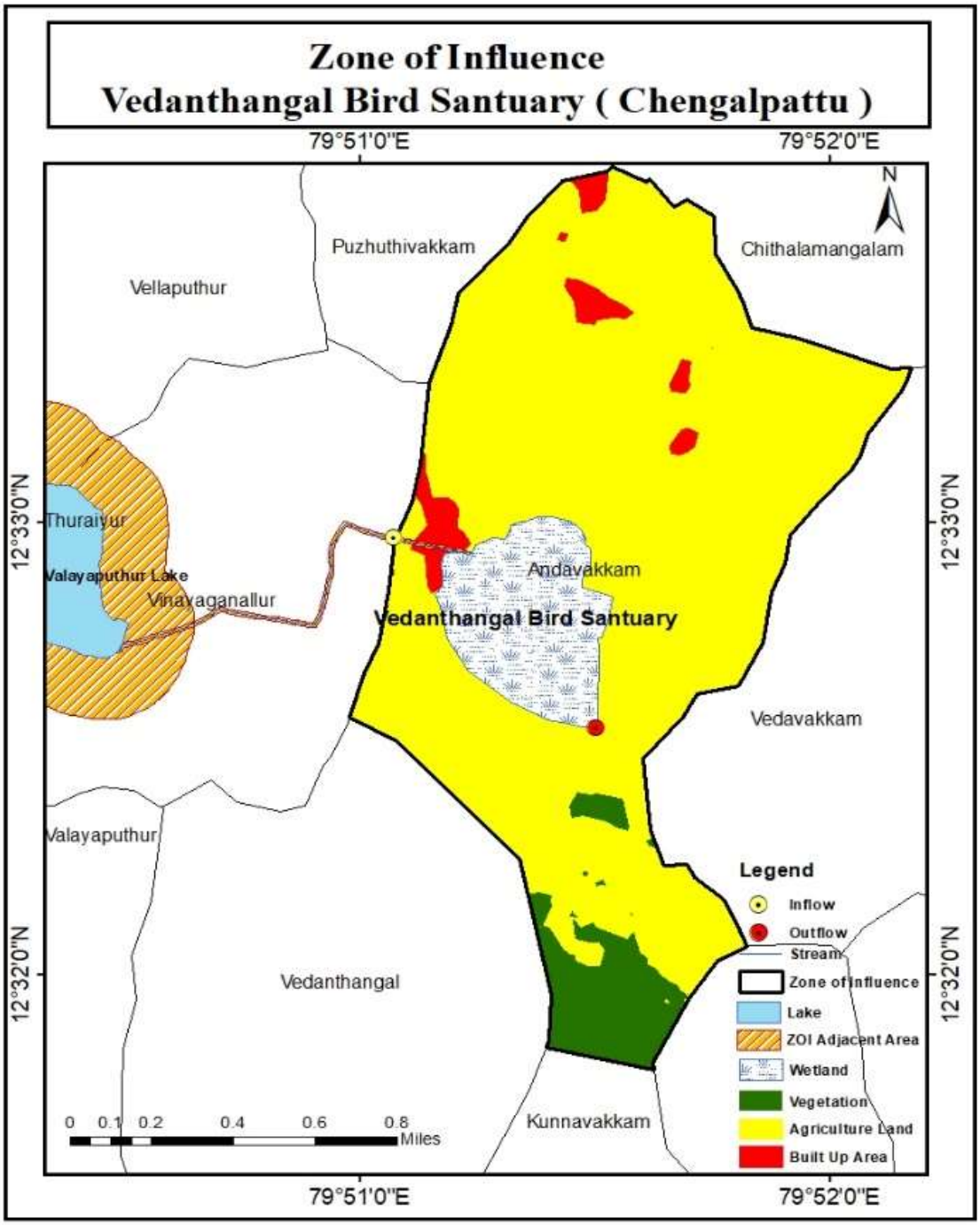


Fig. 3.4.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Vedanthangal Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

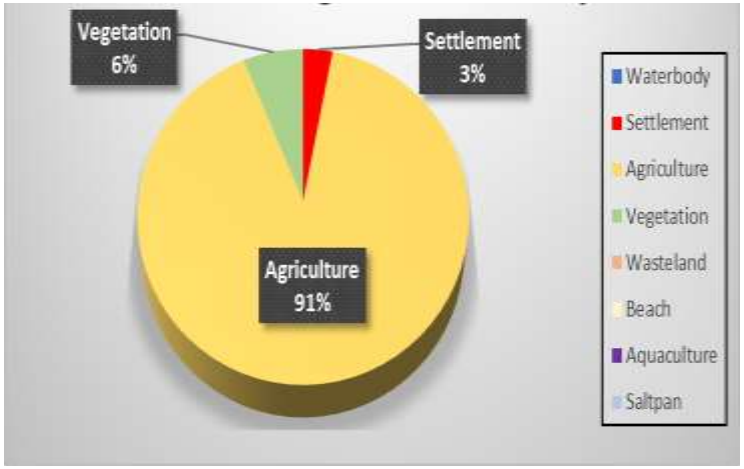


Table 3.4.1 IUCN Status of Floral Species in Vedanthagal Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Alangium salvifolium*	Alangiaceae	Azhinjil	Tree	LC
9.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
10.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
11.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
12.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
13.	*Barringtonia acutangula*	Lecythidaceae	Neerkadambu	Tree	LC
14.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
15.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
16.	*Brachiaria ramosa*	Poaceae		Grass	NE
17.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
18.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
19.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
20.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
21.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
22.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
23.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
24.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE

25.	*Digitaria abludens*	Poaceae		Grass	NE
26.	*Digitaria ciliaris*	Poaceae		Grass	NE
27.	*Eragrostis viscosa*	Poaceae		Grass	LC
28.	*Ficus benghalensis*	Moraceae	Aal	Tree	LC
29.	*Ficus hispida*	Moraceae	Peyatthi	Tree	LC
30.	*Ficus racemosa*	Moraceae	Atthi	Tree	LC
31.	*Ficus religiosa*	Moraceae	Arasu	Tree	LC
32.	*Hyptis suaveolens*	Labiatae		Shrub	NE
33.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
34.	*Ischaemum indicum*	Poaceae		Grass	LC
35.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
36.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
37.	*Justicia prostrata*	Acanthaceae		Herb	NE
38.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
39.	*Lansium parasiticum*	Meliaceae	Ootuuni maram	Tree	LC
40.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
41.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
42.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
43.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
44.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
45.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
46.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
47.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
48.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
49.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
50.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
51.	*Streblus asper*	Moraceae	Kuruvipala	Tree	LC

52.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC
53.	*Terminalia arujuna*	Combretaceae		Tree	LC
54.	*Terminalia catappa*	Combretaceae	Naattu Badaam	Tree	NE
55.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
56.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
57.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
58.	*Trachys muricata*	Poaceae		Grass	LC
59.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
60.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
61.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
62.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
63.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.4.2 IUCN Status of Selected Fauna Species in Vedanthagal Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	*
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	*
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's	LC	

			snake-eye		
6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC	
C. Amphibian					
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
1.	*Euthalia nais*	Nymphalidae	Baronet	LC	*
2.	*Tirumala limniace*	Nymphalidae	Blue Tiger	LC	*
3.	*Euploea core*	Nymphalidae	Common crow	LC	*
4.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE	*
5.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
6.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
7.	*Delias eucharis*	Pieridae	Common jezebel	LC	*
8.	*Phalanta phalantha*	Nymphalidae	Common leopard	LC	*
9.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
10.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
11.	*Atrophaneura hector*	Papilionidae	Crimson rose	LC	*
12.	*Hypolimnas misippus*	Nymphalidae	Danaid eggfly	LC	*
13.	*Euchrysops cnejus*	Lycaenidae	Gram Blue	LC	*
14.	*Hypolimnas bolina*	Nymphalidae	Great eggfly	LC	*
15.	*Junonia atlites*	Nymphalidae	Grey pansy	LC	*

16.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
17.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
18.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
19.	*Junonia almanac*	Nymphalidae	Peacock pansy	LC	*
20.	*Belenoisaurota*	Pieridae	Pioneer	LC	*
21.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*

LC – Least Concern; * - Yes

Table 3.4.3 IUCN Status of Bird Species in Vedanthagal Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Aegithina tiphia*	Common Iora	T	LC	*
6.	*Alauda gulgula*	Oriental Skylark	T	LC	
7.	*Alcedo atthis*	Common Kingfisher	T	LC	*
8.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
9.	*Anas acuta*	Northern Pintail	A	LC	
10.	*Anas clypeata*	Northern Shoveller	A	LC	
11.	*Anas crecca*	CommonTeal	A	LC	*
12.	*Anas indicus*	Bar-headed Goose	A	LC	
13.	*Anas Penelope*	EurasianWigeon	A	LC	
14.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
15.	*Anas querquedula*	Garganey	A	LC	
16.	*Anastomus oscitans*	Asian Openbill	A	LC	*
17.	*Anhinga melanogaster*	Darter	A	LC	
18.	*Anthus richardi*	Richard's Pipit	D	LC	
19.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
20.	*Apus affinis*	House Swift	T	LC	
21.	*Ardea cinerea*	Grey Heron	A	LC	*

22.	*Ardea purpurea*	Purple Heron	A	LC	
23.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
24.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
25.	*Athene brama*	Spotted Owlet	T	LC	
26.	*Bubulcus ibis*	Cattle Egret	D	LC	*
27.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
28.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
29.	*Burhinus oedicnemus*	Stone Curlew	A	LC	
30.	*Butas turteesa*	White-eyed Buzzard	T	LC	
31.	*Buteo buteo*	Common Buzzard	T	LC	
32.	*Butorides striatus*	Little Green Heron	A	LC	
33.	*Cacomantis passerinus*	Indian Plaintive Cuckoo	T	LC	
34.	*Calidris ferruginea*	Curlew sandpiper	A	LC	
35.	*Calidris pugnax*	Ruf	A	LC	
36.	*Calidris minuta*	Little Stint	A	LC	*
37.	*Calidris temminckii*	Temminck's stint	A	LC	
38.	*Caprimulgus indicus*	Indian Jungle Nightjar	T	LC	
39.	*Casmerodius albus*	Great Egret	A	LC	
40.	*Centropus sinensis*	Greater Coucal	T	LC	
41.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
42.	*Charadrius alexandrinus*	Kentish Plover	A	LC	
43.	*Charadrius dubius*	Little Ringed Plover	A	LC	
44.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
45.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
46.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
47.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
48.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
49.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
50.	*Circus macrourus*	Pallid Harrier	T	LC	
51.	*Circus melanoleucos*	Pied Harrier	T	LC	
52.	*Cisticola juncidis*	Zitting Cisticola	T	LC	

53.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
54.	*Columba livia*	Rock Pigeon	T	LC	
55.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
56.	*Coracias benghalensis*	Indian Roller	T	LC	*
57.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
58.	*Corvus splendens*	House Crow	T	LC	*
59.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
60.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
61.	*Dicaeum erythrorhynchos*	Pale-billed Flowerpecker	T	LC	*
62.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
63.	*Dupetor flavicollis*	Black Bittern	A	LC	
64.	*Egretta garzetta*	Little Egret	A	LC	*
65.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
66.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
67.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
68.	*Falco tinnunculus*	Common Kestrel	T	LC	
69.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
70.	*Fulica atra*	Coot	A	LC	
71.	*Gallinago stenura*	Pintail Snipe	A	LC	
72.	*Gallicrex cinerea*	Watercock	A	LC	
73.	*Gallinula chloropus*	Common Moorhen	A	LC	*
74.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
75.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
76.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
77.	*Haliastur indus*	Brahminy Kite	T	LC	*
78.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
79.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
80.	*Hirundo rustica*	Barn Swallow	T	LC	
81.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
82.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
83.	*Icthyophaga leucogaster*	White-bellied sea eagle	T	LC	

84.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
85.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
86.	*Limosa limosa*	Black-tailed Godwit	A	LC	
87.	*Lonchura malacca*	Black-headed Munia	D	LC	
88.	*Merops orientalis*	Green Bee-eater	T	LC	*
89.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
90.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
91.	*Milvus migrans*	Black Kite	T	LC	*
92.	*Mirafra affinis*	Jerdon's Bushlark	T	LC	*
93.	*Motacilla flava*	Yellow Wagtail	D	LC	
94.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
95.	*Mycteria leucocephala*	Painted Stork	A	NT	*
96.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
97.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
98.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
99.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
100.	*Pavo cristatus*	Indian Peafowl	T	LC	*
101.	*Passer domesticus*	House Sparrow	T	LC	*
102.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	*
103.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
104.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
105.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
106.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
107.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
108.	*Phaenicophaeus tristis*	Green-billed Malkoha	T	LC	
109.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
110.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
111.	*Ploceus manyar*	Streaked Weaver	T	LC	
112.	*Pluvialis squatarola*	Grey Plover	A	LC	
113.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
114.	*Prinia inornata*	Plain Prinia	T	LC	*

115.	*Prinia socialis*	Ashy Prinia	T	LC	*
116.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	*
117.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
118.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
119.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
120.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
121.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
122.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
123.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC	
124.	*Sterna albifrons*	Little Tern	A	LC	*
125.	*Sterna anaethetus*	Bridled Tern	A	LC	
126.	*Sterna aurantia*	River Tern	A	LC	*
127.	*Sterna caspia*	CaspianTern	A	LC	
128.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
129.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
130.	*Tachybaptus ruficollis*	Little Grebe	A	LC	*
131.	*Tachymarptis melba*	Alpine Swift	T	LC	
132.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC	
133.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
134.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC	
135.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
136.	*Tringa ochropus*	Green Sandpiper	A	LC	*
137.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
138.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
139.	*Turnix suscitator*	Common Buttonquail	T	LC	
140.	*Tyto alba*	Barn Owl	T	LC	*
141.	*Upupa epops*	Hoopoe	T	LC	
142.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
143.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
144.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.4.4 IUCN Status of major plant invasive alien species in Vedanthagal Wetland

S. No.	Species	Family	Tamil Name
1.	*Albizia saman*	Fabaceae	Rain tree
2.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
3.	*Ipomoea carnea*	Convolvulaceae	
4.	*Lantana camara*	Verbenaceae	Unnichedi
5.	*Leucas aspera*	Labiatae	Thumbai
6.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
7.	*Typha angustifolia*	Typhaceae	Sambu
8.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.4.5 IUCN Status of major medicinal plant species in Vedanthangal Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Aerva lanata*	Amaranthaceae	Peelai	Herb
7.	*Borassus flabellifer*	Arecaceae	Panai	Tree
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
13.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
14.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
15.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.5. KARIKILI BIRD SANCTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Karikili Bird Sanctuary

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Karikili, Mangalam, Maduranthagam

1.3 *Name of the District (s) in which Wetlands complex located:* Chengalpattu

1.4 *Geographical coordinates:*

- Latitude: 12˚35'56" N
- Longitude: 79˚50'32" E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 58.43 ha

2.2 *Wetland type*:

Category	**Subcategory**
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒Permanent freshwater marshes ❒Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 3

2.4 *Elevation (m above mean sea level):* 50

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify:
- ❒ Name of River/ Canal System:

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ❒ Feeds groundwater river to sea
- ✓ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.5)
- ❒ Alkaline (> 7.5)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-50 g/l)
- ❒ Euhaline (50-50 g/l)
- ❒ Hypersaline (> 50 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ❒ Mesotrophic
- ✓ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 262.1

b) Temperature (°C) Minimum 24.55 ; Maximum 39.5

c) Humidity (%) Minimum 70 ; Maximum 75.5

2.7 *Area of zone of influence (in ha):* 618.68 ha (with an irregular radius of 146 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	15%
Agriculture	:	79%
Settlements (Rural)	:	5%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.5 (Fig. 3.5.1-3.5.2)

Section 5: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 63 species (refer to Table 3.5.1 in Annexure 3.5).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 184 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 144 bird species, and 22 species of butterflies (refer to Table 3.5.2-3.5.3 in Annexure 3.5).

3.3 *Species of conservation significance:* Highlighted in Table 3.5.1-3.5.3.

3.4 *Major plant invasive alien species:* The Wetland supports 7 plant invasive species (refer to Table 3.5.4 in Annexure 3.5).

3.5 *Major animal invasive alien species:* Not available.

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Surplused from the Wetland and then supplied to the fields, only when it reaches full supply level (FSL)
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.5.5 in Annexure 3.5
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	significant runoff from the surrounding catchment area
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	✓ Yes ❒ No	Receives a good population of nature enthusiasts as tourists
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	✓Yes ❒ No	❒Yes ❒No ❒Not assessed	When it reaches the FSL
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium ❒Low	❒Present ❒Potential	
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High	✓ Present	Listed in Table 3.5.5 in Annexure 3.5

	❒Medium ✓ Low	❒ Potential	
Any others	❒High ❒Medium ❒Low	❒Present ❒Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 5 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). *A checklist of reptiles of India* (Version 3.0). 35 pp. Online publication available at www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi, 326 pp.
3. Bibby, C. J., Burgess, N. D., & Hill, D. A. (1993). *Bird census techniques*. Academic Press Limited, London, 257 pp.
4. Gamble, J. S., & Fischer, C. E. C. (1915–1935). *Flora of Presidency of Madras*. Adlard and Son, London, pp. 1–3.
5. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press, New York, 384 pp.

6. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India. Series 1: Analysis. Vol. III*. Botanical Survey of India, Coimbatore.
7. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa*, *11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009.
8. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society, 497 pp.
9. Matthew, K. M. (1981). *The material for the flora of the Tamilnadu Carnatic*, Madras, India.
10. Matthew, K. M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
11. Matthew, K. M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
12. Matthew, K. M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
13. Nair, N. C., & Henry, A. N. (1983). *Flora of Tamil Nadu, India. Series 1, Vol. 1*. Botanical Survey of India, Southern Circle, Coimbatore, 1–184.

ANNEXURE 3.5

Fig. 3.5.1. Zone of Influence of Karikili Bird Sanctuary

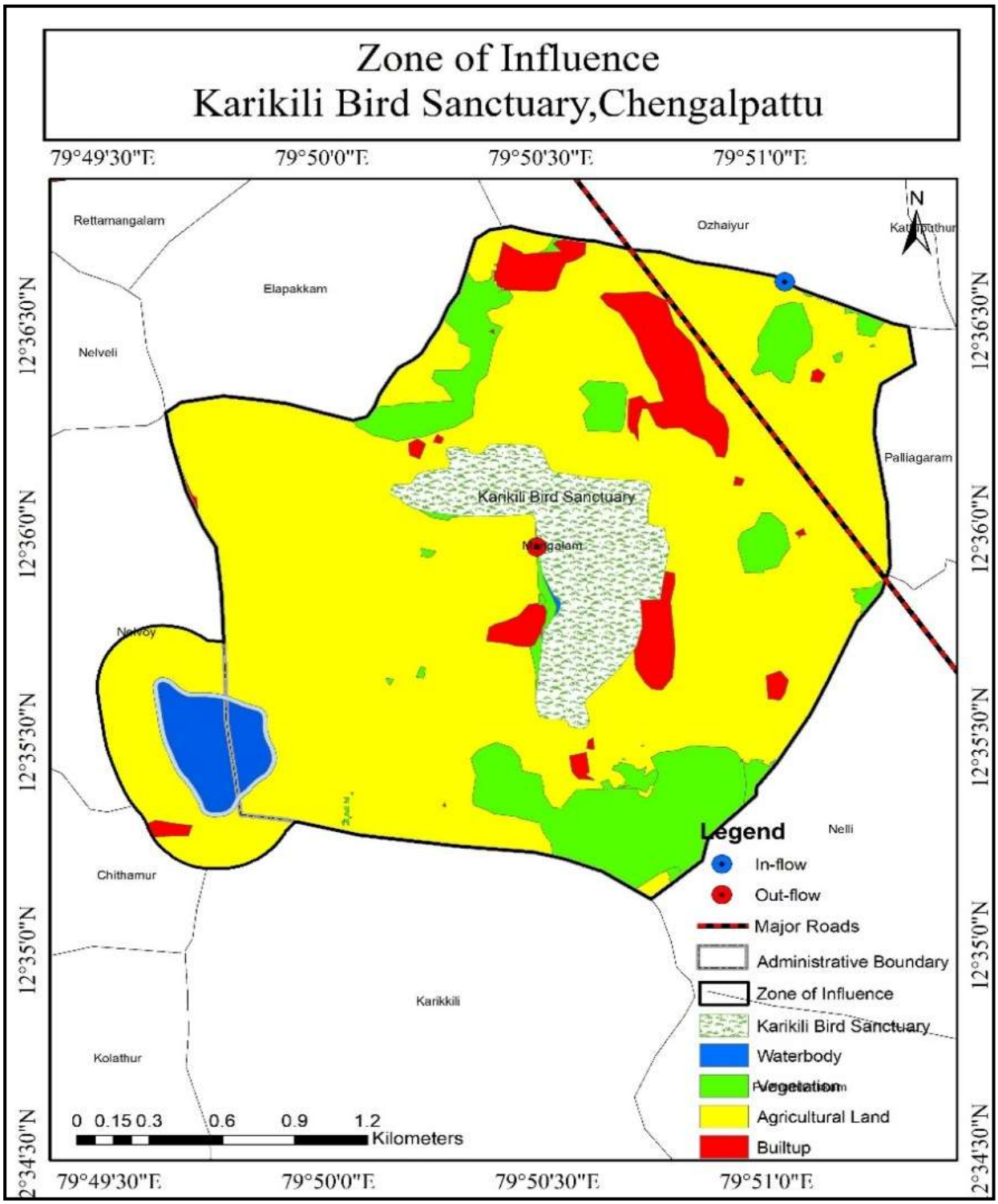


Fig. 3.5.2. Map (2015 *vs*. 2024) and Land Use/ Land Cover of Karikili Bird Sanctuary

Map of the Wetland in 2015



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

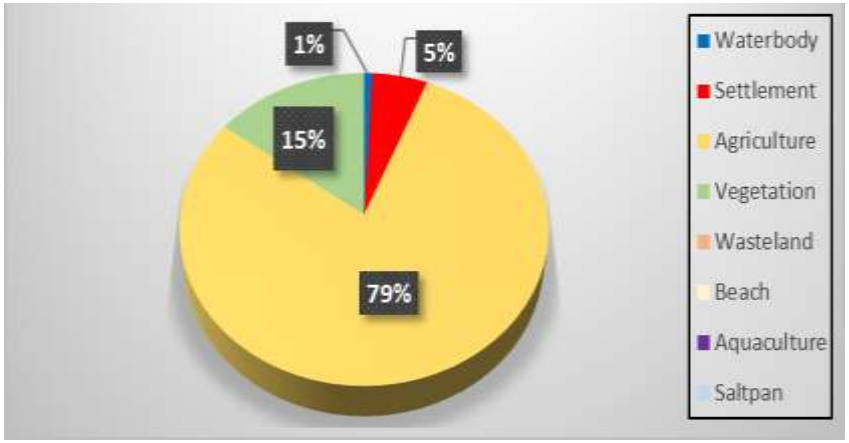


Table 3.5.1. IUCN Status of Floral Species in Karikili Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Alangium salvifolium*	Alangiaceae	Azhinjil	Tree	LC
9.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
10.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
11.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
12.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
13.	*Barringtonia acutangular*	Lecythidaceae	Neerkadambu	Tree	LC
14.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
15.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
16.	*Brachiaria ramosa*	Poaceae		Grass	NE
17.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
18.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
19.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
20.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
21.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
22.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
23.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
24.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
25.	*Digitaria abludens*	Poaceae		Grass	NE

26.	*Digitaria ciliaris*	Poaceae		Grass	NE
27.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
28.	*Ficus benghalensis*	Moraceae	Aal	Tree	LC
29.	*Ficus hispida*	Moraceae	Peyatthi	Tree	LC
30.	*Ficus racemosa*	Moraceae	Atthi	Tree	LC
31.	*Ficus religiosa*	Moraceae	Arasu	Tree	LC
32.	*Hyptis suaveolens*	Labiatae		Shrub	NE
33.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
34.	*Ischaemum indicum*	Poaceae	-	Grass	LC
35.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
36.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
37.	*Justicia prostrata*	Acanthaceae		Herb	NE
38.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
39.	*Lansium parasiticum*	Meliaceae	Ootuuni maram	Tree	LC
40.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
41.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
42.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
43.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
44.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
45.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
46.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
47.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
48.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
49.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
50.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
51.	*Streblus asper*	Moraceae	Kuruvipala	Tree	LC
52.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC

53.	*Terminalia arujuna*	Combretaceae		Tree	LC
54.	*Terminalia catappa*	Combretaceae	Naattu Badaam	Tree	NE
55.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
56.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
57.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
58.	*Trachys muricata*	Poaceae	-	Grass	LC
59.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
60.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
61.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
62.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
63.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.5.2. IUCN Status of Selected Fauna Species in Karikili Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
4.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC
5.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
6.	*Rattus argentiventer*	Muridae	Field Rat	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC

6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC
C. Amphibian				
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC
D. Butterfly				
1.	*Euthalia nais*	Nymphalidae	Baronet	LC
2.	*Tirumala limniace*	Nymphalidae	Blue Tiger	LC
3.	*Euploea core*	Nymphalidae	Common crow	LC
4.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE
5.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
6.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
7.	*Delias eucharis*	Pieridae	Common jezebel	LC
8.	*Phalanta phalantha*	Nymphalidae	Common leopard	LC
9.	*Papilio demoleus*	Papilionidae	Common lime	NE
10.	*Papilio polytes*	Papilionidae	Common mormon	NE
11.	*Atrophaneura hector*	Papilionidae	Crimson rose	LC
12.	*Hypolimnas misippus*	Nymphalidae	Danaid eggfly	LC

13.	*Euchrysops cnejus*	Lycaenidae	Gram Blue	LC
14.	*Hypolimnas bolina*	Nymphalidae	Great eggfly	LC
15.	*Junonia atlites*	Nymphalidae	Grey pansy	LC
16.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE
17.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE
18.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE
19.	*Junonia almana*	Nymphalidae	Peacock pansy	LC
20.	*Belenoisaurota*	Pieridae	Pioneer	LC
21.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
22.	*Euthalia nais*	Nymphalidae	Baronet	LC

LC – Least Concern; * - Yes

Table 3.5.3. IUCN Status of Bird Species in Karikili Bird Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Accipiter badius*	Shikra	T	LC
2.	*Acridotheres tristis*	Common Myna	T	LC
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC
5.	*Aegithina tiphia*	Common Iora	T	LC
6.	*Alauda gulgula*	Oriental Skylark	T	LC
7.	*Alcedo atthis*	Common Kingfisher	T	LC
8.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC
9.	*Anas acuta*	Northern Pintail	A	LC
10.	*Anas clypeata*	Northern Shoveller	A	LC
11.	*Anas crecca*	CommonTeal	A	LC
12.	*Anas indicus*	Bar-headed Goose	A	LC
13.	*Anas penelope*	EurasianWigeon	A	LC
14.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC
15.	*Anas querquedula*	Garganey	A	LC
16.	*Anastomus oscitans*	Asian Openbill	A	LC
17.	*Anhinga melanogaster*	Darter	A	LC

18.	*Anthus richardi*	Richard's Pipit	D	LC
19.	*Anthus rufulus*	Paddy-field Pipit	D	LC
20.	*Apus affinis*	House Swift	T	LC
21.	*Ardea cinerea*	Grey Heron	A	LC
22.	*Ardea purpurea*	Purple Heron	A	LC
23.	*Ardeola grayii*	Indian Pond Heron	A	LC
24.	*Artamus fuscus*	Ashy Woodswallow	T	LC
25.	*Athene brama*	Spotted Owlet	T	LC
26.	*Bubulcus ibis*	Cattle Egret	D	LC
27.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC
28.	*Burhinus recurvirostris*	Great Thick-knee	A	LC
29.	*Burhinus oedicnemus*	Stone Curlew	A	LC
30.	*Butas turteesa*	White-eyed Buzzard	T	LC
31.	*Buteo buteo*	Common Buzzard	T	LC
32.	*Butorides striatus*	Little Green Heron	A	LC
33.	*Cacomantis passerinus*	Indian Plaintive Cuckoo	T	LC
34.	*Calidris ferruginea*	Curlew sandpiper	A	LC
35.	*Calidris pugnax*	Ruf	A	LC
36.	*Calidris minuta*	Little Stint	A	LC
37.	*Calidris temminckii*	Temminck's stint	A	LC
38.	*Caprimulgus indicus*	Indian Jungle Nightjar	T	LC
39.	*Casmerodius albus*	Great Egret	A	LC
40.	*Centropus sinensis*	Greater Coucal	T	LC
41.	*Ceryle rudis*	Pied Kingfisher	D	LC
42.	*Charadrius alexandrinus*	Kentish Plover	A	LC
43.	*Charadrius dubius*	Little Ringed Plover	A	LC
44.	*Chlidonias hybridus*	Whiskered Tern	A	LC
45.	*Chlidonias leucopterus*	White-winged Tern	A	LC
46.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC
47.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC

48.	*Ciconia episcopus*	Woolly-necked Stork	A	LC
49.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC
50.	*Circus macrourus*	Pallid Harrier	T	LC
51.	*Circus melanoleucos*	Pied Harrier	T	LC
52.	*Cisticola juncidis*	Zitting Cisticola	T	LC
53.	*Clamator jacobinus*	Pied Cuckoo	T	LC
54.	*Columba livia*	Rock Pigeon	T	LC
55.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
56.	*Coracias benghalensis*	Indian Roller	T	LC
57.	*Corvus macrorhynchus*	Large-billed Crow	T	LC
58.	*Corvus splendens*	House Crow	T	LC
59.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
60.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
61.	*Dicaeum erythrorhynchos*	Pale-billed Flowerpecker	T	LC
62.	*Dicrurus adsimilis*	Black Drongo	T	LC
63.	*Dupetor flavicollis*	Black Bittern	A	LC
64.	*Egretta garzetta*	Little Egret	A	LC
65.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
66.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC
67.	*Eudynamys scolopacea*	Asian Koel	T	LC
68.	*Falco tinnunculus*	Common Kestrel	T	LC
69.	*Francolinus pondicerianus*	Grey Francolin	T	LC
70.	*Fulica atra*	Coot	A	LC
71.	*Gallinago stenura*	Pintail Snipe	A	LC
72.	*Gallicrex cinerea*	Watercock	A	LC
73.	*Gallinula chloropus*	Common Moorhen	A	LC
74.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
75.	*Glareola maldivarum*	Oriental Pratincole	A	LC
76.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
77.	*Haliastur indus*	Brahminy Kite	T	LC

78.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
79.	*Himantopus himantopus*	Black-winged Stilt	A	LC
80.	*Hirundo rustica*	Barn Swallow	T	LC
81.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
82.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
83.	*Icthyophaga leucogaster*	White-bellied sea eagle	T	LC
84.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC
85.	*Ixobrychus sinensis*	Yellow Bittern	A	LC
86.	*Limosa limosa*	Black-tailed Godwit	A	LC
87.	*Lonchura malacca*	Black-headed Munia	D	LC
88.	*Merops orientalis*	Green Bee-eater	T	LC
89.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
90.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
91.	*Milvus migrans*	Black Kite	T	LC
92.	*Mirafra affinis*	Jerdon's Bushlark	T	LC
93.	*Motacilla flava*	Yellow Wagtail	D	LC
94.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC
95.	*Mycteria leucocephala*	Painted Stork	A	NT
96.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC
97.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC
98.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
99.	*Orthotomus sutorius*	Common Tailorbird	T	LC
100.	*Pavo cristatus*	Indian Peafowl	T	LC
101.	*Passer domesticus*	House Sparrow	T	LC
102.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC
103.	*Phalacrocorax carbo*	Great Cormorant	A	LC
104.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC
105.	*Phalacrocorax niger*	Little Cormorant	A	LC
106.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC
107.	*Phoenicopterus ruber*	Greater Flamingo	A	LC

108.	*Phaenicophaeus tristis*	Green-billed Malkoha	T	LC
109.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC
110.	*Plegadis falcinellus*	Glossy Ibis	A	LC
111.	*Ploceus manyar*	Streaked Weaver	T	LC
112.	*Pluvialis squatarola*	Grey Plover	A	LC
113.	*Porphyrio porphyrio*	Purple Swamphen	A	LC
114.	*Prinia inornata*	Plain Prinia	T	LC
115.	*Prinia socialis*	Ashy Prinia	T	LC
116.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC
117.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC
118.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
119.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
120.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC
121.	*Saxicola caprata*	Pied Bush Chat	T	LC
122.	*Saxicoloides fulicata*	Indian Robin	T	LC
123.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC
124.	*Sterna albifrons*	Little Tern	A	LC
125.	*Sterna anaethetus*	Bridled Tern	A	LC
126.	*Sterna aurantia*	River Tern	A	LC
127.	*Sterna caspia*	CaspianTern	A	LC
128.	*Streptopelia chinensis*	Spotted Dove	T	LC
129.	*Sturnus pagodarum*	Brahminy Starling	T	LC
130.	*Tachybaptus ruficollis*	Little Grebe	A	LC
131.	*Tachymarptis melba*	Alpine Swift	T	LC
132.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC
133.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC
134.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC
135.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
136.	*Tringa ochropus*	Green Sandpiper	A	LC
137.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC
138.	*Turdoides affinis*	Yellow-billed Babbler	T	LC

139.	*Turnix suscitator*	Common Buttonquail	T	LC
140.	*Tyto alba*	Barn Owl	T	LC
141.	*Upupa epops*	Hoopoe	T	LC
142.	*Vanellus indicus*	Red-wattled Lapwing	D	LC
143.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC
144.	*Zoothera citrina*	Orange-headed Thrush	T	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.5.4. IUCN Status of major plant invasive alien species in Karikili Bird Sanctuary

S. No.	Species	Family	Tamil Name
1.	*Albizia saman*	Fabaceae	Rain tree
2.	*Alternanthera pungens*	Amaranthaceae	
3.	*Ipomoea carnea*	Convolvulaceae	
4.	*Lantana camara*	Verbenaceae	Unnichedi
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Typha angustifolia*	Typhaceae	Sambu
7.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.5.5. IUCN Status of major medicinal plant species in KarikiliBird Sanctuary

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Aerva lanata*	Amaranthaceae	Peelai	Herb
7.	*Borassus flabellifer*	Arecaceae	Panai	Tree
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass

10.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
13.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
14.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
15.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
16.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.6. ADYAR CREEK

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Adyar Creek or Adyar Estuary

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Adyar, Srinivasapuram, Pattinapakkam,

1.3 *Name of the District (s) in which Wetlands complex located:* Chennai

1.4 *Geographical coordinates:*

► Latitude: 13˚0’48.7188” N

► Longitude: 80˚16’3.756” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* CRRT - Chennai Rivers Restoration Trust

Section 2: Site Characteristics

2.1 *Area of Wetland:* 144.9 ha

2.2 *Wetland type*:

Category	**Subcategory**
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒Permanent freshwater marshes ❒Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2.5; Maximum - 3.5

2.4 *Elevation (m above mean sea level):* 1.4

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: Chembarambakkam tank plays a crucial role & Backwaters from Bay of Bengal
- ✓ Name of River/ Canal System: Adyar River

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 290.6

b) Temperature (°C) Minimum 24.6 ; Maximum 39.25

c) Humidity (%) Minimum 64.7 ; Maximum 70.9

2.7 *Area of zone of influence (in ha):* 2775.61 ha (with an irregular radius of 3.05 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	4%
Agriculture	:	0%
Settlements (Rural)	:	0%
Settlements (Urban)	:	60%
Industrial	:	0%
Waterbody	:	35%
Beach	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 6 (Fig. 3.6.1-3.6.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 199 species (refer to Table 3.6.1 in Annexure 3.6).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 151 recorded species. This includes 8 mammal species, 21 reptile species, 9 amphibian species, 101 bird species, and 12 species of butterflies (refer to Table 3.6.2-3.6.3 in Annexure 3.6).

3.3 *Species of conservation significance:* Highlighted in Table 3.6.1-3.6.3

3.4 *Major plant invasive alien species:* The Wetland supports 16 plant invasive species (refer to Table 3.6.4 in Annexure 3.6).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.6.5 in Annexure 3.6).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.6.6 in Annexure 3.6
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	Mangrove acts as buffering agents from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	

Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for thesite	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of	❒Yes	❒Yes	

domestic animals	✓ No	❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Boating is there for fishing
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Municipal solid waste, unauthorized effluents were mixed
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.6.4 in Annexure 3.6
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	Whether prohibited or regulated	Regulation within Wetlands zone of influence	If regulated indicates the level of regulation	Name of department/ agency responsible for regulation/ prohibition	Additional info.
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater	Prohibited	✓ Wetland/ Wetland complex boundary ❒ Zone of influence			Unauthorized effluents were mixed
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Tourism development		✓ Wetland/ Wetlands complex boundary ❒ Zone of influence	May permitted

Section 9: Listing of Available Scientific Resources Used

1. Anbazhagan, S., & Rajendran, N. (2008). Evaluation of Wetland ecosystem services in Adyar Wetland, Chennai, India. *Journal of Environmental Management, 88*(2), 333–341. https://doi.org/10.1016/j.jenvman.2007.03.023
2. Balasubramanian, R., & Rajendran, R. (2010). Assessment of nutrient levels and their impact on water quality in Adyar Wetland. *Environmental Monitoring and Assessment, 168*(1-4), 275–286. https://doi.org/10.1007/s10661-009-1071-5
3. Chandrasekar, N., & Venkatesh, R. (2012). Remote sensing and GIS-based analysis of land cover changes in the Adyar Wetland. *International Journal of Remote Sensing, 33*(13), 4135–4151. https://doi.org/10.1080/01431161.2011.629778
4. Dhanarajan, S., & Ramachandran, R. (2013). Impacts of urban development on the hydrology of Adyar Wetland. *Hydrological Sciences Journal, 58*(4), 788–802. https://doi.org/10.1080/02626667.2013.804315
5. Gopal, B., & Sharma, A. (2014). Biodiversity and conservation issues of the Adyar Wetland. *Journal of Threatened Taxa, 6*(6), 5909–5920. https://doi.org/10.11609/JoTT.o3845.5909-20
6. Jain, P., & Sinha, S. (2015). Water quality and sediment contamination in Adyar Wetland: A comprehensive study. *Marine Pollution Bulletin, 100*(1), 336–345. https://doi.org/10.1016/j.marpolbul.2015.09.016

7. Kumar, P., & Kumaravel, M. (2016). Assessing the impact of pollution on the aquatic flora and fauna of Adyar Wetland. *Aquatic Ecosystem Health & Management, 19*(3), 268–278. https://doi.org/10.1080/14634988.2016.1193061
8. Lakshmanan, K., & Subramanian, K. (2017). Analysis of heavy metal pollution in Adyar Wetland sediments. *Environmental Pollution, 223*, 548–557. https://doi.org/10.1016/j.envpol.2017.01.049
9. Mani, K., & Nair, S. (2018). Impact of climate change on the hydrology of Adyar Wetland: A modeling approach. *Climate Change Research, 30*(2), 211–226. https://doi.org/10.1007/s10584-018-2241-3
10. Muthuswamy, R., & Rajendran, S. (2019). Ecological health assessment of Adyar Wetland using remote sensing and field data. *Ecological Indicators, 98*, 504–516. https://doi.org/10.1016/j.ecolind.2018.11.033
11. Nair, S., & Rajasekaran, M. (2020). Evaluating the role of Adyar Wetland in flood mitigation. *Journal of Hydrology, 585*, 124748. https://doi.org/10.1016/j.jhydrol.2020.124748
12. Pandian, V., & Reddy, S. (2021). The effect of land use changes on water quality in Adyar Wetland. *Environmental Monitoring and Assessment, 193*(10), 605. https://doi.org/10.1007/s10661-021-09300-w
13. Rajendran, R., & Subashini, S. (2022). Shoreline changes and their effects on the Adyar Wetland ecosystem. *Journal of Coastal Conservation, 26*(3), 327–338. https://doi.org/10.1007/s11852-022-00819-3
14. Ramesh, K., & Kumaravel, M. (2023). Management strategies for conserving the Adyar Wetland. *Journal of Environmental Management, 316*, 115141. https://doi.org/10.1016/j.jenvman.2023.115141
15. Srinivasan, R., & Kumar, P. (2024). Assessing the impact of urbanization on the biodiversity of Adyar Wetland. *Urban Ecosystems, 27*(2), 295–310. https://doi.org/10.1007/s11252-024-01323-2

ANNEXURE 3.6

Fig 3.6.1. Zone of Influence of Adyar Creek

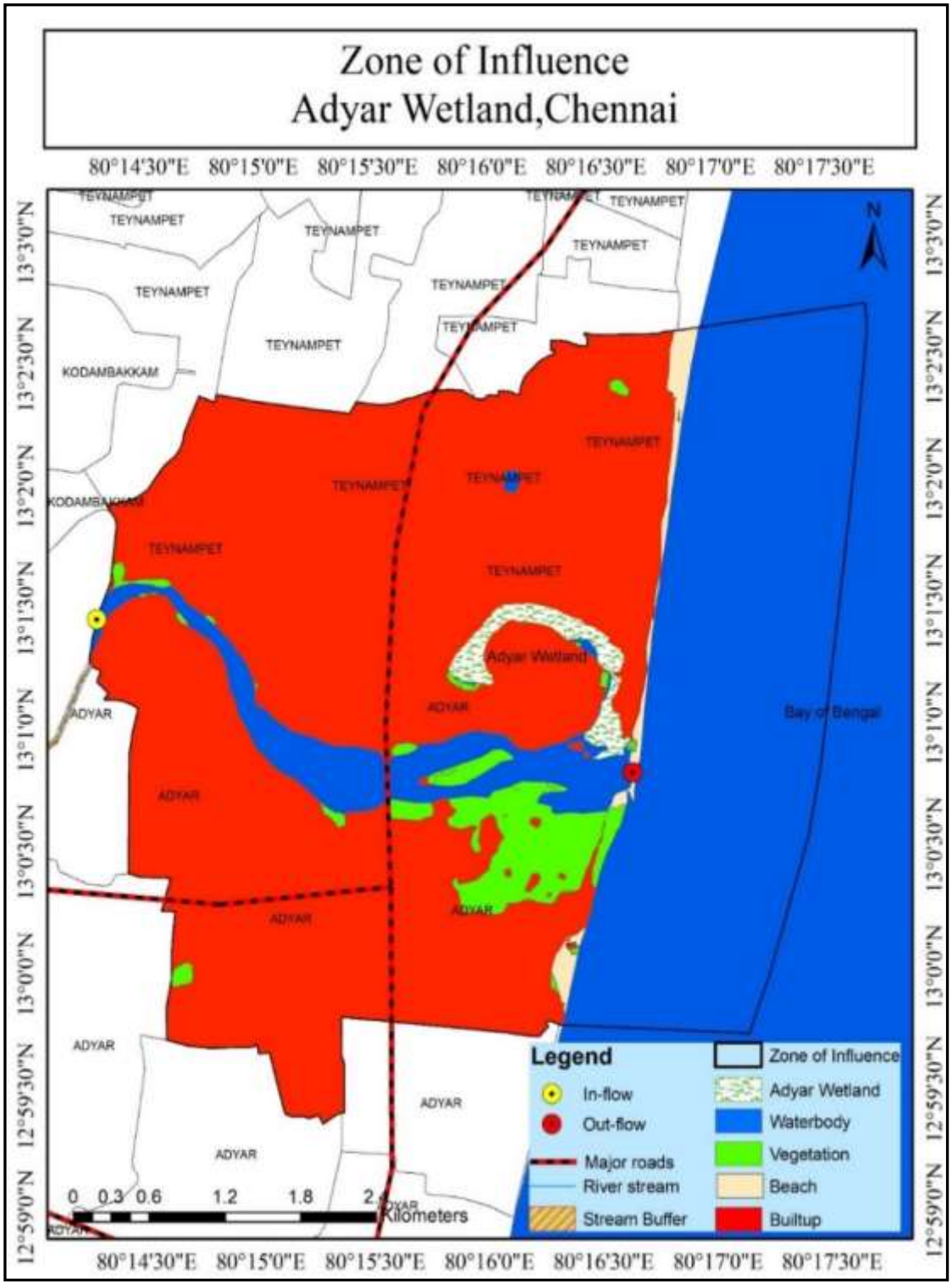


Fig 3.6.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Adyar Creek

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

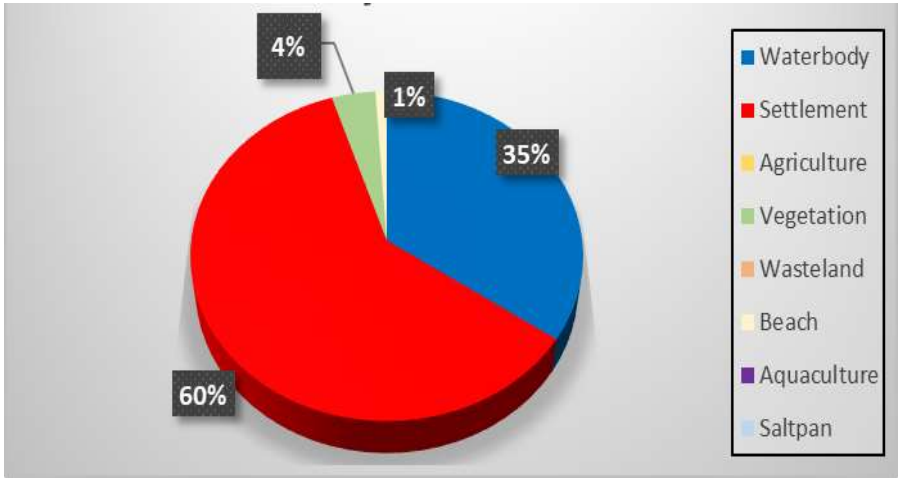


Table 3.6.1. IUCN Status of Floral Species in Adyar Creek

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia catechu*	Mimosaceae	Karuvali	Tree	LC
4.	*Acacia leucophloea*	Mimosaceae	Velvelam	Tree	LC
5.	*Acacia mangium*	Mimosaceae		Tree	LC
6.	*Acacia nilotica*	Mimosaceae	Karuvelam	Tree	LC
7.	*Acalypha ciliata*	Euphorbiaceae	Agal	Herb	LC
8.	*Acalypha fruticosa*	Euphorbiaceae	Sinni	Herb	LC
9.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
10.	*Acanthospermum hispidum*	Compositae		Herb	NE
11.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
12.	*Aegle marmelos*	Rutaceae	Vilvam	Tree	NT
13.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
14.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
15.	*Agave americana*	Agavaceae	Kathazhai	Shrub	LC
16.	*Ageratum conyzoides*	Compositae	Poom pillu	Herb	NE
17.	*Ailanthus excelsa*	Simaroubaceae	Perumaram	Tree	NE
18.	*Alangium salvifolium*	Alangiaceae	Alinjil	Tree	NE
19.	*Albizia saman*	Mimosaceae	Usilai	Tree	LC
20.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
21.	*Alloteropsis cimicina*	Poaceae		Grass	LC
22.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
23.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
24.	*Alysicarpus monilifer*	Fabaceae		Herb	NE
25.	*Ampelocissus araneosa*	Vitaceae		Climber	NE
26.	*Apluda mutica*	Poaceae	Mandapul	Grass	NE

27.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
28.	*Aristida adscensionis*	Poaceae	Oocipul	Grass	NE
29.	*Aristida setacea*	Poaceae	Variyapul	Grass	NE
30.	*Aristolochia indica*	Aristolochiaceae	Garudakkodi	Herb	NE
31.	*Asparagus racemosus*	Asparagaceae	Thannir vitan kizhangu	Climber	NE
32.	*Avicennia marina*	Acanthaceae		Tree	LC
33.	*Azadirachta indica*	Meliaceae	Vaembu	Tree	LC
34.	*Bacopa monnieri*	Scrophulariaceae	Neerbrahmi	Herb	NE
35.	*Bambusa bambos*	Poaceae	Mungil	Tree	NE
36.	*Barleria longiflora*	Acanthaceae		Herb	NE
37.	*Bauhinia racemosa*	Caesalpiniaceae	Aathi	Tree	NE
38.	*Baunihia purpurea*	Fabaceae	Purple orchid tree	Tree	LC
39.	*Bidens pilosa*	Compositae	-	Herb	LC
40.	*Biophytum sensitivum*	Oxalidaceae		Herb	NE
41.	*Blepharis maderaspatensis*	Acanthaceae	Nethira moolli	Herb	LC
42.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
43.	*Boerhavia erecta*	Nyctaginaceae	Seemai mookarattai	Herb	LC
44.	*Borassus flabellifer*	Arecaceae	Pania	Tree	NE
45.	*Brachiaria ramosa*	Poaceae		Grass	NE
46.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
47.	*Cassia fistula*	Caesalpiniaceae	Kondrai	Tree	LC
48.	*Cassia siamea*	Caesalpiniaceae	Manjakondrai	Tree	LC
49.	*Casuarina equisetifolia*	Casuarinaceae	Savukku	Tree	LC
50.	*Catunaregam spinosa*	Rubiaceae	Kaalagam	Shrub	LC
51.	*Celosia argentea*	Amaranthaceae	Pannai keerai	Herb	LC

52.	*Cereus pterogonus*	Cactaceae		Shrub	NE
53.	*Ceropegia candelabrum*	Asclepiadaceae		Climber	NE
54.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
55.	*Chloroxylon swietenia*	Rutaceae	Vimarai	Tree	Vulnerable
56.	*Chromolaena odorata*	Compositae		Shrub	NE
57.	*Chrysopogon fulvus*	Poaceae	-	Grass	LC
58.	*Cissus quadrangularis*	Vitaceae	Pirandai	Climber	NE
59.	*Citrullus colocynthis*	Cucurbitaceae	Aattrukumatti	Climber	NE
60.	*Cleistanthus collinus*	Phyllanthaceae	Oduvan	Tree	Vulnerable
61.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
62.	*Clerodendrum inerme*	Verbenaceae	Pinchil	Shrub	NE
63.	*Clitoria ternatea*	Fabaceae	Kaarkataan	Climber	NE
64.	*Coccinia grandis*	Cucurbitaceae	Kovai	Climber	NE
65.	*Cocculus hirsutus*	Menispermaceae	Kattukodi	Climber	NE
66.	*Cocus nucifera*	Arecaceae	Thennai	Tree	NE
67.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
68.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
69.	*Corchorus fascicularis*	Tiliaceae		Herb	NE
70.	*Croton bonplandianum*	Euphorbiaceae	Rail poondu	Herb	NE
71.	*Cryptostegia grandiflora*	Periplocaceae	Palai	Climber	NE
72.	*Cuscuta reflexa*	Convolvulaceae		Climber	LC
73.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
74.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
75.	*Cyperus iria*	Cyperaceae		Sedge	NE
76.	*Cyperus rotundus*	Cyperaceae	Koraikizhanghu	Sedge	NE
77.	*Cyphostemma setosum*	Vitaceae	Pulinaralai	Herb	NE
78.	*Dactyloctenium aegyptium*	Poaceae		Grass	NE

79.	*Dalbergia sissoo*	Fabaceae	Totakatti	Tree	LC
80.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
81.	*Delonix regia*	Fabaceae		Tree	LC
82.	*Dichrostachys cinerea*	Mimosaceae		Tree	LC
83.	*Digera muricata*	Amaranthaceae	Thoyya keerai	Herb	NE
84.	*Digitaria abludens*	Poaceae		Grass	NE
85.	*Digitaria ciliaris*	Poaceae		Grass	NE
86.	*Digitaria stricta*	Poaceae	-	Grass	LC
87.	*Dipteracanthus patulus*	Acanthaceae		Herb	NE
88.	*Dipteracanthus prostratus*	Acanthaceae	Pottakanchi	Herb	NE
89.	*Duranta erecta*	Verbenaceae		Shrub	LC
90.	*Echinochloa crus-galli*	Poaceae		Grass	LC
91.	*Echinochloa colona*	Poaceae		Grass	LC
92.	*Echinochloa crus-galli*	Poaceae	-	Grass	LC
93.	*Eclipta prostrata*	Compositae	Karisaalai	Herb	LC
94.	*Elephantopus scaber*	Compositae	Anashovadi	Herb	NE
95.	*Eleusine indica*	Poaceae	Tipparagai	Grass	LC
96.	*Elytraria acaulis*	Acanthaceae		Herb	NE
97.	*Enicostema axillare*	Gentianaceae	Vellaragu	Herb	LC
98.	*Enneapogon schimperanus*	Poaceae	-	Grass	LC
99.	*Eragrostiella bifaria*	Poaceae	Sheranna pullu	Grass	NE
100	*Eragrostis amabilis*	Poaceae	-	Grass	LC
101	*Eragrostis ciliaris*	Poaceae	-	Grass	LC
102	*Eragrostis japonica*	Poaceae	Kanjirapul	Grass	LC
103	*Eragrostis pilosa*	Poaceae		Grass	NE
104	*Eragrostis riparia*	Poaceae	-	Grass	LC
105	*Eragrostis unioloides*	Poaceae	-	Grass	LC

106	*Eragrostis viscosa*	Poaceae	-	Grass	LC
107	*Eriochloa procera*	Poaceae	Kanganipul	Grass	LC
108	*Eriochrysis rangacharii*	Poaceae	-	Grass	LC
109	*Eucalyptus tereticornis*	Myrtaceae	Thaila maram	Tree	LC
110	*Euphorbia hirta*	Euphorbiaceae	Ammanpacharisi	Herb	NE
111	*Euphorbia rosea*	Euphorbiaceae	-	Herb	LC
112	*Evolvulus alsinoides*	Convolvulaceae	Vishnukarandi	Herb	NE
113	*Ficus benghalensis*	Moraceae	Alamaram	Tree	NE
114	*Ficus hispida*	Moraceae		Tree	LC
115	*Ficus racemosa*	Moraceae	Athi	Tree	LC
116	*Ficus religiosa*	Moraceae	Arasu	Tree	LC
117	*Fimbristylis argentea*	Cyperaceae		Sedge	NE
118	*Flueggea leucopyrus*	Euphorbiaceae	Pulanji	Shrub	LC
119	*Gomphrena serrata*	Amaranthaceae		Herb	NE
120	*Hedyotis aspera*	Rubiaceae		Herb	NE
121	*Hemidesmus indicus*	Periplocaceae	Nannaari	Herb	NE
122	*Heteropogon contortus*	Poaceae		Grass	NE
123	*Holoptelea integrifolia*	Ulmaceae	Ayil maram	Tree	LC
124	*Hybanthus enneaspermus*	Violaceae	Orilai thamarai	Herb	NE
125	*Hydrilla verticillata*	Hydrocharitaceae		Herb	LC
126	*Hygrophila auriculata*	Acanthaceae	Nirmulli	Herb	LC
127	*Hygroryza aristata*	Poaceae	Valli pullu	Grass	NE
128	*Hyptis suaveolens*	Labiatae		Shrub	NE
129	*Ichnocarpus frutescens*	Apocynaceae	Udarkodi, Paravalli	Climber	NE
130	*Indigofera tinctoria*	Fabaceae	Avuri, Neeli	Herb	NE
131	*Ipomoea aquatica*	Convolvulaceae	Vallai keerai	Herb	NE
132	*Ipomoea carnea*	Convolvulaceae		Shrub	NE

133	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
134	*Ipomoea pes-tigridis*	Convolvulaceae	Pulichovadi	Climber	NE
135	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
136	*Justicia adhatoda*	Acanthaceae	Adathodai	Shrub	LC
137	*Kylinga brevifolius*	Cyperaceae		Sedge	NE
138	*Kylinga bulbosa*	Cyperaceae		Sedge	NE
139	*Lactuca indica*	Compositae	-	Herb	LC
140	*Lannea coromandelica*	Anacardiaceae	Odhiya maram	Tree	LC
141	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
142	*Leptochloa fusca*	Poaceae	Mandaipul	Grass	LC
143	*Leucaena leucocephala*	Fabaceae		Tree	LC
144	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
145	*Ludwigia adscendens*	Onagraceae		Herb	NE
146	*Madhuca indica*	Sapotaceae	Illupai	Tree	NE
147	*Malvastrum coromandelianum*	Malvaceae		Herb	NE
148	*Mangifera indica*	Anacardiaceae	Maa maram	Tree	LC
149	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
150	*Melinis repens*	Poaceae		Grass	NE
151	*Merremia emarginata*	Convolvulaceae	Perettaikkeerai	Herb	NE
152	*Millingtonia hortensis*	Bignoniaceae	Kattumalli	Tree	NE
153	*Mimusops elengi*	Sapotaceae	Magizham	Tree	LC
154	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
155	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
156	*Nelumbo nucifera*	Nymphaeaceae		Herb	NE
157	*Nerium oleander*	Apocynaceae	Karaviram	Shrub	LC
158	*Nyctanthes arbor-tristis*	Nyctanthaceae	Parijaatham	Tree	LC
159	*Ocimum americanum*	Labiatae	Ganjaankorai	Herb	NE

160	*Ocimum basilicum*	Labiatae	Karpura thulasi	Herb	NE
161	*Ocimum sanctum*	Labiatae	Thulasi	Herb	LC
162	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
163	*Perotis indica*	Poaceae	Narival pullu	Grass	LC
164	*Phoenix sylvestris*	Arecaceae	Eecham	Tree	LC
165	*Phyllanthus amarus*	Euphorbiaceae	Kizha-nelli	Herb	NE
166	*Phyllanthus emblica*	Euphorbiaceae	Nelli	Tree	LC
167	*Pongamia pinnata*	Fabaceae	Punga maram	Tree	LC
168	*Pisonia grandis*	Nyctaginaceae		Tree	LC
169	*Rivea hypocrateriformis*	Convolvulaceae	Boodhikeerai	Climber	LC
170	*Schoenoplectus littoralis*	Cyperaceae		Sedge	LC
171	*Scoparia dulcis*	Scrophulariaceae	Sarakkotthini	Herb	NE
172	*Senna alata*	Caesalpiniaceae	Seemai agathi	Shrub	LC
173	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
174	*Senna siamea*	Fabaceae		Tree	LC
175	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
176	*Sida acuta*	Malvaceae	Arival mooku poondu	Herb	NE
177	*Sida cordata*	Malvaceae	Pazhampaasi	Herb	NE
178	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
179	*Solanum virginianum*	Solanaceae	Kandankathiri	Herb	NE
180	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
181	*Striga asiatica*	Scrophulariaceae		Herb	NE
182	*Syzygium cumini*	Myrtaceae	Navaal	Tree	LC
183	*Tamarindus indica*	Caesalpiniaceae	Puliya maram	Tree	LC
184	*Tecoma stans*	Bignoniaceae	Yellow elder	Tree	LC
185	*Tectona grandis*	Verbenaceae	Thekku	Tree	End
186	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE

187	*Terminalia arjuna*	Combretaceae	Maruthamaram	Tree	NE
188	*Terminalia catappa*	Combretaceae	Natvadumai	Tree	LC
189	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
190	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
191	*Trachys muricata*	Poaceae	-	Grass	LC
192	*Tragia involucrata*	Euphorbiaceae	Chenthatti	Climber	LC
193	*Tragus roxburghii*	Poaceae	Ootaram pullu	Grass	NE
194	*Trema orientalis*	Cannabaceae		Tree	LC
195	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
196	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
197	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
198	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
199	*Vitex negundo*	Verbenaceae	Nochi	Tree	LC

Table 3.6.2. IUCN Status of Selected Fauna Species in Adyar Creek

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Axis axis*	Cervidae	Spotted deer	LC
2.	*Macaca radiata*	Cercopithecidae	Bonnet macaque	
3.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
4.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC
5.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
6.	Rattus rattus	Muridae	House rat	LC
7.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
8.	*Canis aureus*	Canidae	Jackal	LC
B. Reptile				
8.	*Calotes versicolor*	Agamidae	Garden lizard	LC

9.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
10.	*Mabuya carinata*	Scincidae	Common skink	LC
11.	*Lygosoma punctata*	Scincidae	Garden skink	LC
12.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
13.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
14.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
15.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
16.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
17.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
18.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
19.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
20.	*Atretium schistosum*	Colubridae	Olive keel back	LC
21.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
22.	*Ptyas mucosus*	Colubridae	Rat snake	NE
23.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
24.	*Naja naja*	Elapidae	Cobra	LC
25.	*Bungarus caeruleus*	Elapidae	Krait	LC
26.	*Vipera russelli*	Viperidae	Russell's viper	LC
27.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC
28.	*Lissemys punctata*	Trionychidae	Falpshell	VU
C. Amphibian				
9.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
10.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
11.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
12.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
13.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
14.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
15.	*Ramanella variegata*	Elapidae	Marbled frog	LC

16.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
17.	*Polypedates maculatus*		Common tree frog	LC
D. Butterfly				
23.	*Euploea core*	Nymphalidae	Common crow	LC
24.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE
25.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
26.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
27.	*Papilio demoleus*	Papilionidae	Common lime	NE
28.	*Papilio polytes*	Papilionidae	Common mormon	NE
29.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE
30.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE
31.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE
32.	*Junonia almana*	Nymphalidae	Peacock pansy	LC
33.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
34.	*Acraea violae*	Nymphalidae	Tawny coster	LC

LC – Least Concern; * - Yes

Table 3.6.3. IUCN Status of Bird Species in Adyar Creek

S. No	Scientific Name of the Species	Common name	Habitat	IUCN	Status
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Alauda gulgula*	Oriental Skylark	T	LC	
5.	*Alcedo atthis*	Common Kingfisher	T	LC	*
6.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
7.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
8.	*Anastomus oscitans*	Asian Openbill	A	LC	

9.	*Anthus richardi*	Richard's Pipit	D	LC	
10.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
11.	*Apus affinis*	House Swift	T	LC	
12.	*Ardea cinerea*	Grey Heron	A	LC	*
13.	*Ardea purpurea*	Purple Heron	A	LC	
14.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
15.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
16.	*Athene brama*	Spotted Owlet	T	LC	
17.	*Bubulcus ibis*	Cattle Egret	D	LC	*
18.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
19.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
20.	*Casmerodius albus*	Great Egret	A	LC	
21.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
22.	*Charadrius dubius*	Little Ringed Plover	A	LC	
23.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
24.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
25.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
26.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
27.	*Circus macrourus*	Pallid Harrier	T	LC	
28.	*Circus melanoleucos*	Pied Harrier	T	LC	
29.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
30.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
31.	*Columba livia*	Rock Pigeon	T	LC	
32.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
33.	*Coracias benghalensis*	Indian Roller	T	LC	*
34.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
35.	*Corvus splendens*	House Crow	T	LC	*
36.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
37.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
38.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
39.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	

40.	*Dupetor flavicollis*	Black Bittern	A	LC	
41.	*Egretta garzetta*	Little Egret	A	LC	*
42.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
43.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
44.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
45.	*Falco tinnunculus*	Common Kestrel	T	LC	
46.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
47.	*Fulica atra*	Coot	A	LC	
48.	*Gallicrex cinerea*	Watercock	A	LC	
49.	*Gallinula chloropus*	Common Moorhen	A	LC	*
50.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
51.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
52.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
53.	*Haliastur indus*	Brahminy Kite	T	LC	*
54.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
55.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
56.	*Hirundo rustica*	Barn Swallow	T	LC	
57.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
58.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
59.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
60.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
61.	*Limosa limosa*	Black-tailed Godwit	A	LC	
62.	*Lonchura malacca*	Black-headed Munia	D	LC	
63.	*Merops orientalis*	Green Bee-eater	T	LC	*
64.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
65.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
66.	*Milvus migrans*	Black Kite	T	LC	*
67.	*Motacilla flava*	Yellow Wagtail	D	LC	
68.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
69.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	

70.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
71.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
72.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
73.	*Passer domesticus*	House Sparrow	T	LC	*
74.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
75.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
76.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
77.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
78.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
79.	*Ploceus manyar*	Streaked Weaver	T	LC	
80.	*Pluvialis squatarola*	Grey Plover	A	LC	
81.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
82.	*Prinia inornata*	Plain Prinia	T	LC	
83.	*Prinia socialis*	Ashy Prinia	T	LC	*
84.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
85.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
86.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
87.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
88.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
89.	*Sterna aurantia*	River Tern	A	LC	
90.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
91.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
92.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
93.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
94.	*Tringa glareola*	Wood Sandpiper	A	LC	*
95.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
96.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
97.	*Tyto alba*	Barn Owl	T	LC	
98.	*Upupa epops*	Hoopoe	T	LC	
99.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*

100.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
101.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.6.4. IUCN Status of major plant invasive alien species in Adyar Creek

S. No.	Species	Family	Tamil Name
1.	*Acacia mangium*	Mimosaceae	
2.	*Agave americana*	Agavaceae	Kathazhai
3.	*Albizia saman*	Mimosaceae	Usilai
4.	*Argemone mexicana*	Papaveraceae	Nai Kadugu
5.	*Cassia siamea*	Caesalpiniaceae	Manjakondrai
6.	*Casuarina equisetifolia*	Casuarinaceae	Savukku
7.	*Hyptis suaveolens*	Labiatae	
8.	*Ipomoea carnea*	Convolvulaceae	
9.	*Leucaena leucocephala*	Fabaceae	
10.	*Martynia annua*	Martyniaceae	Thael Kodukku
11.	*Nerium oleander*	Apocynaceae	Karaviram
12.	*Senna alata*	Caesalpiniaceae	Seemaiagathi
13.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
14.	*Senna siamea*	Fabaceae	
15.	*Tecoma stans*	Bignoniaceae	Yellow elder
16.	*Typha angustifolia*	Typhaceae	Sambu

Table 3.6.5. IUCN Status of major animal invasive alien species in Adyar Creek

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.6.6. IUCN Status of major medicinal plant species in Adyar Creek

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Azadirachta indica*	Meliaceae	Vaembu	Tree
4.	*Bacopa monnieri*	Scrophulariaceae	Neerbrahmi	Herb
5.	*Borassus flabellifer*	Arecaceae	Pania	Tree
6.	*Cissus quadrangularis*	Vitaceae	Pirandai	Climber
7.	*Citrullus colocynthis*	Cucurbitaceae	Aattrukumatti	Climber
8.	*Enicostema axillare*	Gentianaceae	Vellaragu	Herb
9.	*Hedyotis aspera*	Rubiaceae		Herb
10.	*Hemidesmus indicus*	Periplocaceae	Nannaari	Herb
11.	*Justicia adhatoda*	Acanthaceae	Adathodai	Shrub
12.	*Lannea coromandelica*	Anacardiaceae	Odhiya maram	Tree
13.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub
14.	*Ocimum americanum*	Labiatae	Ganjaankorai	Herb
15.	*Ocimum basilicum*	Labiatae	Karpura thulasi	Herb
16.	*Ocimum sanctum*	Labiatae	Thulasi	Herb
17.	*Sida acuta*	Malvaceae	Arival mooku poondu	Herb
18.	*Sida cordata*	Malvaceae	Pazhampaasi	Herb
19.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
20.	*Solanum virginianum*	Solanaceae	Kandankathiri	Herb
21.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb
22.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree
23.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
24.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
25.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
26.	*Vitex negundo*	Verbenaceae	Nochi	Tree

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.7. PALLIKKARANI MARSH

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Pallikkarani Marsh reserve forest

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Subramaniam Colony, Perungudi, Pallikkarani, Velachery

1.3 *Name of the District (s) in which Wetlands complex located:* Chennai

1.4 *Geographical coordinates:*

► Latitude: 12˚55'40" N

► Longitude: 80˚13'13" E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 1246 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ✓ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 0.5; Maximum - 2

2.4 *Elevation (m above mean sea level):* 1

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ✓ Eutrophic
- ❒ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 290.6

b) Temperature (°C) Minimum 24.6 ; Maximum 39.25

c) Humidity (%) Minimum 64.7 ; Maximum 70.9

2.7 *Area of zone of influence (in ha):* 6978 ha (with an irregular radius of 5.21km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	1%
Agriculture	:	4%
Settlements (Rural)	:	0%
Settlements (Urban)	:	84%
Industrial	:	0%
Waterbody	:	6%
Waste Land	:	5%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.7 (Fig. 3.7.1-3.7.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 72 species (refer to Table 3.7.1 in Annexure 3.7).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 151 recorded species. This includes 8 mammal species, 21 reptile species, 9 amphibian species, 101 bird species, and 12 species of butterflies (refer to Table 3.7.2-3.7.3 in Annexure 3.7).

3.3 *Species of conservation significance:* Highlighted in Table 3.7.1-3.7.3.

3.4 *Major plant invasive alien species:* The Wetland supports 14 plant invasive species (refer to Table 3.7.4 in Annexure 3.7).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.7.5 in Annexure 3.7).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.7.6 in Annexure 3.7
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving

Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing has been observed while field visit
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	✓ High ❒ Medium ❒ Low	❒ Present ✓ Potential	Unauthorized sewage and many kind of pollution is involved
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High	✓ Present	Listed in Table 3.7.4-3.7.5 in Annexure 3.7

	❒ Medium ✓ Low	❒ Potential	
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Arumugam, S., & Ramesh, K. (2009). Impact of urbanization on water quality in Palikaranai Marsh Reserve Forest. *Environmental Monitoring and Assessment, 159*(1-4), 287-298
2. Chandrasekar, N., & Kumar, S. (2010). Remote sensing and GIS applications for monitoring land cover changes in Palikaranai Marsh. *International Journal of Remote Sensing, 31*(22), 5857-5873.
3. Dhanarajan, S., & Subramanian, K. (2011). Assessment of Wetland vegetation in Palikaranai Marsh using satellite data. *Journal of Environmental Management, 92*(11), 2750-2759.
4. Gopal, B., & Sharma, A. (2012). Biodiversity and conservation challenges in Palikaranai Marsh. *Aquatic Ecosystem Health & Management, 15*(2), 173-182.

5. Jain, S., & Venkatesh, A. (2013). Hydrological impact of urban encroachment on the Palikaranai Marsh Reserve Forest. *Hydrological Sciences Journal, 58*(6), 1264-1276.
6. Kumar, P., & Rajendran, S. (2014). Evaluation of heavy metal pollution in sediments of Palikaranai Marsh. *Environmental Pollution, 190*, 119-127.
7. Lakshmanan, K., & Mani, K. (2015). Assessment of water quality and its impact on aquatic life in Palikaranai Marsh. *Marine Pollution Bulletin, 101*(1), 310-319.
8. Mani, K., & Ramesh, K. (2016). Influence of land use changes on the Palikaranai Marsh Reserve Forest ecosystem. *Ecological Indicators, 67*, 200-209.
9. Muthuswamy, R., & Nair, S. (2017). Remote sensing analysis of vegetation dynamics in Palikaranai Marsh. *Remote Sensing of Environment, 199*, 230-242.
10. Pandian, V., & Subramanian, K. (2018). Assessment of biodiversity and conservation measures in Palikaranai Marsh. *Biodiversity and Conservation, 27*(9), 2335-2350.
11. Rajasekaran, M., & Kumaravel, M. (2019). Climate change impacts on the hydrology of Palikaranai Marsh. *Climate Change Research, 31*(3), 275-289.
12. Ramesh, K., & Srinivasan, R. (2020). Management and restoration strategies for Palikaranai Marsh Reserve Forest. *Journal of Environmental Management, 271*, 110924.
13. Sathia Raj, S., & Rajendran, S. (2021). Evaluation of ecological health of Palikaranai Marsh using bioindicators. *Ecological Indicators, 121*, 107156.
14. Subashini, S., & Venkatesh, A. (2022). Impact of urbanization on the water resources of Palikaranai Marsh. *Urban Ecosystems, 25*(1), 123-139.
15. Venkatesh, A., & Rajendran, N. (2023). Assessing the impact of pollutants on the Palikaranai Marsh ecosystem. *Environmental Science & Policy, 140*, 56-65.

ANNEXURE 3.7

Fig. 3.7.1. Zone of Influence of Pallikkarani Marsh

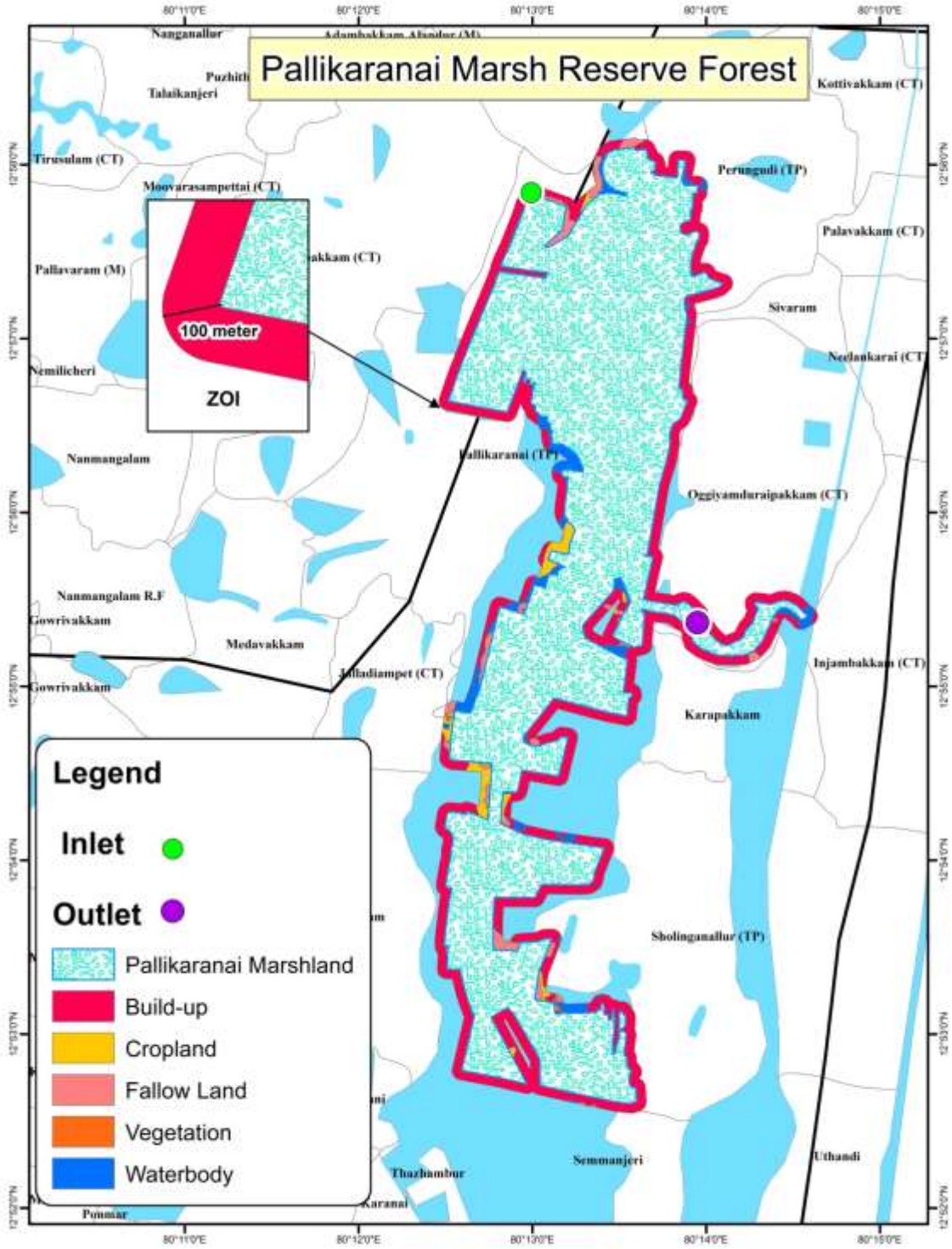


Fig. 3.7.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Pallikkarani Marsh

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

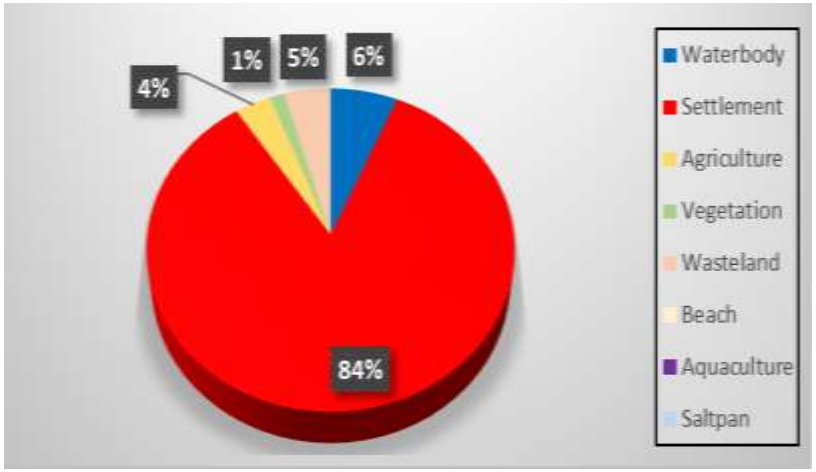


Table 3.7.1. IUCN Status of Floral Species in Pallikkarani Marsh

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha ciliata*	Euphorbiaceae	Agal	Herb	LC
4.	*Acalypha fruticosa*	Euphorbiaceae	Sinni	Herb	LC
5.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
6.	*Acanthospermum hispidum*	Compositae		Herb	NE
7.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
8.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
9.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
10.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
11.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
12.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
13.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
14.	*Blumea mollis*	Compositae	-	Herb	LC
15.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
16.	*Brachiaria mutica*	Poaceae		Grass	NE
17.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
18.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
19.	*Cassia fistula*	Caesalpiniaceae	Kondrai	Tree	LC
20.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
21.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
22.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
23.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
24.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
25.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE

26.	*Cyperus iria*	Cyperaceae		Sedge	NE
27.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
28.	*Digitaria ciliaris*	Poaceae		Grass	NE
29.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
30.	*Hyptis suaveolens*	Labiatae		Shrub	NE
31.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
32.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
33.	*Isachne miliacea*	Poaceae	-	Grass	LC
34.	*Ischaemum indicum*	Poaceae	-	Grass	LC
35.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
36.	*Justicia prostrata*	Acanthaceae		Herb	NE
37.	*Lannea coromandelica*	Anacardiaceae	Odhiya maram	Tree	LC
38.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
39.	*Leptochloa fusca*	Poaceae	Mandaipul	Grass	LC
40.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
41.	*Ludwigia adscendens*	Onagraceae		Herb	NE
42.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
43.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
44.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
45.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
46.	*Nymphaea pubescens*	Nymphaeaceae		Herb	LC
47.	*Ottelia alismoides*	Hydrocharitaceae		Herb	LC
48.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
49.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
50.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
51.	*Pithecellobium dulce*	Fabaceae	Kodukkapuli	Tree	LC
52.	*Pongamia pinnata*	Fabaceae	Punga maram	Tree	LC

53.	*Pontederia crassipes*	Pontederiaceae	Agaya thamarai	Herb	LC
54.	*Ricinus communis*	Euphorbiaceae	Amanakku	Shrub	NE
55.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
56.	*Senna siamea*	Fabaceae		Tree	LC
57.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
58.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
59.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
60.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
61.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
62.	*Terminalia arjuna*	Combretaceae	Maruthamaram	Tree	NE
63.	*Terminalia catappa*	Combretaceae	Natvadumai	Tree	LC
64.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
65.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
66.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
67.	*Trachys muricata*	Poaceae	-	Grass	LC
68.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
69.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
70.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
71.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
72.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.7.2. IUCN Status of Selected Fauna Species in Pallikkarani Marsh

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A.	*Mammal*			
1.	*Axis axis*	Cervidae	Spotted deer	LC
2.	*Macaca radiata*	Cercopithecidae	Bonnet macaque	
3.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
4.	*Funambulus palmarum*	Sciuridae	Three-striped	LC

			palm squirrel	
5.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
6.	Rattus rattus	Muridae	House rat	LC
7.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
8.	*Canis aureus*	Canidae	Jackal	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
17.	*Naja naja*	Elapidae	Cobra	LC
18.	*Bungarus caeruleus*	Elapidae	Krait	LC
19.	*Vipera russelli*	Viperidae	Russell's viper	LC
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU

C. Amphibian				
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
9.	*Polypedates maculatus*		Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Common crow	LC
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
5.	*Papilio demoleus*	Papilionidae	Common lime	NE
6.	*Papilio polytes*	Papilionidae	Common mormon	NE
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC

LC – Least Concern; * - Yes

Table 3.7.3. IUCN Status of Bird Species in Pallikkarani Marsh

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Accipiter badius*	Shikra	T	LC
2.	*Acridotheres tristis*	Common Myna	T	LC
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC
4.	*Alauda gulgula*	Oriental Skylark	T	LC
5.	*Alcedo atthis*	Common Kingfisher	T	LC
6.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC
7.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC
8.	*Anastomus oscitans*	Asian Openbill	A	LC
9.	*Anthus richardi*	Richard's Pipit	D	LC
10.	*Anthus rufulus*	Paddy-field Pipit	D	LC
11.	*Apus affinis*	House Swift	T	LC
12.	*Ardea cinerea*	Grey Heron	A	LC
13.	*Ardea purpurea*	Purple Heron	A	LC
14.	*Ardeola grayii*	Indian Pond Heron	A	LC
15.	*Artamus fuscus*	Ashy Woodswallow	T	LC
16.	*Athene brama*	Spotted Owlet	T	LC
17.	*Bubulcus ibis*	Cattle Egret	D	LC
18.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC
19.	*Burhinus recurvirostris*	Great Thick-knee	A	LC
20.	*Casmerodius albus*	Great Egret	A	LC
21.	*Ceryle rudis*	Pied Kingfisher	D	LC
22.	*Charadrius dubius*	Little Ringed Plover	A	LC
23.	*Chlidonias hybridus*	Whiskered Tern	A	LC
24.	*Chlidonias leucopterus*	White-winged Tern	A	LC
25.	*Ciconia episcopus*	Woolly-necked Stork	A	LC
26.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC
27.	*Circus macrourus*	Pallid Harrier	T	LC
28.	*Circus melanoleucos*	Pied Harrier	T	LC
29.	*Cisticola juncidis*	Zitting Cisticola	T	LC

30.	*Clamator jacobinus*	Pied Cuckoo	T	LC
31.	*Columba livia*	Rock Pigeon	T	LC
32.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
33.	*Coracias benghalensis*	Indian Roller	T	LC
34.	*Corvus macrorhynchus*	Large-billed Crow	T	LC
35.	*Corvus splendens*	House Crow	T	LC
36.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
37.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
38.	*Dicrurus adsimilis*	Black Drongo	T	LC
39.	*Dinopium benghalense*	Black-rumped Flameback	T	LC
40.	*Dupetor flavicollis*	Black Bittern	A	LC
41.	*Egretta garzetta*	Little Egret	A	LC
42.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
43.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC
44.	*Eudynamys scolopacea*	Asian Koel	T	LC
45.	*Falco tinnunculus*	Common Kestrel	T	LC
46.	*Francolinus pondicerianus*	Grey Francolin	T	LC
47.	*Fulica atra*	Coot	A	LC
48.	*Gallicrex cinerea*	Watercock	A	LC
49.	*Gallinula chloropus*	Common Moorhen	A	LC
50.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
51.	*Glareola maldivarum*	Oriental Pratincole	A	LC
52.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
53.	*Haliastur indus*	Brahminy Kite	T	LC
54.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
55.	*Himantopus himantopus*	Black-winged Stilt	A	LC
56.	*Hirundo rustica*	Barn Swallow	T	LC
57.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
58.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
59.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC

60.	*Ixobrychus sinensis*	Yellow Bittern	A	LC
61.	*Limosa limosa*	Black-tailed Godwit	A	LC
62.	*Lonchura malacca*	Black-headed Munia	D	LC
63.	*Merops orientalis*	Green Bee-eater	T	LC
64.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
65.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
66.	*Milvus migrans*	Black Kite	T	LC
67.	*Motacilla flava*	Yellow Wagtail	D	LC
68.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC
69.	*Nectarinia lotenia*	Loten's Sunbird	T	LC
70.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC
71.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
72.	*Orthotomus sutorius*	Common Tailorbird	T	LC
73.	*Passer domesticus*	House Sparrow	T	LC
74.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC
75.	*Phalacrocorax carbo*	Great Cormorant	A	LC
76.	*Phalacrocorax niger*	Little Cormorant	A	LC
77.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC
78.	*Plegadis falcinellus*	Glossy Ibis	A	LC
79.	*Ploceus manyar*	Streaked Weaver	T	LC
80.	*Pluvialis squatarola*	Grey Plover	A	LC
81.	*Porphyrio porphyrio*	Purple Swamphen	A	LC
82.	*Prinia inornata*	Plain Prinia	T	LC
83.	*Prinia socialis*	Ashy Prinia	T	LC
84.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC
85.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
86.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
87.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC
88.	*Saxicola caprata*	Pied Bush Chat	T	LC
89.	*Sterna aurantia*	River Tern	A	LC

90.	*Streptopelia chinensis*	Spotted Dove	T	LC
91.	*Sturnus pagodarum*	Brahminy Starling	T	LC
92.	*Tachybaptus ruficollis*	Little Grebe	A	LC
93.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
94.	*Tringa glareola*	Wood Sandpiper	A	LC
95.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC
96.	*Turdoides affinis*	Yellow-billed Babbler	T	LC
97.	*Tyto alba*	Barn Owl	T	LC
98.	*Upupa epops*	Hoopoe	T	LC
99.	*Vanellus indicus*	Red-wattled Lapwing	D	LC
100.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC
101.	*Zoothera citrine*	Orange-headed Thrush	T	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.7.4. IUCN Status of major plant invasive alien species in Pallikkarani Marsh

S. No.	Species	Family	Tamil Name
1.	*Alternanthera pungens*	Amaranthaceae	
2.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
3.	*Argemone Mexicana*	Papaveraceae	Nai Kadugu
4.	*Hyptis suaveolens*	Labiatae	
5.	*Ipomoea carnea*	Convolvulaceae	
6.	*Lantana camara*	Verbenaceae	Unnichedi
7.	*Leptochloafusca*	Poaceae	Mandaipul
8.	*Martynia annua*	Martyniaceae	Thael Kodukku
9.	*Parthenium hysterophorus*	Compositae	Vishachedi
10.	*Pithecellobium dulce*	Fabaceae	Kodukkapuli
11.	*Pontederia crassipes*	Pontederiaceae	Agayathamarai
12.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
13.	*Senna siamea*	Fabaceae	
14.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.7.5. IUCN Status of major animal invasive alien species in Pallikkarani Marsh

S. No.	Species	Family	Common name	IUCN
C. Mammal				
3.	*Rattus rattus*	Muridae	House Rat	LC
D. Reptile				
4.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.7.6. IUCN Status of major medicinal plant species in Pallikkarani Marsh

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha ciliata*	Euphorbiaceae	Agal	Herb
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
5.	*Acanthospermum hispidum*	Compositae		Herb
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
7.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
8.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
9.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
10.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
11.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
12.	*Leucas aspera*	Labiatae	Thumbai	Herb
13.	*Ludwigia adscendens*	Onagraceae		Herb
14.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb
15.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb
16.	*Mukia leiosperma*	Cucurbitaceae		Climber
17.	*Nymphaea pubescens*	Nymphaeaceae		Herb
18.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
19.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
20.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
21.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb
22.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.8. ACHANKULAM WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 85.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Achankulam Wetland or Mutugoundanpudur Kulam

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Achankulam, Muthugoundan Pudur, Kulathur, Ravathur, Athappagoundenpudur

1.3 *Name of the District (s) in which Wetlands complex located:* Coimbatore

1.4 *Geographical coordinates:*

► Latitude: 11˚2’35.4552” N

► Longitude: 77˚5’44.1024” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Water Resource Department & Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 102 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	✓ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒Permanent freshwater marshes ❒Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1; Maximum - 2

2.4 *Elevation (m above mean sea level):* 368

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify:
- ❒ Name of River/ Canal System:

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ❒ Feeds groundwater river to sea
- ✓ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-80 g/l)
- ❒ Euhaline (80-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 549.2

b) Temperature (°C) Minimum 22.75 ; Maximum 35.73

c) Humidity (%) Minimum 72.1 ; Maximum 76.8

2.7 *Area of zone of influence (in ha):* 6116.7 ha (with an irregular radius of 4.44 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	9%
Agriculture	:	35%
Settlements (Rural)	:	0%
Settlements (Urban)	:	51%
Industrial	:	0%
Waterbody	:	1%
Waste Land	:	4%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.8 (Fig. 3.8.1-3.8.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 62 species (refer to Table 3.8.1 in Annexure 3.8).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 183 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 144 bird species, and 21 species of butterflies (refer to Table 3.8.2-3.8.3 in Annexure 3.8).

3.3 *Species of conservation significance:* Highlighted in Table 3.8.1-3.8.3

3.4 *Major plant invasive alien species:* The Wetland supports 7 plant invasive species (refer to Table 3.8.4 in Annexure 3.8).

3.5 *Major animal invasive alien species:* Not available.

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water has been drawn from outflow for agricultural activities
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 8.8 in Annexure 8
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for the site**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a temple around the embankment of the Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Water has been drawn from outflow for agricultural activities
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒ Medium ✓Low	✓Present ❒Potential	Substantial water flow from the surrounding watershed
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High	✓ Present	Listed in Table 3.8.4Annexure 3.8

	❒Medium ✓ Low	❒ Potential	
Any others	❒High ❒Medium ❒Low	❒Present ❒Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (8) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V.M., Palot, M.J., & Ganesh, S.R. (2018). A checklist of reptiles of India (Version 3.0). 35 pp. Online publication available at www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press.
3. Bibby, C.J., Burgess, N.D., & Hill, D.A. (1993). *Bird census techniques*. Academic Press.
4. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of Presidency of Madras*. Adlard and Son.
5. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press.
6. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India.

7. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992-14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009
8. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
9. Matthew, K. M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
10. Matthew, K. M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press.
11. Matthew, K. M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press.
12. Matthew, K. M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press.
13. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India* Series 1, Vol. 1. Botanical Survey of India.

ANNEXURE 3.8

Fig 3.8.1. Zone of Influence of Achankulam Wetland

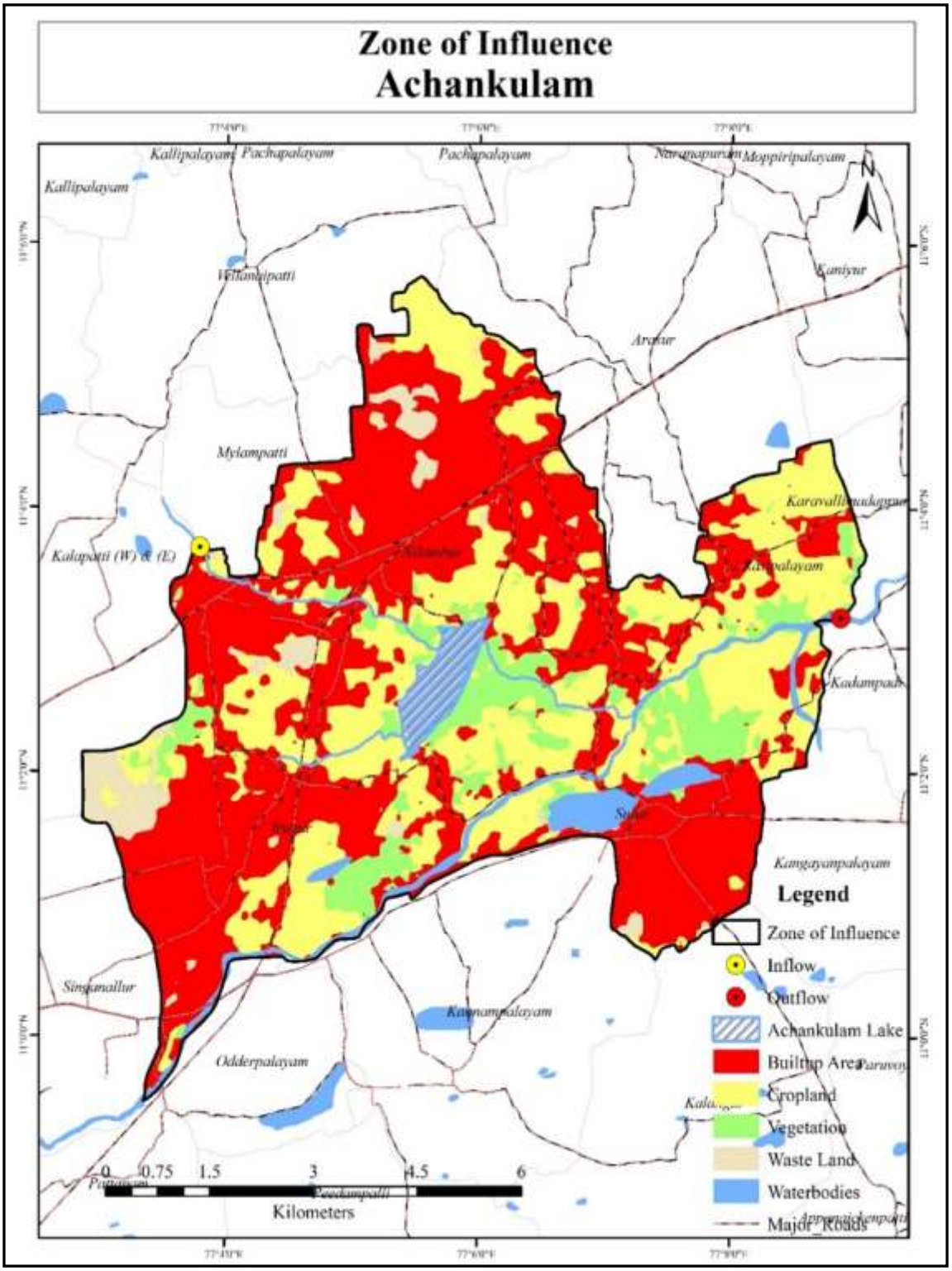


Fig 3.8.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Achankulam Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

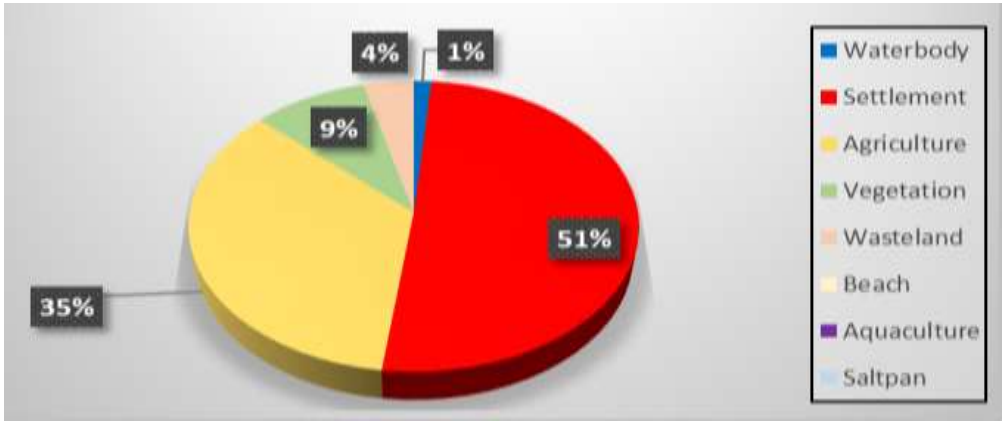


Table 3.8.1. IUCN Status of Floral Species in Achankulam Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Alangium salvifolium*	Alangiaceae	Azhinjil	Tree	LC
9.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
10.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
11.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
12.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
13.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
14.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
15.	*Brachiaria ramosa*	Poaceae		Grass	NE
16.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
17.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
18.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
19.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
20.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
21.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
22.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
23.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
24.	*Digitaria abludens*	Poaceae		Grass	NE

25.	*Digitaria ciliaris*	Poaceae		Grass	NE
26.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
27.	*Ficus benghalensis*	Moraceae	Aal	Tree	LC
28.	*Ficus hispida*	Moraceae	Peyatthi	Tree	LC
29.	*Ficus racemosa*	Moraceae	Atthi	Tree	LC
30.	*Ficus religiosa*	Moraceae	Arasu	Tree	LC
31.	*Hyptis suaveolens*	Labiatae		Shrub	NE
32.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
33.	*Ischaemum indicum*	Poaceae	-	Grass	LC
34.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
35.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
36.	*Justicia prostrata*	Acanthaceae		Herb	NE
37.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
38.	*Lansium parasiticum*	Meliaceae	Ootuuni maram	Tree	LC
39.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
40.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
41.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
42.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
43.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
44.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
45.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
46.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
47.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
48.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
49.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
50.	*Streblus asper*	Moraceae	Kuruvipala	Tree	LC
51.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC

52.	*Terminalia arujuna*	Combretaceae		Tree	LC
53.	*Terminalia catappa*	Combretaceae	Naattu Badaam	Tree	NE
54.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
55.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
56.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
57.	*Trachys muricata*	Poaceae	-	Grass	LC
58.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
59.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
60.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
61.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
62.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.8.2. IUCN Status of Selected Fauna Species in Achankulam Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
3.	*Rattus argentiventer*	Muridae	Field Rat	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC

6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC
C. Amphibian				
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC
D. Butterfly				
1.	*Euthalia nais*	Pachliopta aristolochiae	Baronet	LC
2.	*Tirumala limniace*	Pachliopta hector	Blue Tiger	LC
3.	*Euploea core*	Papilo polymnestor cramer	Common crow	LC
4.	*Catopsilia pomona*	Hypolimnas bolina	Common Emigrant	LC
5.	*Melanitis leda*	Graphium sarpedon	Common evening brown	LC
6.	*Eurema hecabe*	catopsilia Pomona	Common grass yellow	LC
7.	*Delias eucharis*	Leptosia nina	Common jezebel	LC
8.	*Phalanta phalantha*	Catopsilia pyranthe	Common leopard	LC
9.	*Papilio demoleus*	Eurema hecabe	Common lime	LC
10.	*Papilio polytes*	Cepora nerissa	Common Mormon	LC
11.	*Atrophaneura hector*	Colotis amata	Crimson rose	LC

12.	*Hypolimnas misippus*	Belenois aurota	Danaid eggfly	LC
13.	*Euchrysops cnejus*	Eurema brigitta	Gram Blue	LC
14.	*Hypolimnas bolina*	Zizeeria karsandra	Great eggfly	LC
15.	*Junonia atlites*	Zizula hylax	Grey pansy	LC
16.	*Junonia lemonias*	Leptotus plinius	Lemon pansy	LC
17.	*Catopsilia pyranthe*	Catochrysops Strabo	Mottled Emigrant	LC
18.	*Pseudozizeeria maha*	Chilades putli	Pale Grass Blue	LC
19.	*Junonia almana*	Celastrina lavendularis	Peacock pansy	LC
20.	*Belenoisaurota*	Prosotas dubiosa	Pioneer	LC
21.	*Danaus chrysippus*	Euchrysops cnejus	Plain tiger	LC

LC – Least Concern; * - Yes

Table 3.8.3. IUCN Status of Bird Species in Achankulam Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Accipiter badius*	Shikra	T	LC
2.	*Acridotheres tristis*	Common Myna	T	LC
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC
5.	*Aegithina tiphia*	Common Iora	T	LC
6.	*Alauda gulgula*	Oriental Skylark	T	LC
7.	*Alcedo atthis*	Common Kingfisher	T	LC
8.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC
9.	*Anas acuta*	Northern Pintail	A	LC
10.	*Anas clypeata*	Northern Shoveller	A	LC
11.	*Anas crecca*	CommonTeal	A	LC
12.	*Anas indicus*	Bar-headed Goose	A	LC
13.	*Anas Penelope*	EurasianWigeon	A	LC
14.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC
15.	*Anas querquedula*	Garganey	A	LC
16.	*Anastomus oscitans*	Asian Openbill	A	LC

17.	*Anhinga melanogaster*	Darter	A	LC
18.	*Anthus richardi*	Richard's Pipit	D	LC
19.	*Anthus rufulus*	Paddy-field Pipit	D	LC
20.	*Apus affinis*	House Swift	T	LC
21.	*Ardea cinerea*	Grey Heron	A	LC
22.	*Ardea purpurea*	Purple Heron	A	LC
23.	*Ardeola grayii*	Indian Pond Heron	A	LC
24.	*Artamus fuscus*	Ashy Woodswallow	T	LC
25.	*Athene brama*	Spotted Owlet	T	LC
26.	*Bubulcus ibis*	Cattle Egret	D	LC
27.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC
28.	*Burhinus recurvirostris*	Great Thick-knee	A	LC
29.	*Burhinus oedicnemus*	Stone Curlew	A	LC
30.	*Butas turteesa*	White-eyed Buzzard	T	LC
31.	*Buteo buteo*	Common Buzzard	T	LC
32.	*Butorides striatus*	Little Green Heron	A	LC
33.	*Cacomantis passerinus*	Indian Plaintive Cuckoo	T	LC
34.	*Calidris ferruginea*	Curlew sandpiper	A	LC
35.	*Calidris pugnax*	Ruf	A	LC
36.	*Calidris minuta*	Little Stint	A	LC
37.	*Calidris temminckii*	Temminck's stint	A	LC
38.	*Caprimulgus indicus*	Indian Jungle Nightjar	T	LC
39.	*Casmerodius albus*	Great Egret	A	LC
40.	*Centropus sinensis*	Greater Coucal	T	LC
41.	*Ceryle rudis*	Pied Kingfisher	D	LC
42.	*Charadrius alexandrinus*	Kentish Plover	A	LC
43.	*Charadrius dubius*	Little Ringed Plover	A	LC
44.	*Chlidonias hybridus*	Whiskered Tern	A	LC
45.	*Chlidonias leucopterus*	White-winged Tern	A	LC
46.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC

47.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC
48.	*Ciconia episcopus*	Woolly-necked Stork	A	LC
49.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC
50.	*Circus macrourus*	Pallid Harrier	T	LC
51.	*Circus melanoleucos*	Pied Harrier	T	LC
52.	*Cisticola juncidis*	Zitting Cisticola	T	LC
53.	*Clamator jacobinus*	Pied Cuckoo	T	LC
54.	*Columba livia*	Rock Pigeon	T	LC
55.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
56.	*Coracias benghalensis*	Indian Roller	T	LC
57.	*Corvus macrorhynchus*	Large-billed Crow	T	LC
58.	*Corvus splendens*	House Crow	T	LC
59.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
60.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
61.	*Dicaeum erythrorhynchos*	Pale-billed Flowerpecker	T	LC
62.	*Dicrurus adsimilis*	Black Drongo	T	LC
63.	*Dupetor flavicollis*	Black Bittern	A	LC
64.	*Egretta garzetta*	Little Egret	A	LC
65.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
66.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC
67.	*Eudynamys scolopacea*	Asian Koel	T	LC
68.	*Falco tinnunculus*	Common Kestrel	T	LC
69.	*Francolinus pondicerianus*	Grey Francolin	T	LC
70.	*Fulica atra*	Coot	A	LC
71.	*Gallinago stenura*	Pintail Snipe	A	LC
72.	*Gallicrex cinerea*	Watercock	A	LC
73.	*Gallinula chloropus*	Common Moorhen	A	LC
74.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
75.	*Glareola maldivarum*	Oriental Pratincole	A	LC
76.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC

77.	*Haliastur indus*	Brahminy Kite	T	LC
78.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
79.	*Himantopus himantopus*	Black-winged Stilt	A	LC
80.	*Hirundo rustica*	Barn Swallow	T	LC
81.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
82.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
83.	*Icthyophaga leucogaster*	White-bellied sea eagle	T	LC
84.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC
85.	*Ixobrychus sinensis*	Yellow Bittern	A	LC
86.	*Limosa limosa*	Black-tailed Godwit	A	LC
87.	*Lonchura Malacca*	Black-headed Munia	D	LC
88.	*Merops orientalis*	Green Bee-eater	T	LC
89.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
90.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
91.	*Milvus migrans*	Black Kite	T	LC
92.	*Mirafra affinis*	Jerdon's Bushlark	T	LC
93.	*Motacilla flava*	Yellow Wagtail	D	LC
94.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC
95.	*Mycteria leucocephala*	Painted Stork	A	NT
96.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC
97.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC
98.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
99.	*Orthotomus sutorius*	Common Tailorbird	T	LC
100.	*Pavo cristatus*	Indian Peafowl	T	LC
101.	*Passer domesticus*	House Sparrow	T	LC
102.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC
103.	*Phalacrocorax carbo*	Great Cormorant	A	LC
104.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC
105.	*Phalacrocorax niger*	Little Cormorant	A	LC
106.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC

107.	*Phoenicopterus ruber*	Greater Flamingo	A	LC
108.	*Phaenicophaeus tristis*	Green-billed Malkoha	T	LC
109.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC
110.	*Plegadis falcinellus*	Glossy Ibis	A	LC
111.	*Ploceus manyar*	Streaked Weaver	T	LC
112.	*Pluvialis squatarola*	Grey Plover	A	LC
113.	*Porphyrio porphyria*	Purple Swamphen	A	LC
114.	*Prinia inornata*	Plain Prinia	T	LC
115.	*Prinia socialis*	Ashy Prinia	T	LC
116.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC
117.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC
118.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
119.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
120.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC
121.	*Saxicola caprata*	Pied Bush Chat	T	LC
122.	*Saxicoloides fulicata*	Indian Robin	T	LC
123.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC
124.	*Sterna albifrons*	Little Tern	A	LC
125.	*Sterna anaethetus*	Bridled Tern	A	LC
126.	*Sterna aurantia*	River Tern	A	LC
127.	*Sterna caspia*	CaspianTern	A	LC
128.	*Streptopelia chinensis*	Spotted Dove	T	LC
129.	*Sturnus pagodarum*	Brahminy Starling	T	LC
130.	*Tachybaptus ruficollis*	Little Grebe	A	LC
131.	*Tachymarptis melba*	Alpine Swift	T	LC
132.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC
133.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC
134.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC
135.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
136.	*Tringa ochropus*	Green Sandpiper	A	LC
137.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC

138.	*Turdoides affinis*	Yellow-billed Babbler	T	LC
139.	*Turnix suscitator*	Common Buttonquail	T	LC
140.	*Tyto alba*	Barn Owl	T	LC
141.	*Upupa epops*	Hoopoe	T	LC
142.	*Vanellus indicus*	Red-wattled Lapwing	D	LC
143.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC
144.	*Zoothera citrina*	Orange-headed Thrush	T	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.8.4. IUCN Status of major plant invasive alien species in Achankulam Wetland

S. No.	Species	Family	Tamil Name
1.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
2.	*Hyptis suaveolens*	Labiatae	
3.	*Lantana camara*	Verbenaceae	Unnichedi
4.	*Prosopis juliflora*	Fabaceae	Seemaikaruvai
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Typha angustifolia*	Typhaceae	Sambu
7.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.8.5. IUCN Status of major medicinal plant species in Achankulam Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
2.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC
3.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
4.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
5.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
6.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
7.	*Terminalia chebula*	Combretaceae		Tree	LC
8.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE

9.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
10.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.9 THEN PENNAI RIVER MOUTH WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai - 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Then Pennai River Mouth or Ponnaiyar River

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Nanmedu, Uchchimedu, Kanganankuppam, Subauppalavadi

1.3 *Name of the District (s) in which Wetlands complex located: Cuddalore*

1.4 *Geographical coordinates:*

► Latitude: 11˚46’34.74” N

► Longitude: 79˚47’38.68” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 78.5 ha

2.2 *Wetland type*:

Category	**Subcategory**
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reef
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 3; Maximum - 5

2.4 *Elevation (m above mean sea level):* 2

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Backwater received from Bay of Bengal
- ✓ Name of River/ Canal System: Thenpennai river is one of the sources of water

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfal (mm): 218.1

b) Temperature (°C) Minimum 26.1 ; Maximum 35.95

c) Humidity (%) Minimum 65.8 ; Maximum 70.1

2.7 *Area of zone of influence (in ha):* 3332.76 ha (with an irregular radius of 5.67 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	5%
Agriculture	:	0%
Settlements (Rural)	:	0%
Settlements (Urban)	:	31%
Industrial	:	0%
Waterbody	:	47%
Beach	:	2%
Aquaculture	:	14%

2.9. *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.9 (Fig. 3.9.1-3.9.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 49 species. (refer to Table 3.9.1 in Annexure 3.9).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 124 recorded species. This includes 5 mammal species, 19 reptile species, 9 amphibian species, 79 bird species, and 12 species of butterflies (refer to Table 3.9.2-3.9.3 in Annexure 3.9).

3.3 *Species of conservation significance:* Highlighted in Table 3.9.1-3.9.3

3.4 *Major plant invasive alien species:* The Wetland supports 10 plant invasive species (refer to Table 3.9.4 in Annexure 3.9).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.9.5 in Annexure 3.9).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.9.6 (Annexure 3.9)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is few temples around the Wetland & Cremation ritual activities are happening
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	
Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration
Aquaculture	✓ Yes ❒ No	Aquaculture plants were observed while ground-truthing

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for the site**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is few temples around the Wetland & Cremation ritual activities are happening

Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Boating is there for fishing
Aquaculture	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Aquaculture ponds were observed while ground-truthing

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium ❒Low	❒Present ❒Potential	
Encroachment	❒High	❒Present	

	❒ Medium ❒ Low	❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.9.4 in Annexure 3.9
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (9) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex			

		boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press.
2. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of Presidency of Madras*. Adlard and Son.
3. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India.
4. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009.

5. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
6. Matthew, K. M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
7. Matthew, K. M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
8. Matthew, K. M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
9. Matthew, K. M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
10. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.

ANNEXURE 3.9

Fig. 3.9.1. Zone of Influence of Then Pennai River Mouth

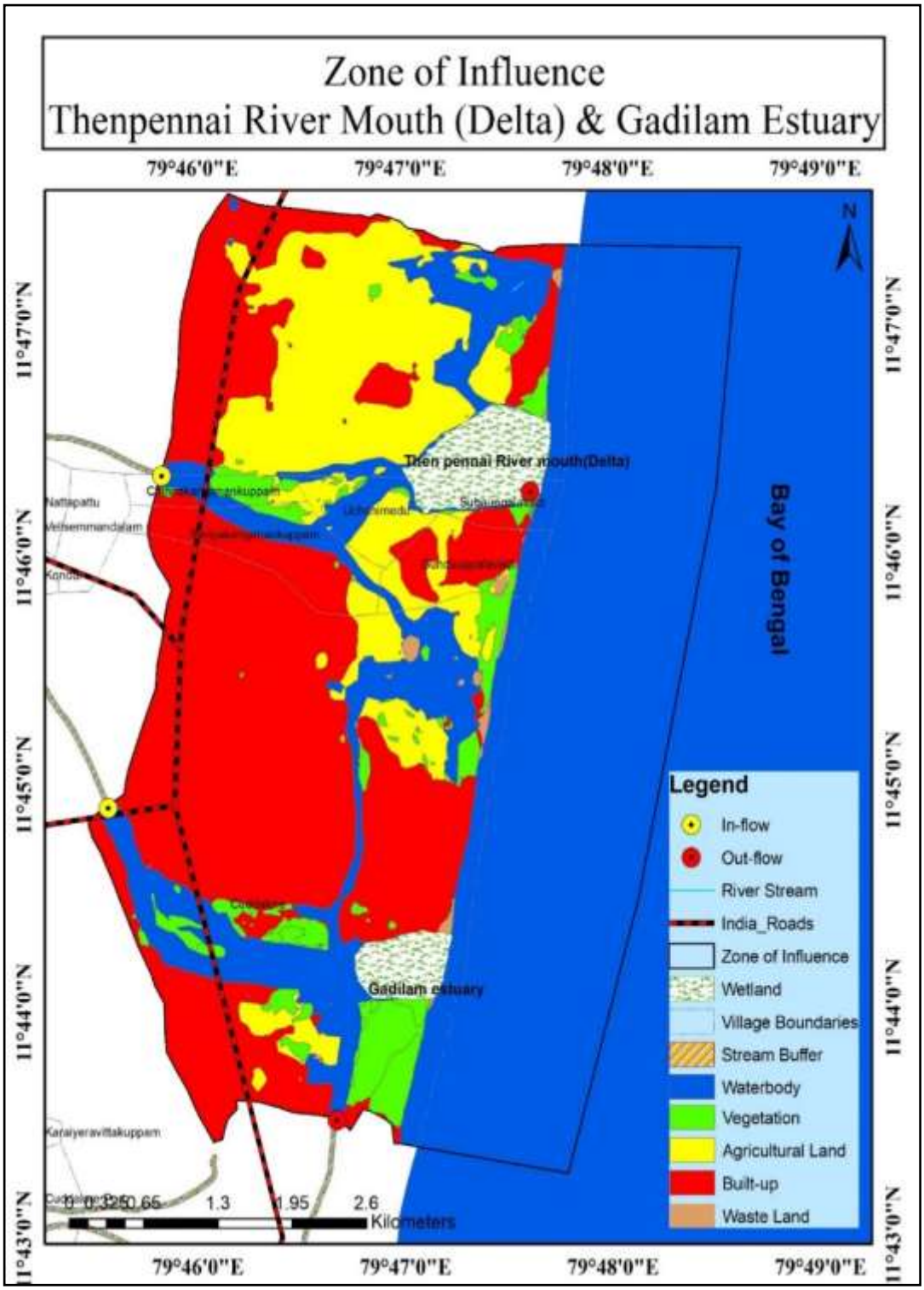


Fig. 3.9.2. Map (2010 *vs* 2024) and Land Use/ Land Cover of Then Pennai River Mouth

Map of the Wetland in 2010



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

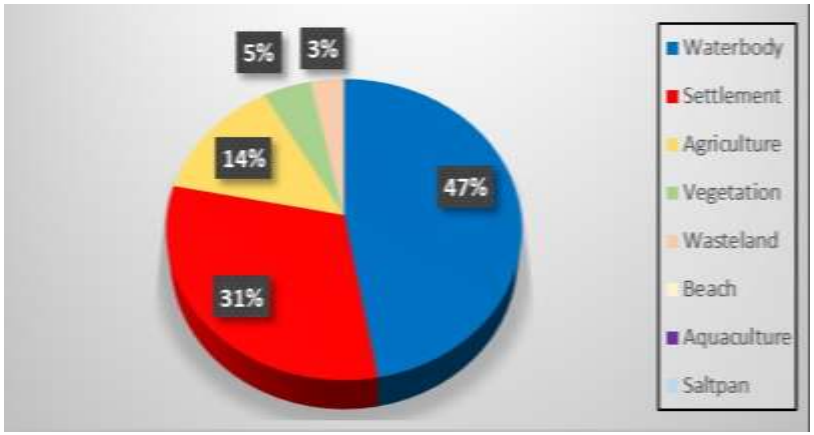


Table 3.9.1. IUCN Status of Floral Species in Then Pennai River Mouth

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
3.	*Acanthospermum hispidum*	Compositae		Herb	NE
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
6.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
7.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
8.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
9.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
10.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
11.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
12.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
13.	*Casuarina equisetifolia*	Casuarinaceae	Savukku	Tree	LC
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
17.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
18.	*Digitaria ciliaris*	Poaceae		Grass	NE
19.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
20.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
21.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
22.	*Ischaemum indicum*	Poaceae	-	Grass	LC
23.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
24.	*Justicia prostrata*	Acanthaceae		Herb	NE
25.	*Launaea bellidifolia*	Asteraceae		Herb	LC
26.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC

27.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
28.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
29.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
30.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
31.	*Pedalium murex*	Pedaliaceae		Herb	NE
32.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
33.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
34.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
35.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
36.	*Senna siamea*	Fabaceae		Tree	LC
37.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
38.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
39.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
40.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
41.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
42.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
43.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
44.	*Trachys muricata*	Poaceae	-	Grass	LC
45.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
46.	*Tridax procumbens*	Compositae	Vettukkaayachedi	Herb	LC
47.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
48.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
49.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.9.2. IUCN Status of Selected Fauna Species in Then Pennai River Mouth

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC
3.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
4.	*Rattus rattus*	Muridae	House rat	LC
5.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
17.	*Naja naja*	Elapidae	Cobra	LC

18.	*Bungarus caeruleus*	Elapidae	Krait	LC
19.	*Vipera russelli*	Viperidae	Russell's viper	LC
C. Amphibian				
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Common crow	LC
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	LC
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
5.	*Papilio demoleus*	Papilionidae	Common lime	LC
6.	*Papilio polytes*	Papilionidae	Common mormon	LC
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	LC
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	LC
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	LC
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC

LC – Least Concern; * - Yes

Table 3.9.3. IUCN Status of Bird Species in Then Pennai River Mouth

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	Status
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
3.	*Alcedo atthis*	Common Kingfisher	T	LC	*
4.	*Anas acuta*	Northern Pintail	A	LC	
5.	*Anas crecca*	CommonTeal	A	LC	
6.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
7.	*Apus affinis*	House Swift	T	LC	
8.	*Ardea cinerea*	Grey Heron	A	LC	*
9.	*Ardea purpurea*	Purple Heron	A	LC	
10.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
11.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
12.	*Bubulcus ibis*	Cattle Egret	D	LC	*
13.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
14.	*Casmerodius albus*	Great Egret	A	LC	
15.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
16.	*Charadrius dubius*	Little Ringed Plover	A	LC	
17.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
18.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
19.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
20.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
21.	*Columba livia*	Rock Pigeon	T	LC	
22.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
23.	*Coracias benghalensis*	Indian Roller	T	LC	*
24.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
25.	*Corvus splendens*	House Crow	T	LC	*
26.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
27.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
28.	*Dupetor flavicollis*	Black Bittern	A	LC	

29.	*Egretta garzetta*	Little Egret	A	LC	*
30.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
31.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
32.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
33.	*Falco tinnunculus*	Common Kestrel	T	LC	
34.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
35.	*Fulica atra*	Coot	A	LC	
36.	*Gallinula chloropus*	Common Moorhen	A	LC	*
37.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
38.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
39.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
40.	*Haliastur indus*	Brahminy Kite	T	LC	*
41.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
42.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
43.	*Hirundo rustica*	Barn Swallow	T	LC	
44.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
45.	*Limosa limosa*	Black-tailed Godwit	A	LC	
46.	*Lonchura malacca*	Black-headed Munia	D	LC	
47.	*Merops orientalis*	Green Bee-eater	T	LC	*
48.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
49.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
50.	*Milvus migrans*	Black Kite	T	LC	*
51.	*Motacilla flava*	Yellow Wagtail	D	LC	
52.	*Mycteria leucocephala*	Painted Stork	A	NT	*
53.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
54.	*Passer domesticus*	House Sparrow	T	LC	*
55.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
56.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
57.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
58.	*Prinia inornata*	Plain Prinia	T	LC	

59.	*Prinia socialis*	Ashy Prinia	T	LC	*
60.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
61.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
62.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
63.	*Saxicoloides fulicata*	Indian Robin	T	LC	
64.	*Sterna albifrons*	Little Tern	A	LC	
65.	*Sterna anaethetus*	Bridled Tern	A	LC	
66.	*Sterna aurantia*	River Tern	A	LC	*
67.	*Sterna caspia*	CaspianTern	A	LC	
68.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
69.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
70.	*Tachymarptis melba*	Alpine Swift	T	LC	
71.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC	
72.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC	
73.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
74.	*Tringa ochropus*	Green Sandpiper	A	LC	*
75.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
76.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
77.	*Turnix suscitator*	Common Buttonquail	T	LC	
78.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
79.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.9.4. IUCN Status of major plant invasive alien species in Then Pennai River Mouth

S. No.	Species	Family	Tamil Name
1.	*Casuarina equisetifolia*	Casuarinaceae	Savukku
2.	*Ipomoea carnea*	Convolvulaceae	
3.	*Lantana camara*	Verbenaceae	Unnichedi
4.	*Martynia annua*	Martyniaceae	Thael Kodukku
5.	*Parthenium hysterophorus*	Compositae	Vishachedi
6.	*Prosopis julifera*	Fabaceae	Semai karuvel

7.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
8.	*Senna siamea*	Fabaceae	
9.	*Typha angustifolia*	Typhaceae	Sambu
10.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.9.5. IUCN Status of major animal invasive alien species in Thenpennai River Mouth

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.9.6. IUCN Status of major medicinal plant species in Thenpennai River Mouth

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Borassus flabellifer*	Arecaceae	Panai	Tree
7.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
8.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
9.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb
10.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
11.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb
12.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb
13.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
14.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
15.	*Tridax procumbens*	Compositae	Vettukkaayachedi	Herb

16.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
17.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.10. GADILAM ESTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Gadilam Estuary or Kedilam Estuary

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Sothikkuppam, Pudupalayam, Sonankuppam, Devanampattianam, Singarathope, Kayalpattu, Raasapettai, Panchayankuppam, Kudikadu, Cuddalore

1.3 *Name of the District (s) in which Wetlands complex located:* Cuddalore

1.4 *Geographical coordinates:*

► Latitude: 11˚44'8.4804" N

► Longitude: 79˚47'2.2668" E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 37.54 ha

2.2 *Wetland type*:

Category	**Subcategory**
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reef
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 3; Maximum - 5

2.4 *Elevation (m above mean sea level):* 0

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Backwater received from Bay of Bengal
- ❒ Name of River/ Canal System:

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30 -40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfal (mm): 218.1

b) Temperature (°C) Minimum 26.1 ; Maximum 35.95

c) Humidity (%) Minimum 65.8 ; Maximum 70.1

2.7 *Area of zone of influence (in ha):* 3373.78 ha (with an irregular radius of 5.67 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	5%
Agriculture	:	0%
Settlements (Rural)	:	0%
Settlements (Urban)	:	31%
Industrial	:	0%
Waterbody	:	47%
Beach	:	3%
Aquaculture	:	14%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.10 (Fig. 3.10.1-3.10.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 47 species (refer to Table 3.10.1 in Annexure 3.10).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 109 recorded species. This includes 7 mammal species, 17 reptile species, 4 amphibian species, 69 bird species, and 12 species of butterflies (refer to Table 3.10.2-3.10.3 in Annexure 3.10).

3.3 *Species of conservation significance:* Highlighted in Table 3.10.1-3.10.3

3.4 *Major plant invasive alien species:* The Wetland supports 8 plant invasive species (refer to Table 3.10.4 in Annexure 3.10).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.10.5 in Annexure 3.10).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.10.6 (Annexure 3.10)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is few temples around the Wetland & Cremation ritual activities are happening
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	❒ Yes ✓ No	

Supports life cycle of fish or amphibians	❒ Yes ✓ No	
Mining	❒ Yes ✓ No	
Mangroves	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for the site**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is few temples around the Wetland & Cremation ritual activities are happening
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No	

		❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	✓Yes ❒No	❒Yes ❒No ✓Not assessed	Boating is there for fishing
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium ❒Low	❒Present ❒Potential	
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	

Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.10.4 in Annexure 10
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (10) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press.
2. Ambedkar, G., & Muniyan, M. (2012). Analysis of heavy metals in water, sediments, and selected freshwater fish collected from Gadilam river, Tamil Nadu, India. *International Journal of Toxicology and Applied Pharmacology*, 1-3.
3. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of Presidency of Madras*. Adlard and Son.
4. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India.
5. Ratnam, K. *Birds of Tamil Nadu*.

6. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009.
7. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
8. Matthew, K. M. (1981). *The material for the flora of the Tamil Nadu Carnatic*. Madras, India.
9. Matthew, K. M. (1982). *Illustrations on the flora of the Tamil Nadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
10. Matthew, K. M. (1983). *The flora of Tamil Nadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
11. Matthew, K. M. (1988). *Further illustrations on the flora of the Tamil Nadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
12. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.

ANNEXURE 10

Fig. 3.10.1. Zone of Influence of Gadilam Estuary

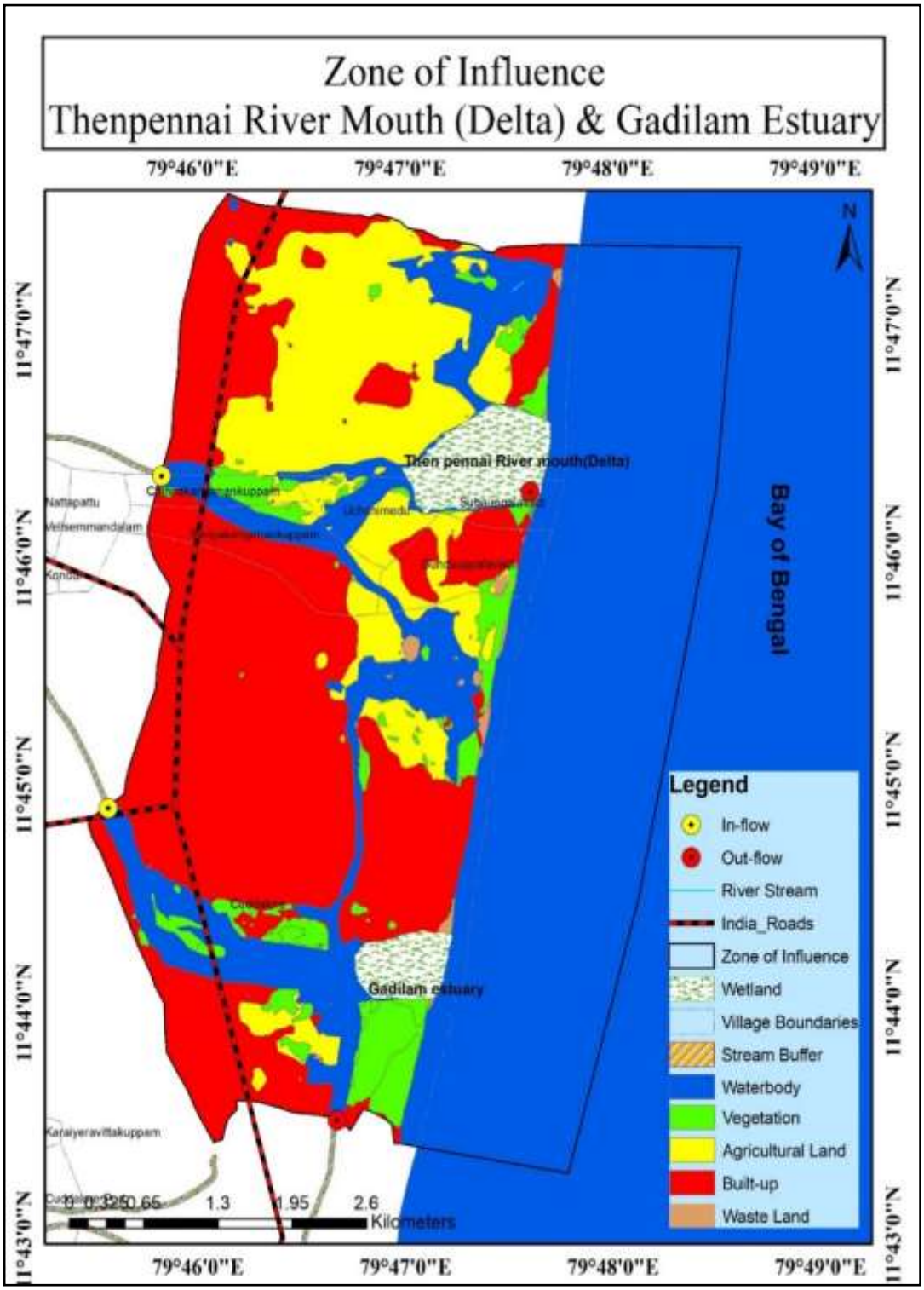


Fig. 3.10.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Gadilam Estuary

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

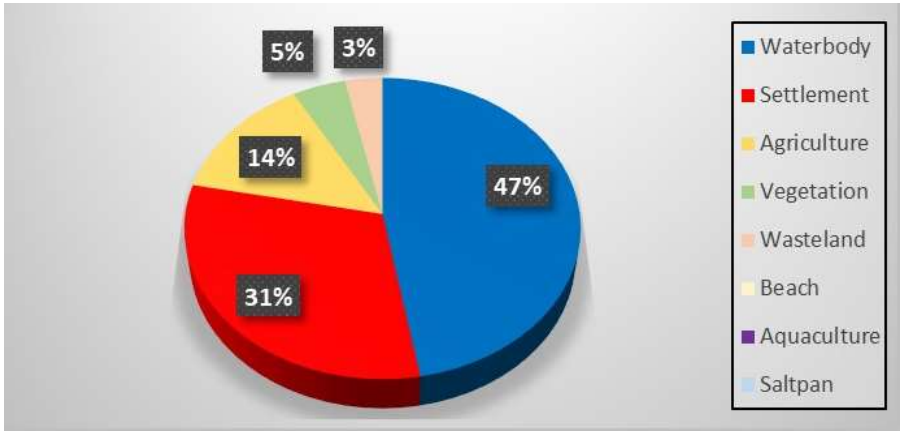


Table 3.10.1. IUCN Status of Floral Species in Gadilam Estuary

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
3.	*Acanthospermum hispidum*	Compositae		Herb	NE
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
6.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
7.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
8.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
9.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
10.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
11.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
12.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
13.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
14.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
15.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
16.	*Digitaria ciliaris*	Poaceae		Grass	NE
17.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
18.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
19.	*Ischaemum indicum*	Poaceae	-	Grass	LC
20.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
21.	*Justicia prostrata*	Acanthaceae		Herb	NE
22.	*Launaea bellidifolia*	Asteraceae		Herb	LC
23.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
24.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
25.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
26.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC

27.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
28.	*Pedalium murex*	Pedaliaceae		Herb	NE
29.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
30.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
31.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
32.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
33.	*Senna siamea*	Fabaceae		Tree	LC
34.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
35.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
36.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
37.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
38.	*Rhizophora apiculata*	Rhizophoraceae		Tree	LC
39.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
40.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
41.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
42.	*Trachys muricata*	Poaceae	-	Grass	LC
43.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
44.	*Tridax procumbens*	Compositae	Vettukkaayachedi	Herb	LC
45.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
46.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
47.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.10.2. IUCN Status of Selected Fauna Species in Gadilam Estuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A.	*Mammal*			
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC
2.	*Macaca radiata*	Cercopithecidae	Bonnet macaque	

3.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
4.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC
5.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
6.	Rattus rattus	Muridae	House rat	LC
7.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
11.	*Atretium schistosum*	Colubridae	Olive keel back	LC
12.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
13.	*Ptyas mucosus*	Colubridae	Rat snake	NE
14.	*Bungarus caeruleus*	Elapidae	Krait	LC
15.	*Vipera russelli*	Viperidae	Russell's viper	LC
16.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC
17.	*Lissemys punctata*	Trionychidae	Falpshell	VU
C. Amphibian				
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC

3.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
4.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Common crow	LC
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	LC
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
5.	*Papilio demoleus*	Papilionidae	Common lime	LC
6.	*Papilio polytes*	Papilionidae	Common mormon	LC
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	LC
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	LC
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	LC
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC

LC – Least Concern; * - Yes

Table 3.10.3. IUCN Status of Bird Species in Gadilam Estuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	Status
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
4.	*Alcedo atthis*	Common Kingfisher	T	LC	*
5.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
6.	*Anas acuta*	Northern Pintail	A	LC	
7.	*Anas crecca*	CommonTeal	A	LC	
8.	*Anastomus oscitans*	Asian Openbill	A	LC	

9.	*Apus affinis*	House Swift	T	LC	
10.	*Ardea cinerea*	Grey Heron	A	LC	*
11.	*Ardea purpurea*	Purple Heron	A	LC	
12.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
13.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
14.	*Bubulcus ibis*	Cattle Egret	D	LC	*
15.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
16.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
17.	*Casmerodius albus*	Great Egret	A	LC	
18.	*Centropus sinensis*	Greater Coucal	T	LC	*
19.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
20.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
21.	*Columba livia*	Rock Pigeon	T	LC	
22.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
23.	*Coracias benghalensis*	Indian Roller	T	LC	*
24.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
25.	*Corvus splendens*	House Crow	T	LC	*
26.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
27.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
28.	*Dupetor flavicollis*	Black Bittern	A	LC	
29.	*Egretta garzetta*	Little Egret	A	LC	*
30.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
31.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
32.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
33.	*Falco tinnunculus*	Common Kestrel	T	LC	
34.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
35.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
36.	*Haliastur indus*	Brahminy Kite	T	LC	*
37.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
38.	*Himantopus himantopus*	Black-winged Stilt	A	LC	

39.	*Hirundo rustica*	Barn Swallow	T	LC	
40.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
41.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
42.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
43.	*Lonchura malacca*	Black-headed Munia	D	LC	
44.	*Merops orientalis*	Green Bee-eater	T	LC	*
45.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
46.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
47.	*Milvus migrans*	Black Kite	T	LC	*
48.	*Ortygornis pondicerianus*	Gray Francolin	T	LC	*
49.	*Pavo cristatus*	Indian Peafowl	T	LC	*
50.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
51.	*Prinia inornata*	Plain Prinia	T	LC	*
52.	*Prinia socialis*	Ashy Prinia	T	LC	*
53.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	*
54.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
55.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
56.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
57.	*Saxicoloides fulicata*	Indian Robin	T	LC	
58.	*Sterna aurantia*	River Tern	A	LC	*
59.	*Sterna caspia*	CaspianTern	A	LC	
60.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
61.	*Tachymarptis melba*	Alpine Swift	T	LC	
62.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC	
63.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC	
64.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
65.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
66.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
67.	*Turnix suscitator*	Common Buttonquail	T	LC	
68.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.10.4. IUCN Status of major plant invasive alien species in Gadilam Estuary

S. No.	Species	Family	Tamil Name
1.	*Lantana camara*	Verbenaceae	Unnichedi
2.	*Martynia annua*	Martyniaceae	Thael Kodukku
3.	*Parthenium hysterophorus*	Compositae	Vishachedi
4.	*Prosopis julifera*	Fabaceae	Semai karuvel
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Senna siamea*	Fabaceae	
7.	*Typha angustifolia*	Typhaceae	Sambu
8.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.10.5. IUCN Status of major animal invasive alien species in Gadilam Estuary

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.10.6. IUCN Status of major medicinal plant species in Gadilam Estuary

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
7.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
8.	*Pedalium murex*	Pedaliaceae		Herb
9.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
10.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
11.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree

12.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
13.	*Tridax procumbens*	Compositae	Vettukkaayachedi	Herb
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
15.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.11. PICHAVARAM MANGROVE FOREST

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai - 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Pichavaram Mangrove Forest or Killai Back waters or Pichavaram Vayal

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Killai, Kille, Pichavaram, Kanakkarapattu, Thirukazhipalai, Kodiyampalayam, Singarakuppam

1.3 *Name of the District (s) in which Wetlands complex located:* Cuddalore

1.4 *Geographical coordinates:*

► Latitude: 11˚26'17" N

► Longitude: 79˚47'11" E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 11: Site Characteristics

2.1 *Area of Wetland:* 1478.48 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reef
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2.5; Maximum – 5

2.4 *Elevation (m above mean sea level):* 1

2.4 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Backwater received from Bay of Bengal
- ✓ Name of River/ Canal System: Vellar Estuary, Coleroon Estuary

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-110 g/l)
- ❒ Euhaline (110-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ✓ Eutrophic
- ❒ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.5 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 218.1

b) Temperature (°C) Minimum 26.1 ; Maximum 35.95

c) Humidity (%) Minimum 65.8 ; Maximum 70.1

2.6 *Area of zone of influence (in ha):* 15576.85 ha (with an irregular radius of 5.67 km)

2.7 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	13%
Agriculture	:	34%
Settlements (Rural)	:	12%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	38%
Beach	:	1%
Aquaculture	:	2%

2.8 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.11 (Fig. 3.11.1-3.11.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 54 species (refer to Table 3.11.1 in Annexure 3.11).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 188 recorded species. This includes 7 mammal species, 21 reptile species, 9 amphibian species, 138 bird species, and 13 species of butterflies (refer to Table 3.11.2-3.11.3 in Annexure 3.11).

3.3 *Species of conservation significance:* Highlighted in Table 3.11.1-3.11.3

3.4 *Major plant invasive alien species:* The Wetland supports 11 plant invasive species (refer to Table 3.11.4 in Annexure 3.11).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.11.5 in Annexure 3.11).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.11.6 (Annexure 3.11)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	
Aquaculture	✓ Yes ❒ No	Aquaculture plants were observed while ground-truthing
Mangroves	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Boating is there for fishing & Mainly for tourism
Aquaculture	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Aquaculture were observed while ground-truthing

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.11.4 in Annexure 3.11
Disruption due to Ghost nuts	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Ghost nuts are observed more in number

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (11) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex			

		boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges	Prohibited	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			There is a boat jetty for each access & anchorage of boats
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Abhisheka, K., David, J.P., Prashanth, M.B., Seshadri, K.S., & Ganesh, T. (2013). First detailed survey of waterbirds in Tirunelveli and Tuticorin districts, Tamil Nadu, India. Journal of Threatened Taxa, 5(111), 4641–4651. https://doi.org/10.11609/JoTT.o31115.4641-511
2. Aengals, R., Sathish Kumar, V.M., Palot, M.J., & Ganesh, S.R. (2018). A checklist of reptiles of India (Version 3.0). 35 pp. Available online at www.zsi.gov.in (Last update: May 2018).

3. Ali, S. (2011). The book of Indian birds (13th Revised Edition). Oxford University Press, New Delhi.
4. Bibby, C.J., Burgess, N.D., & Hill, D.A. (1993). Bird census techniques. Academic Press Limited, London.
5. Gamble, J.S., & Fischer, C.E.C. (1915-1935). Flora of Presidency of Madras. Adlard and Son, London.
6. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). Pocket guide to the birds of the Indian subcontinent. Oxford University Press, New York.
7. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). Flora of Tamil Nadu India. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
8. Ratnam, K. Birds of Tamil Nadu.
9. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa, 11(8), 13991–14009. https://doi.org/10.11609/jott.4705.11.8.13991–14009.
10. Kehimkar, I. (2008). The book of Indian butterflies. Bombay Natural History Society.
11. Matthew, K. M. (1981). The material for the flora of the Tamil Nadu Carnatic. Madras, India.
12. Matthew, K. M. (1981). Illustrations on the flora of the Tamil Nadu Carnatic (Vol. II). The Diocesan Press, Madras, India.
13. Matthew, K. M. (1983). The flora of Tamil Nadu Carnatic (Vol. III). The Diocesan Press, Madras, India.
14. Matthew, K. M. (1988). Further illustrations on the flora of the Tamil Nadu Carnatic (Vol. IV). The Diocesan Press, Madras, India.
15. Nair, N.C., & Henry, A.N. (1983). Flora of Tamil Nadu, India. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.
16. Sudhakaran, M.R., & Sekar, R. (2011). Status of aquatic birds and flora of Vagaikulam, Tenkasi, Tamil Nadu. Indian Journal of Fundamental and Applied Life Sciences, 1, 5-11.

ANNEXURE 3.11

Fig 3.11.1. Zone of Influence of Pichavaram Mangrove Forest

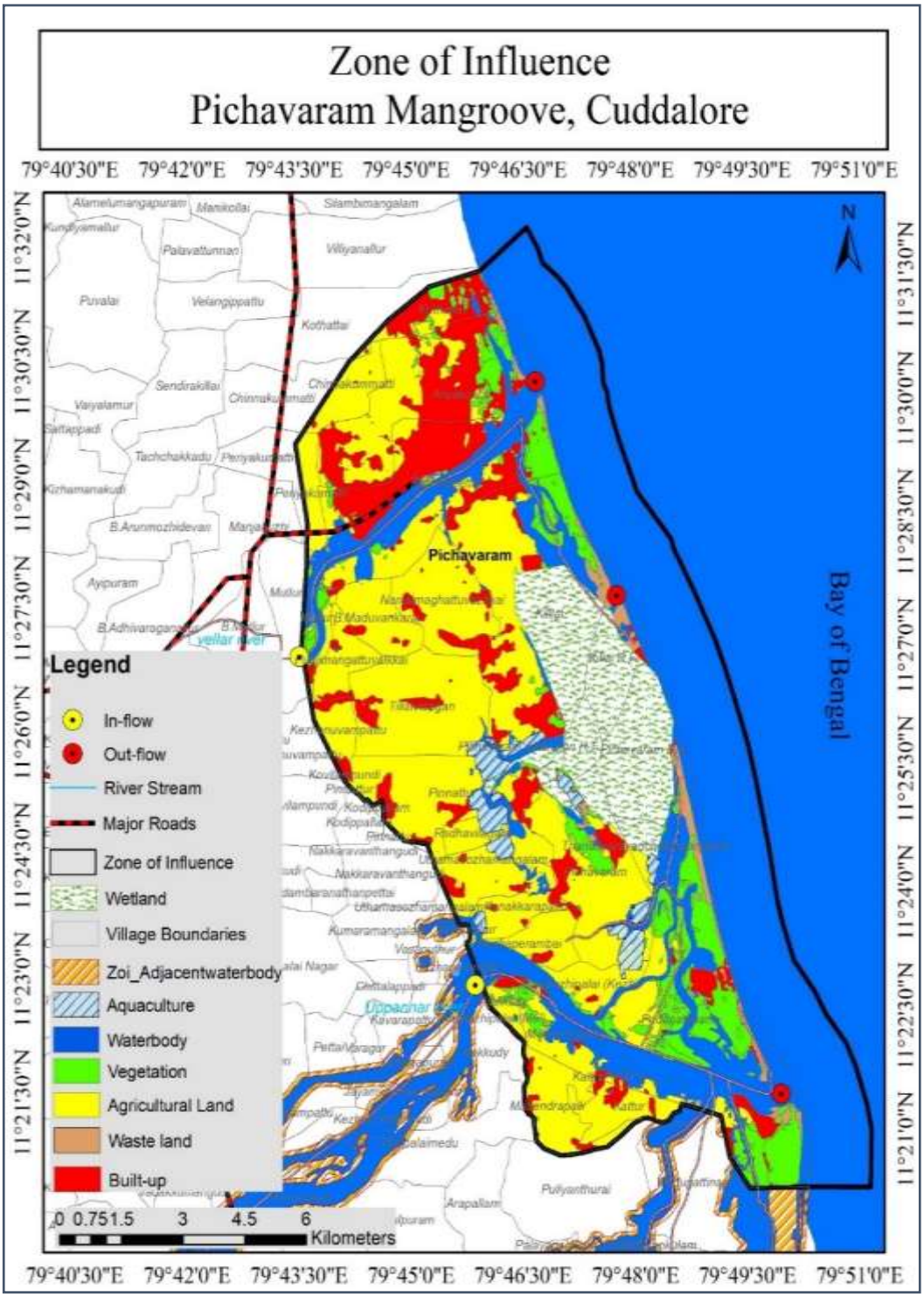


Fig 3.11.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Pichavaram Mangrove Forest

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

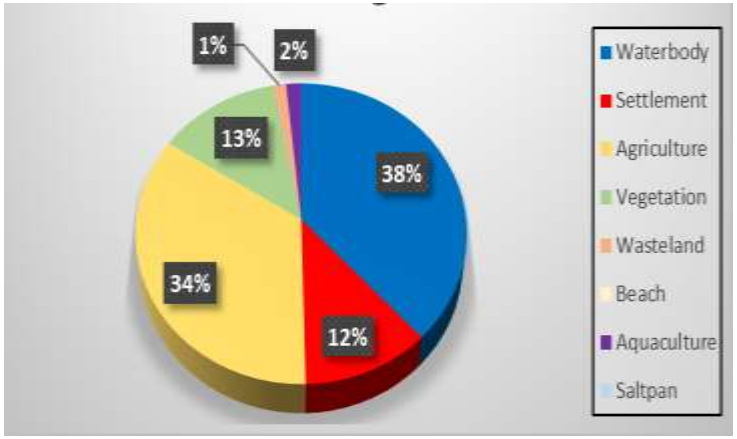


Table 3.11.1. IUCN Status of Floral Species in Pichavaram Mangrove Forest

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
9.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Cyperus iria*	Cyperaceae		Sedge	NE
20.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
21.	*Digitaria ciliaris*	Poaceae		Grass	NE
22.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
23.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
24.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
25.	*Ischaemum indicum*	Poaceae	-	Grass	LC

26.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
27.	*Justicia prostrata*	Acanthaceae		Herb	NE
28.	*Launaea bellidifolia*	Asteraceae		Herb	LC
29.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
30.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
31.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
32.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
33.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
34.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
35.	*Pedalium murex*	Pedaliaceae		Herb	NE
36.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
37.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
38.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
39.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
40.	*Senna siamea*	Fabaceae		Tree	LC
41.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
42.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
43.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
44.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
45.	*Rhizophora mucronata*	Rhizophoraceae		Tree	LC
46.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
47.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
48.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
49.	*Trachys muricata*	Poaceae	-	Grass	LC
50.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
51.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
52.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE

53.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
54.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.11.2. IUCN Status of Selected Fauna Species in Pichavaram Mangrove Forest

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Macaca radiata*	Cercopithecidae	Bonnet macaque	
2.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
3.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC
4.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
5.	Rattus rattus	Muridae	House rat	LC
6.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
7.	*Canis aureus*	Canidae	Jackal	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE

13.	*Atretium schistosum*	Colubridae	Olive keel back	LC
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
17.	*Naja naja*	Elapidae	Cobra	LC
18.	*Bungarus caeruleus*	Elapidae	Krait	LC
19.	*Vipera russelli*	Viperidae	Russell's viper	LC
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU
C. Amphibian				
5.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
6.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
7.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
8.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
9.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
10.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
11.	*Ramanella variegata*	Elapidae	Marbled frog	LC
12.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
13.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Common crow	LC
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
5.	*Papilio demoleus*	Papilionidae	Common lime	NE
6.	*Papilio polytes*	Papilionidae	Common mormon	NE
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE

8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC
13.	*Pachliopta aristolochiae*	Papilionidae	Common Rose	NE

LC – Least Concern; * - Yes

Table 3.11.3. IUCN Status of Bird Species in Pichavaram Mangrove Forest

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	Status
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Aegithina tiphia*	Common Iora	T	LC	*
6.	*Alauda gulgula*	Oriental Skylark	T	LC	
7.	*Alcedo atthis*	Common Kingfisher	T	LC	*
8.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
9.	*Anas acuta*	Northern Pintail	A	LC	
10.	*Anas clypeata*	Northern Shoveller	A	LC	
11.	*Anas crecca*	CommonTeal	A	LC	*
12.	*Anas penelope*	EurasianWigeon	A	LC	
13.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
14.	*Anas querquedula*	Garganey	A	LC	
15.	*Anastomus oscitans*	Asian Openbill	A	LC	*
16.	*Anhinga melanogaster*	Darter	A	LC	
17.	*Anthus richardi*	Richard's Pipit	D	LC	
18.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
19.	*Apus affinis*	House Swift	T	LC	
20.	*Ardea cinerea*	Grey Heron	A	LC	*

21.	*Ardea purpurea*	Purple Heron	A	LC	
22.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
23.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
24.	*Athene brama*	Spotted Owlet	T	LC	
25.	*Bubulcus ibis*	Cattle Egret	D	LC	*
26.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
27.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
28.	*Burhinus oedicnemus*	Stone Curlew	A	LC	
29.	*Butas turteesa*	White-eyed Buzzard	T	LC	
30.	*Buteo buteo*	Common Buzzard	T	LC	
31.	*Butorides striatus*	Little Green Heron	A	LC	
32.	*Cacomantis passerinus*	Indian Plaintive Cuckoo	T	LC	
33.	*Calidris ferruginea*	Curlew sandpiper	A	LC	
34.	*Calidris pugnax*	Ruf	A	LC	
35.	*Calidris minuta*	Little Stint	A	LC	*
36.	*Calidris temminckii*	Temminck's stint	A	LC	
37.	*Caprimulgus indicus*	Indian Jungle Nightjar	T	LC	
38.	*Casmerodius albus*	Great Egret	A	LC	
39.	*Centropus sinensis*	Greater Coucal	T	LC	
40.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
41.	*Charadrius alexandrinus*	Kentish Plover	A	LC	
42.	*Charadrius dubius*	Little Ringed Plover	A	LC	
43.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
44.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
45.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
46.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
47.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
48.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
49.	*Circus macrourus*	Pallid Harrier	T	LC	
50.	*Circus melanoleucos*	Pied Harrier	T	LC	

51.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
52.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
53.	*Columba livia*	Rock Pigeon	T	LC	
54.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
55.	*Coracias benghalensis*	Indian Roller	T	LC	*
56.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
57.	*Corvus splendens*	House Crow	T	LC	*
58.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
59.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
60.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
61.	*Dupetor flavicollis*	Black Bittern	A	LC	
62.	*Egretta garzetta*	Little Egret	A	LC	*
63.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
64.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
65.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
66.	*Falco tinnunculus*	Common Kestrel	T	LC	
67.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
68.	*Fulica atra*	Coot	A	LC	
69.	*Gallicrex cinerea*	Watercock	A	LC	
70.	*Gallinula chloropus*	Common Moorhen	A	LC	*
71.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
72.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
73.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
74.	*Haliastur indus*	Brahminy Kite	T	LC	*
75.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
76.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
77.	*Hirundo rustica*	Barn Swallow	T	LC	
78.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	

79.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
80.	*Icthyophaga leucogaster*	White-bellied sea eagle	T	LC	
81.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
82.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
83.	*Limosa limosa*	Black-tailed Godwit	A	LC	
84.	*Lonchura malacca*	Black-headed Munia	D	LC	
85.	*Merops orientalis*	Green Bee-eater	T	LC	*
86.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
87.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
88.	*Milvus migrans*	Black Kite	T	LC	*
89.	*Motacilla flava*	Yellow Wagtail	D	LC	
90.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
91.	*Mycteria leucocephala*	Painted Stork	A	NT	*
92.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
93.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
94.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
95.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
96.	*Passer domesticus*	House Sparrow	T	LC	*
97.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	*
98.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
99.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
100.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
101.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
102.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
103.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
104.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
105.	*Ploceus manyar*	Streaked Weaver	T	LC	
106.	*Pluvialis squatarola*	Grey Plover	A	LC	
107.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*

108.	*Prinia inornata*	Plain Prinia	T	LC	*
109.	*Prinia socialis*	Ashy Prinia	T	LC	*
110.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	*
111.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
112.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
113.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
114.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
115.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
116.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
117.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC	
118.	*Sterna albifrons*	Little Tern	A	LC	*
119.	*Sterna anaethetus*	Bridled Tern	A	LC	
120.	*Sterna aurantia*	River Tern	A	LC	*
121.	*Sterna caspia*	CaspianTern	A	LC	
122.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
123.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
124.	*Tachybaptus ruficollis*	Little Grebe	A	LC	*
125.	*Tachymarptis melba*	Alpine Swift	T	LC	
126.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC	
127.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
128.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC	
129.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
130.	*Tringa ochropus*	Green Sandpiper	A	LC	*
131.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
132.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
133.	*Turnix suscitator*	Common Buttonquail	T	LC	
134.	*Tyto alba*	Barn Owl	T	LC	*
135.	*Upupa epops*	Hoopoe	T	LC	
136.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
137.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*

138.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.11.4. IUCN Status of major plant invasive alien species in Pichavaram Mangrove Forest

S. No.	Species	Family	Tamil Name
1.	*Argemone mexicana*	Papaveraceae	Nai Kadugu
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Parthenium hysterophorus*	Compositae	Vishachedi
5.	*Prosopis julifera*	Fabaceae	Semai karuvel
6.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
7.	*Senna siamea*	Fabaceae	
8.	*Typha angustifolia*	Typhaceae	Sambu
9.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.11.5. IUCN Status of major animal invasive alien species in Pichavaram Mangrove Forest

S. No.	Species	Family	Common name	IUCN
A. Mammal				
	Rattus rattus	Muridae	House Rat	LC
B. Reptile				
	Hemidactylus Frenatus	Gekkonidae	House gecko	LC

Table 3.11.6. IUCN Status of major medicinal plant species in Pichavaram Mangrove Forest

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
4.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb

5.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
6.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
7.	*Mukia leiosperma*	Cucurbitaceae		Climber
8.	*Pedalium murex*	Pedaliaceae		Herb
9.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub
10.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
11.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
12.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb
15.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
16.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.12. PIDARANKARAI WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Pidarankarai Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Kilavarai, Poondi, Polur, Kavunji, Kodaikanal

1.3 *Name of the District (s) in which Wetlands complex located:* Dindigul

1.4 *Geographical coordinates:*

► Latitude: 10˚11'12.9" N

► Longitude: 77˚17'44.3" E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 3.35 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ✓ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ✓ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 2028

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ❒ Mesotrophic
- ✓ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 157.6

b) Temperature (°C) Minimum 16.75 ; Maximum 24.75

c) Humidity (%) Minimum 86.2 ; Maximum 88.7

2.7 *Area of zone of influence (in ha):* 7117.51 ha (with an irregular radius of 1.12 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	69%
Vegetation (Plantation)	:	0%
Agriculture	:	10%
Settlements (Rural)	:	1%
Settlements (Urban)	:	0%
Industrial	:	0%
Waste Land	:	20%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.12 (Fig. 3.12.1-3.12.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 70 species (refer to Table 3.12.1 in Annexure 3.12).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 158 recorded species. This includes 2 mammal species, 8 reptile species, 2 amphibian species, 100 bird species, and 46 species of butterflies (refer to Table 3.12.2-3.12.3 in Annexure 3.12).

3.3 *Species of conservation significance:* Highlighted in Table 3.12.1-3.12.3

3.4 *Major plant invasive alien species:* Not Available

3.5 *Major animal invasive alien species:* Not Available

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.12.4 in Annexure 3.12
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	✓ Yes ❒ No	Results into purification
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for thesite	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒No	❒Yes ❒No ✓Not assessed	Bison communities
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High	✓ Present	Listed in Table 3.12.4 in Annexure

	❒Medium ✓ Low	❒ Potential	3.12
Any others	❒High ❒Medium ❒Low	❒Present ❒Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	Relevance	Within Wetlands or zoneof influence	Additional info.
Tourism development		✓ Wetland/ Wetlands complex boundary ❒ Zone of influence	May permitted

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V.M., Palot, M.J., & Ganesh, S.R. (2018). A checklist of reptiles of India (Version 3.0). 35 pp. Available online at www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
3. Bibby, C.J., Burgess, N.D., & Hill, D.A. (1993). *Bird census techniques*. Academic Press Limited, London.
4. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of Presidency of Madras*. Adlard and Son, London.
5. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press, New York.
6. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.

7. Ratnam, K. *Birds of Tamil Nadu*.
8. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009.
9. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
10. Matthew, K. M. (1981). *The material for the flora of the Tamil Nadu Carnatic*. Madras, India.
11. Matthew, K. M. (1982). *Illustrations on the flora of the Tamil Nadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
12. Matthew, K. M. (1983). *The flora of Tamil Nadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
13. Matthew, K. M. (1988). *Further illustrations on the flora of the Tamil Nadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
14. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.

ANNEXURE 3.12

Fig 3.12.1. Zone of Influence of Pidarankarai Wetland

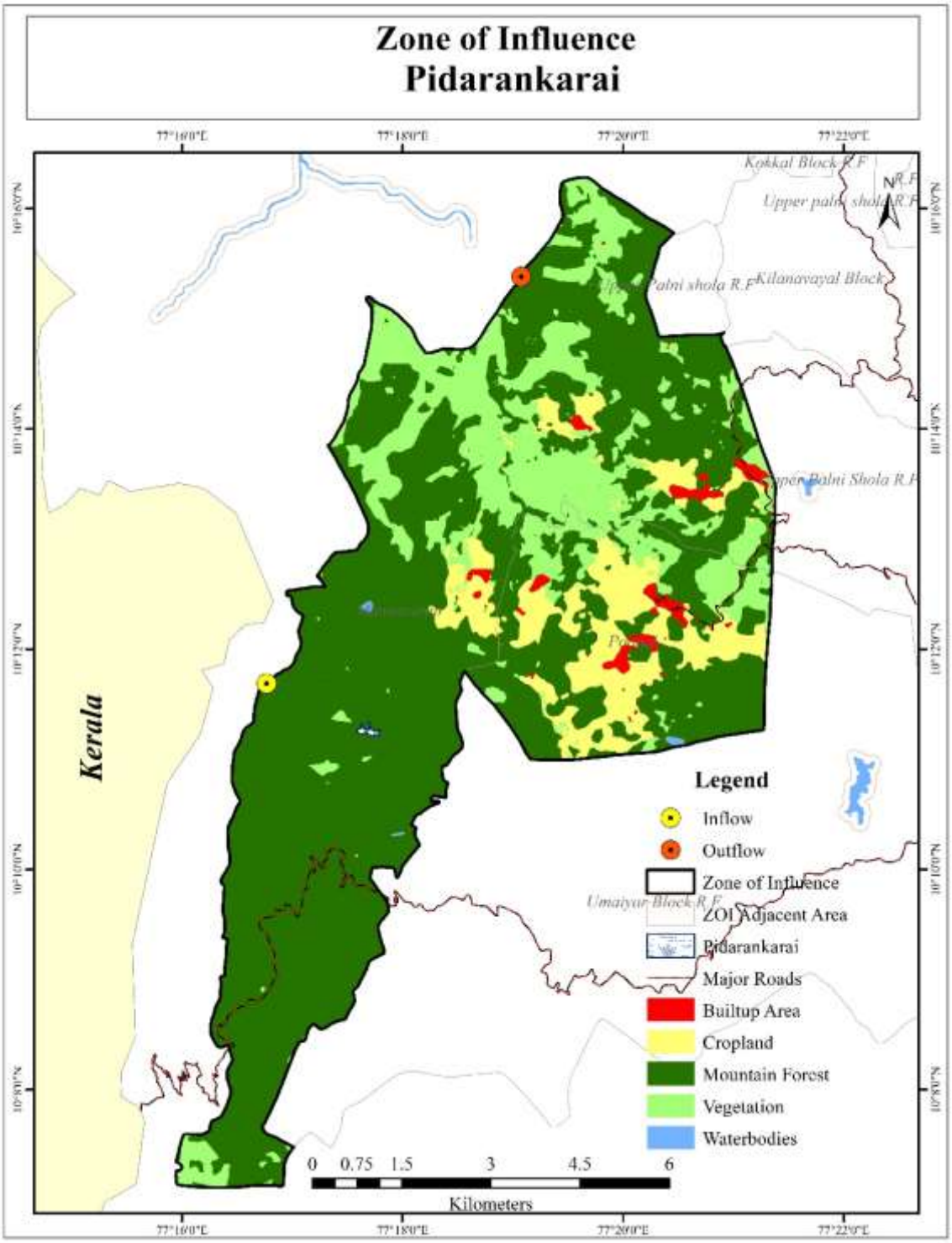


Fig 3.12.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Pidarankarai Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

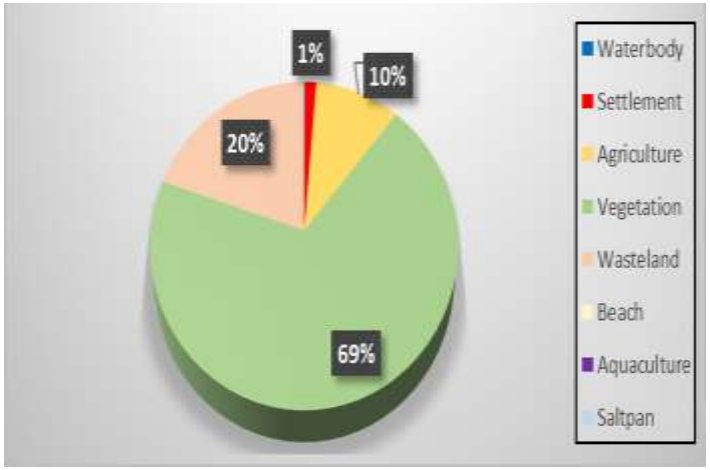


Table 3.12.1. IUCN Status of Floral Species in Pidarankarai Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
2.	*Brachiaria ramosa*	Poaceae		Grass	NE
3.	*Boswellia serrata*	Burseraceae		Tree	LC
4.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
5.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC
6.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
7.	*Cordia domestica*	Cordiaceae		Tree	LC
8.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
9.	*Crateva magna*	Capparaceae		Tree	LC
10.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
11.	*Cyperus iria*	Cyperaceae		Sedge	NE
12.	*Dolichandrone atrovirens*	Bignoniaceae		Tree	LC
13.	*Diospyros montana*	Ebenaceae		Tree	LC
14.	*Diospyros malabarica*	Ebenaceae		Tree	LC
15.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
16.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
17.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
18.	*Erythrina suberosa*	Papilionaceae		Tree	LC
19.	*Ficus tinctoria*	Moraceae	Kallathi	Tree	LC
20.	*Isachne miliacea*	Poaceae	-	Grass	LC
21.	*Ischaemum indicum*	Poaceae	-	Grass	LC
22.	*Ludwigia adscendens*	Onagraceae		Herb	NE
23.	*Mallotus nudiflorus*	Euphorbiaceae		Tree	LC
24.	*Mitragyna parvifolia*	Rubiaceae		Tree	LC
25.	*Pandanus amaryllifolius*	Pandanaceae		Tree	LC
26.	*Pongamia pinnata*	Papilionaceae	Pungai	Tree	LC

27.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
28.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
29.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC
30.	*Terminalia arjuna*	Combretaceae		Tree	LC
31.	*Terminalia chebula*	Combretaceae		Tree	LC
32.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
33.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
34.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
35.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
36.	*Brachiaria ramosa*	Poaceae		Grass	NE
37.	*Boswellia serrata*	Burseraceae		Tree	LC
38.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
39.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC
40.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
41.	*Cordia domestica*	Cordiaceae		Tree	LC
42.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
43.	*Crateva magna*	Capparaceae		Tree	LC
44.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
45.	*Cyperus iria*	Cyperaceae		Sedge	NE
46.	*Dolichandrone atrovirens*	Bignoniaceae		Tree	LC
47.	*Diospyros montana*	Ebenaceae		Tree	LC
48.	*Diospyros malabarica*	Ebenaceae		Tree	LC
49.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
50.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
51.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
52.	*Erythrina suberosa*	Papilionaceae		Tree	LC
53.	*Ficus tinctoria*	Moraceae	Kallathi	Tree	LC

54.	*Isachne miliacea*	Poaceae	-	Grass	LC
55.	*Ischaemum indicum*	Poaceae	-	Grass	LC
56.	*Ludwigia adscendens*	Onagraceae		Herb	NE
57.	*Mallotus nudiflorus*	Euphorbiaceae		Tree	LC
58.	*Mitragyna parvifolia*	Rubiaceae		Tree	LC
59.	*Pandanus amaryllifolius*	Pandanaceae		Tree	LC
60.	*Pongamia pinnata*	Papilionaceae	Pungai	Tree	LC
61.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
62.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
63.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC
64.	*Terminalia arjuna*	Combretaceae		Tree	LC
65.	*Terminalia chebula*	Combretaceae		Tree	LC
66.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
67.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
68.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
69.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
70.	*Brachiaria ramosa*	Poaceae		Grass	NE

Table 3.12.2. IUCN Status of Selected Fauna Species in Pidarankarai Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. *Mammal*				
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. *Reptile*				
1.	*Cnemaspis yercaudensis*	Gekkonidae		LC
2.	*Cnemaspis mysoriensis*	Gekkonidae		LC

3.	*Cyrtodactylus speciosus*	Gekkonidae	Forest spotted gecko	LC
4.	*Hemidactylus graniticolus*	Gekkonidae		LC
5.	*Calotes versicolor*	Agamidae	Oriental garden lizard	LC
6.	*Eutropis allapallensis*	Scincidae		LC
7.	*Uropeltis dindigalensis*	Uropeltidae		LC
8.	*Trimeresurus gramineus*	Viperidae		LC
C. *Amphibian*				
1.	*Duttaphrynus melanostictus*	Bufonidae		LC
2.	*Indosylvirana sreeni*	Ranidae		LC
D. *Butterfly*				
1.	*Common rose*	Pachliopta aristolochiae	Papilionidae	LC
2.	*Crimson rose*	Pachliopta hector	Papilionidae	LC
3.	*Common Mormon*	Papilo polymnestor cramer	Papilionidae	LC
4.	*Great Eggfly*	Hypolimnas bolina	Papilionidae	LC
5.	*Common bluebottle*	Graphium sarpedon	Papilionidae	LC
6.	*Common emigrant*	catopsilia Pomona	Peridae	LC
7.	*Psyche*	Leptosia nina	Peridae	LC
8.	*Mottled emigrant*	Catopsilia pyranthe	Peridae	LC
9.	*Common grass yellow*	Eurema hecabe	Peridae	LC
10.	*Common Gull*	Cepora nerissa	Peridae	LC
11.	*Small Salmon Arab*	Colotis amata	Peridae	LC
12.	*Pioneer*	Belenois aurota	Peridae	LC
13.	*Small grass yellow*	Eurema brigitta	Lycaenidae	LC
14.	*Dark grass blue*	Zizeeria karsandra	Lycaenidae	LC
15.	*Tiny grass blue*	Zizula hylax	Lycaenidae	LC
16.	*Zebra blue*	Leptotus plinius	Lycaenidae	LC
17.	*Forget –me –not*	Catochrysops Strabo	Lycaenidae	LC
18.	*Small grass jewel*	Chilades putli	Lycaenidae	LC
19.	*Plain hedge blue*	Celastrina lavendularis	Lycaenidae	LC
20.	*Tailless line blue*	Prosotas dubiosa	Lycaenidae	LC

21.	*Gram blue*	Euchrysops cnejus	Lycaenidae	LC
22.	*Pale grass blue*	Pseudozizeeria maha	Lycaenidae	LC
23.	*Lime blue*	Chilades lajus	Lycaenidae	LC
24.	*Common line blue*	Prosotas nora	Lycaenidae	LC
25.	*Plumbeous silverline*	Spindasis schistacea	Lycaenidae	LC
26.	*Plains cupid*	Chilades pandava	Lycaenidae	LC
27.	*Bright babul blue*	Azanus ubaldus	Lycaenidae	LC
28.	*Lesser grass blue*	Zizina Otis indica	Lycaenidae	LC
29.	*Common pierrot*	Castalius rosimon	Lycaenidae	LC
30.	*Plain tiger*	Danus chrysippus	Nymphalidae	LC
31.	*Blue tiger*	Tirumala limniace	Nymphalidae	LC
32.	*Dark blue tiger*	Tirumala septentrionis	Nymphalidae	LC
33.	*Striped tiger*	Danus genutia	Nymphalidae	LC
34.	*Blue admiral*	kaniska canace	Nymphalidae	LC
35.	*Common Indian crow*	Euploea core	Nymphalidae	LC
36.	*Common crow*	Euploea core	Nymphalidae	LC
37.	*White fourring*	Ypthima ceylonica	Nymphalidae	LC
38.	*Common fourring*	Ypthima huebneri	Nymphalidae	LC
39.	*Tawny coster*	Acraea violae	Nymphalidae	LC
40.	*Common fivering*	Ypthimia	Nymphalidae	LC
41.	*Chocolate pansy*	Junonia iphita	Nymphalidae	LC
42.	*Lemon pansy*	Junonia lemonias	Nymphalidae	LC
43.	*Danaid eggfly*	Hypolimnas misippus	Nymphalidae	LC
44.	*Angled castor*	Ariadne ariadne	Nymphalidae	LC
45.	*Hermit*	Chazara briseis	Nymphalidae	LC
46.	*Nigger*	Orsotrioena medus	Nymphalidae	LC

LC – Least Concern; * - Yes

Table 3.12.3. IUCN Status of Bird Species in Pidarankarai Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Acridotheres tristis*	Common Myna	T	LC

2.	*Alcedo atthis*	Common Kingfisher	T	LC
3.	*Amaurornis phoenicurus*	White-breasted Waterhen	D	LC
4.	*Anthus rufulus*	Paddy-field Pipit	D	LC
5.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
6.	*Coracias benghalensis*	Indian Roller	T	LC
7.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC
8.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
9.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
10.	*Dicrurus adsimilis*	Black Drongo	T	LC
11.	*Dinopium benghalense*	Black-rumped Flameback	T	LC
12.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
13.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC
14.	*Eudynamys scolopacea*	Asian Koel	T	LC
15.	*Falco tinnunculus*	Common Kestrel	T	LC
16.	*Francolinus pondicerianus*	Grey Francolin	T	LC
17.	*Gallinula chloropus*	Common Moorhen	A	LC
18.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
19.	*Glareola maldivarum*	Oriental Pratincole	A	LC
20.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
21.	*Haliastur indus*	Brahminy Kite	T	LC
22.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
23.	*Hirundo rustica*	Barn Swallow	T	LC
24.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
25.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
26.	*Lonchura malacca*	Black-headed Munia	D	LC
27.	*Merops orientalis*	Green Bee-eater	T	LC
28.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
29.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
30.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC
31.	*Milvus migrans*	Black Kite	T	LC
32.	*Motacilla flava*	Yellow Wagtail	D	LC

33.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC
34.	*Nectarinia lotenia*	Loten's Sunbird	T	LC
35.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
36.	*Orthotomus sutorius*	Common Tailorbird	T	LC
37.	*Passer domesticus*	House Sparrow	T	LC
38.	*Phalacrocorax niger*	Little Cormorant	A	LC
39.	*Plegadis falcinellus*	Glossy Ibis	A	LC
40.	*Ploceus manyar*	Streaked Weaver	T	LC
41.	*Pluvialis squatarola*	Grey Plover	A	LC
42.	*Prinia inornate*	Plain Prinia	T	LC
43.	*Psittacula krameria*	Rose-ringed Parakeet	T	LC
44.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
45.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
46.	*Saxicola caprata*	Pied Bush Chat	T	LC
47.	*Streptopelia chinensis*	Spotted Dove	T	LC
48.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
49.	*Tringa glareola*	Wood Sandpiper	A	LC
50.	*Vanellus indicus*	Red-wattled Lapwing	D	LC
51.	*Acridotheres tristis*	Common Myna	T	LC
52.	*Alcedo atthis*	Common Kingfisher	T	LC
53.	*Amaurornis phoenicurus*	White-breasted Waterhen	D	LC
54.	*Anthus rufulus*	Paddy-field Pipit	D	LC
55.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
56.	*Coracias benghalensis*	Indian Roller	T	LC
57.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC
58.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
59.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
60.	*Dicrurus adsimilis*	Black Drongo	T	LC
61.	*Dinopium benghalense*	Black-rumped Flameback	T	LC
62.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
63.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC

64.	*Eudynamys scolopacea*	Asian Koel	T	LC
65.	*Falco tinnunculus*	Common Kestrel	T	LC
66.	*Francolinus pondicerianus*	Grey Francolin	T	LC
67.	*Gallinula chloropus*	Common Moorhen	A	LC
68.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
69.	*Glareola maldivarum*	Oriental Pratincole	A	LC
70.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
71.	*Haliastur indus*	Brahminy Kite	T	LC
72.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
73.	*Hirundo rustica*	Barn Swallow	T	LC
74.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
75.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
76.	*Lonchura malacca*	Black-headed Munia	D	LC
77.	*Merops orientalis*	Green Bee-eater	T	LC
78.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
79.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
80.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC
81.	*Milvus migrans*	Black Kite	T	LC
82.	*Motacilla flava*	Yellow Wagtail	D	LC
83.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC
84.	*Nectarinia lotenia*	Loten's Sunbird	T	LC
85.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
86.	*Orthotomus sutorius*	Common Tailorbird	T	LC
87.	*Passer domesticus*	House Sparrow	T	LC
88.	*Phalacrocorax niger*	Little Cormorant	A	LC
89.	*Plegadis falcinellus*	Glossy Ibis	A	LC
90.	*Ploceus manyar*	Streaked Weaver	T	LC
91.	*Pluvialis squatarola*	Grey Plover	A	LC
92.	*Prinia inornate*	Plain Prinia	T	LC
93.	*Psittacula krameria*	Rose-ringed Parakeet	T	LC
94.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC

95.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
96.	*Saxicola caprata*	Pied Bush Chat	T	LC
97.	*Streptopelia chinensis*	Spotted Dove	T	LC
98.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
99.	*Tringa glareola*	Wood Sandpiper	A	LC
100.	*Vanellus indicus*	Red-wattled Lapwing	D	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.12.4. IUCN Status of major medicinal plant species in Pidarankarai Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Amorphophallus paeoniifolius*	Araceae		Herb
2.	*Brachiaria ramosa*	Poaceae		Grass
3.	*Boswellia serrata*	Burseraceae		Tree
4.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber
5.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb
6.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub
7.	*Terminalia chebula*	Combretaceae		Tree
8.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
9.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
10.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge

- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.13. JAMBHAKULAM WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**
- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1. *Name of the Wetland:* Jambhakulam

1.2. Name of the Village (s), Tehsil (s), Municipal area (s): Sirulvathur, Ragalapuram, Pethiagoundanpatti, Thetthampatti

1.3. *Name of the District (s) in which Wetlands complex located:* Dindigul

1.4. *Geographical coordinates:*

- Latitude: 10˚19'45.6204" N
- Longitude: 78˚5'35.7576" E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Village Administration & Public Works Development

Section 2: Site Characteristics

2.1. *Area of Wetland:* 6.36 ha

2.2. Wetland type:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3. Depth (m): Average - 2.5; Maximum - 3.5

2.4. Elevation (m above mean sea level): 304

2.5. Water regimes

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

d) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

e) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

f) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

g) Nutrients in water

- ❒ Eutrophic
- ❒ Mesotrophic
- ✓ Oligotrophic
- ❒ Not known

2.6. Climatic setting

a) Annual rainfall/ Snowfall (mm): 157.6

b) Temperature (°C) Minimum 25.65 ; Maximum 37.48

c) Humidity (%) Minimum 58.3 ; Maximum 61.4

2.7. Area of zone of influence (in ha): 2678.18 ha (with an irregular radius of 2.9 km)

2.8. Major land use within zone of influence

Land Use	**Percentage**
Forest	0%
Vegetation (Plantation)	15%
Agriculture	73%
Settlements (Rural)	8%
Settlements (Urban)	0%
Industrial	0%
Waterbody	1%
Waste Land	3%

2.9. Map of Wetland complex and zone of influence: Enclosed as Annexure 3.13 (Fig. 3.13.1-3.13.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 36 species (refer to Table 3.13.1 in Annexure 3.13).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 110 recorded species. This includes 2 mammal species, 10 reptile species, 2 amphibian species, 50 bird species, and 46 species of butterflies (refer to Table 3.13.2-3.13.3 in Annexure 3.13).

3.3 *Species of conservation significance:* Highlighted in Table 3.13.1-3.13.3

3.4 *Major plant invasive alien species:* Not Available

3.5 *Major animal invasive alien species:* Not Availabe

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Essential Water Source for Agriculture
Fisheries	✓ Yes ❒ No	Fishing done by lease matter with proper approval
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.13.4 in Annexure 3.13
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Runoff leads to sedimentation
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the Wetland.
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	
Mining	✓ Yes ❒ No	Official mining has done for road construction
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for thesite	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Fishing under lease from government department	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Fishing done by lease matter with proper approval
Harvest of plants (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Agriculture or horticulture within Wetland	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Grazing	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Observed while field visit
Religious practices	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	There is a Temple around the Wetland
Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Withdrawal of water for agriculture or fisheries	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	One of the outlet is designed in such a way to reach fields
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ✓ Low	✓ Present ✓ Potential	Already a trench is formed
Siltation	❒High ❒Medium ❒Low	❒Present ❒Potential	
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High	❒Present	

	❒Medium ❒Low	❒Potential	
Increased use of Pesticides and Fertilizer	❒High ❒Medium ✓ Low	✓ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the Boundary		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V.M., Palot, M.J., & Ganesh, S.R. (2018). A checklist of reptiles of India (Version 3.0). 35 pp. Available online at www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
3. Bibby, C.J., Burgess, N.D., & Hill, D.A. (1993). *Bird census techniques*. Academic Press Limited, London.
4. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of Presidency of Madras*. Adlard and Son, London.
5. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press, New York.

6. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
7. Ratnam, K. *Birds of Tamil Nadu*.
8. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009.
9. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
10. Matthew, K. M. (1981). *The material for the flora of the Tamil Nadu Carnatic*. Madras, India.
11. Matthew, K. M. (1982). *Illustrations on the flora of the Tamil Nadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
12. Matthew, K. M. (1983). *The flora of Tamil Nadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
13. Matthew, K. M. (1988). *Further illustrations on the flora of the Tamil Nadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
14. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.

ANNEXURE 3.13

Fig 3.13.1. Zone of Influence of Jambhakulam Wetland

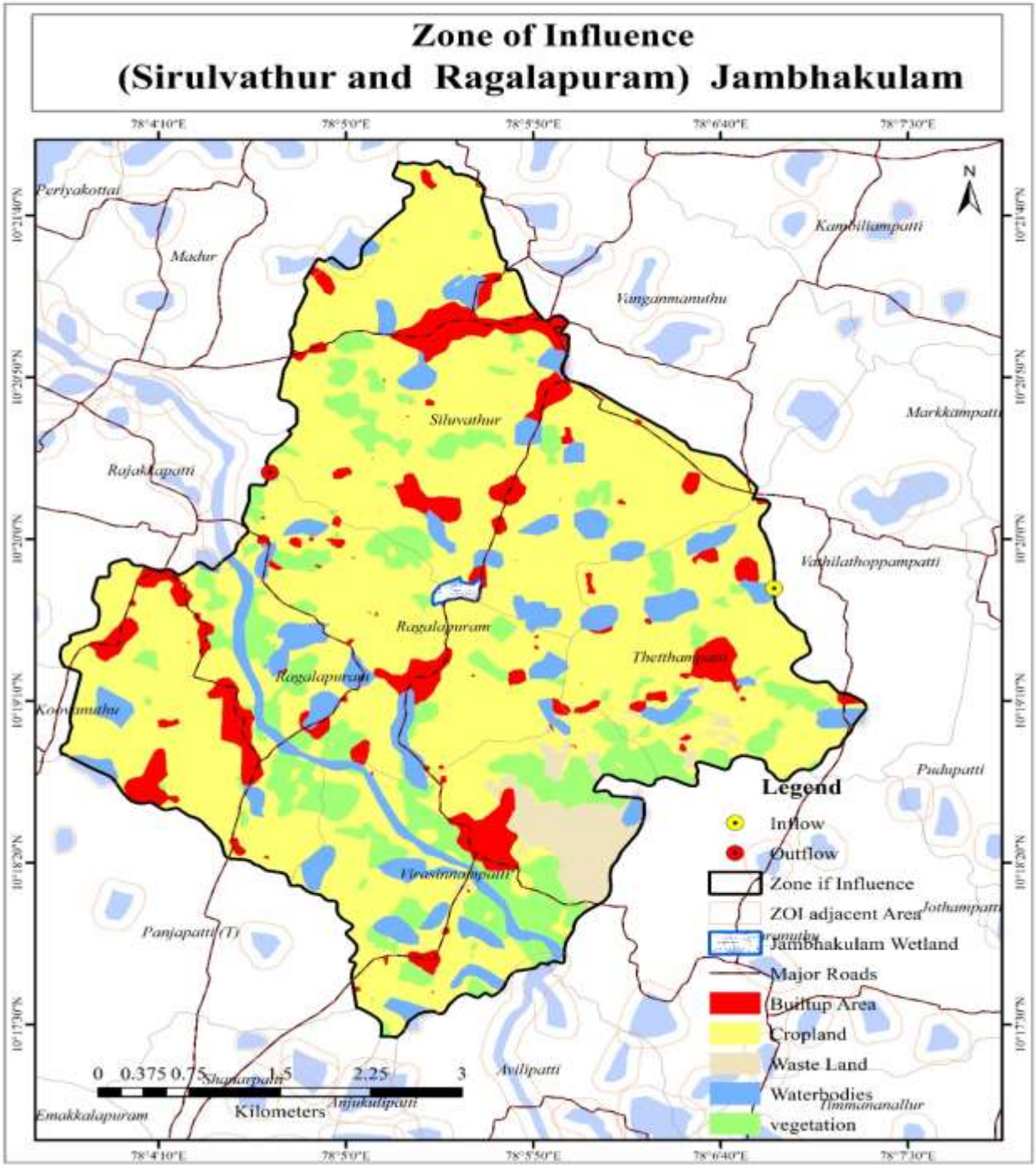


Fig. 3 13.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Jambhakulam Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

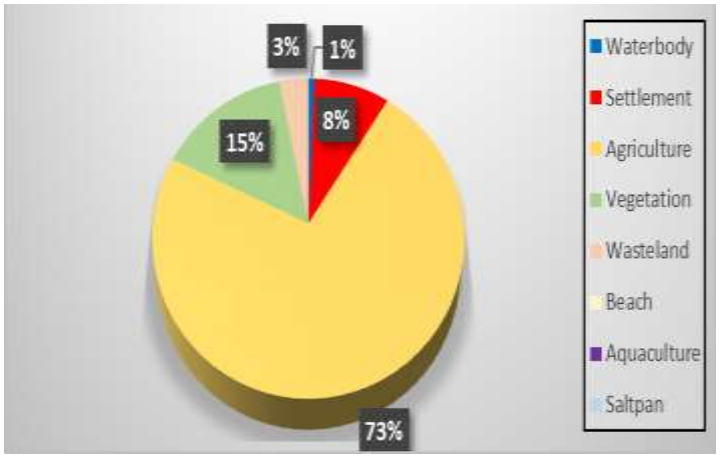


Table 3.13.1. IUCN Status of Floral Species in Jambhakulam Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
2.	*Brachiaria ramosa*	Poaceae		Grass	NE
3.	*Boswellia serrata*	Burseraceae		Tree	LC
4.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
5.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC
6.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
7.	*Cordia domestica*	Cordiaceae		Tree	LC
8.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
9.	*Crateva magna*	Capparaceae		Tree	LC
10.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
11.	*Cyperus iria*	Cyperaceae		Sedge	NE
12.	*Dolichandrone atrovirens*	Bignoniaceae		Tree	LC
13.	*Diospyros montana*	Ebenaceae		Tree	LC
14.	*Diospyros malabarica*	Ebenaceae		Tree	LC
15.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
16.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
17.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
18.	*Erythrina suberosa*	Papilionaceae		Tree	LC
19.	*Ficus tinctoria*	Moraceae	Kallathi	Tree	LC
20.	*Homonoia riparia*	Euphoraceae		Tree	LC
21.	*Isachne miliacea*	Poaceae	-	Grass	LC
22.	*Ischaemum indicum*	Poaceae	-	Grass	LC
23.	*Ludwigia adscendens*	Onagraceae		Herb	NE
24.	*Mallotus nudiflorus*	Euphorbiaceae		Tree	LC
25.	*Mitragyna parvifolia*	Rubiaceae		Tree	LC
26.	*Pandanus amaryllifolius*	Pandanaceae		Tree	LC

27.	*Pongamia pinnata*	Papilionaceae	Pungai	Tree	LC
28.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
29.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
30.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC
31.	*Terminalia arjuna*	Combretaceae		Tree	LC
32.	*Terminalia chebula*	Combretaceae		Tree	LC
33.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
34.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
35.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
36.	*Vitex leucoxylon*	Lamiaceae		Tree	LC

Table 3.13.2. IUCN Status of Selected Fauna Species in Jambhakulam Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. Reptile				
1.	*Ahaetulla dispar*	Colubridae	Günther's Vine Snake	LC
2.	*Ahaetulla perroteti*	Colubridae	Bronze-headed Vine Snake	EN
3.	*Cnemaspis yercaudensis*	Gekkonidae		LC
4.	*Cnemaspis mysoriensis*	Gekkonidae		LC
5.	*Cyrtodactylus speciosus*	Gekkonidae	Forest spotted gecko	LC
6.	*Hemidactylus graniticolus*	Gekkonidae		LC
7.	*Calotes versicolor*	Agamidae	Oriental garden lizard	LC
8.	*Eutropis allapallensis*	Scincidae		LC
9.	*Uropeltis dindigalensis*	Uropeltidae		LC
10.	*Trimeresurus gramineus*	Viperidae		LC

C. Amphibian				
1.	*Duttaphrynus melanostictus*	Bufonidae		LC
2.	*Indosylvirana sreeni*	Ranidae		LC
D. Butterfly				
1.	Common rose	*Pachliopta aristolochiae*	Papilionidae	LC
2.	Crimson rose	*Pachliopta hector*	Papilionidae	LC
3.	Common Mormon	*Papilo polymnestor cramer*	Papilionidae	LC
4.	Great Eggfly	*Hypolimnas bolina*	Papilionidae	LC
5.	Common bluebottle	*Graphium sarpedon*	Papilionidae	LC
6.	Common emigrant	*catopsilia Pomona*	Peridae	LC
7.	Psyche	*Leptosia nina*	Peridae	LC
8.	Mottled emigrant	*Catopsilia pyranthe*	Peridae	LC
9.	Common grass yellow	*Eurema hecabe*	Peridae	LC
10.	Common Gull	*Cepora nerissa*	Peridae	LC
11.	Small Salmon Arab	*Colotis amata*	Peridae	LC
12.	Pioneer	*Belenois aurota*	Peridae	LC
13.	Small grass yellow	*Eurema brigitta*	Lycaenidae	LC
14.	Dark grass blue	*Zizeeria karsandra*	Lycaenidae	LC
15.	Tiny grass blue	*Zizula hylax*	Lycaenidae	LC
16.	Zebra blue	*Leptotus plinius*	Lycaenidae	LC
17.	Forget –me –not	*Catochrysops Strabo*	Lycaenidae	LC
18.	Small grass jewel	*Chilades putli*	Lycaenidae	LC
19.	Plain hedge blue	*Celastrina lavendularis*	Lycaenidae	LC
20.	Tailless line blue	*Prosotas dubiosa*	Lycaenidae	LC
21.	Gram blue	*Euchrysops cnejus*	Lycaenidae	LC
22.	Pale grass blue	*Pseudozizeeria maha*	Lycaenidae	LC
23.	Lime blue	*Chilades lajus*	Lycaenidae	LC
24.	Common line blue	*Prosotas nora*	Lycaenidae	LC
25.	Plumbeous silverline	*Spindasis schistacea*	Lycaenidae	LC
26.	Plains cupid	*Chilades pandava*	Lycaenidae	LC
27.	Bright babul blue	*Azanus ubaldus*	Lycaenidae	LC

28.	Lesser grass blue	*Zizina Otis indica*	Lycaenidae	LC
29.	Common pierrot	*Castalius rosimon*	Lycaenidae	LC
30.	Plain tiger	*Danus chrysippus*	Nymphalidae	LC
31.	Blue tiger	*Tirumala limniace*	Nymphalidae	LC
32.	Dark blue tiger	*Tirumala septentrionis*	Nymphalidae	LC
33.	Striped tiger	*Danus genutia*	Nymphalidae	LC
34.	Blue admiral	*kaniska canace*	Nymphalidae	LC
35.	Common Indian crow	*Euploea core*	Nymphalidae	LC
36.	Common crow	*Euploea core*	Nymphalidae	LC
37.	White fourring	*Ypthima ceylonica*	Nymphalidae	LC
38.	Common fourring	*Ypthima huebneri*	Nymphalidae	LC
39.	Tawny coster	*Acraea violae*	Nymphalidae	LC
40.	Common fivering	*Ypthimia*	Nymphalidae	LC
41.	Chocolate pansy	*Junonia iphita*	Nymphalidae	LC
42.	Lemon pansy	*Junonia lemonias*	Nymphalidae	LC
43.	Danaid eggfly	*Hypolimnas misippus*	Nymphalidae	LC
44.	Angled castor	*Ariadne ariadne*	Nymphalidae	LC
45.	Hermit	*Chazara briseis*	Nymphalidae	LC
46.	Nigger	*Orsotrioena medus*	Nymphalidae	LC

LC – Least Concern; * - Yes

Table 3.13.3. IUCN Status of Bird Species in Jambhakulam Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Acridotheres tristis*	Common Myna	T	LC
2.	*Alcedo atthis*	Common Kingfisher	T	LC
3.	*Amaurornis phoenicurus*	White-breasted Waterhen	D	LC
4.	*Anthus rufulus*	Paddy-field Pipit	D	LC
5.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
6.	*Coracias benghalensis*	Indian Roller	T	LC
7.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC
8.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC

9.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
10.	*Dicrurus adsimilis*	Black Drongo	T	LC
11.	*Dinopium benghalense*	Black-rumped Flameback	T	LC
12.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
13.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC
14.	*Eudynamys scolopacea*	Asian Koel	T	LC
15.	*Falco tinnunculus*	Common Kestrel	T	LC
16.	*Francolinus pondicerianus*	Grey Francolin	T	LC
17.	*Gallinula chloropus*	Common Moorhen	A	LC
18.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
19.	*Glareola maldivarum*	Oriental Pratincole	A	LC
20.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
21.	*Haliastur indus*	Brahminy Kite	T	LC
22.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
23.	*Hirundo rustica*	Barn Swallow	T	LC
24.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
25.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
26.	*Lonchura malacca*	Black-headed Munia	D	LC
27.	*Merops orientalis*	Green Bee-eater	T	LC
28.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
29.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
30.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC
31.	*Milvus migrans*	Black Kite	T	LC
32.	*Motacilla flava*	Yellow Wagtail	D	LC
33.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC
34.	*Nectarinia lotenia*	Loten's Sunbird	T	LC
35.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
36.	*Orthotomus sutorius*	Common Tailorbird	T	LC
37.	*Passer domesticus*	House Sparrow	T	LC
38.	*Phalacrocorax niger*	Little Cormorant	A	LC
39.	*Plegadis falcinellus*	Glossy Ibis	A	LC

40.	*Ploceus manyar*	Streaked Weaver	T	LC
41.	*Pluvialis squatarola*	Grey Plover	A	LC
42.	*Prinia inornate*	Plain Prinia	T	LC
43.	*Psittacula krameria*	Rose-ringed Parakeet	T	LC
44.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
45.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
46.	*Saxicola caprata*	Pied Bush Chat	T	LC
47.	*Streptopelia chinensis*	Spotted Dove	T	LC
48.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
49.	*Tringa glareola*	Wood Sandpiper	A	LC
50.	*Vanellus indicus*	Red-wattled Lapwing	D	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.13.4 IUCN Status of major medicinal plant species in Jambhakulam Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Amorphophallus paeoniifolius*	Araceae		Herb
2.	*Brachiaria ramosa*	Poaceae		Grass
3.	*Boswellia serrata*	Burseraceae		Tree
4.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber
5.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb
6.	*Erythrina suberosa*	Papilionaceae		Tree
7.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub
8.	*Syzygium cumini*	Myrtaceae	Naval	Tree
9.	*Terminalia arjuna*	Combretaceae		Tree
10.	*Terminalia chebula*	Combretaceae		Tree
11.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
12.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
13.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
14.	*Vitex leucoxylon*	Lamiaceae		Tree

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.14. KONALARU MARSH WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Konalaru Marsh

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Poondi, Kavunji, Kanakkari, Periyur, Umaiyur, Kodaikanal

1.3 *Name of the District (s) in which Wetlands complex located:* Dindigul

1.4 *Geographical coordinates:*

► Latitude: 10˚9’43.8156” N

► Longitude: 77˚21’55.818” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 35.15 ha

2.2 *Wetland type*:

Category	**Subcategory**
✓ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ✓ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 2209

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ❒ Mesotrophic
- ✓ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 157.6

b) Temperature (°C): Minimum 16.75 ; Maximum 24.75

c) Humidity (%) Minimum 86.2 ; Maximum 88.7

2.7 *Area of zone of influence (in ha):* 12956.95 ha (with an irregular radius of 6.4 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	85%
Vegetation (Plantation)	:	10%
Agriculture	:	4%
Settlements (Rural)	:	1%
Settlements (Urban)	:	0%
Industrial	:	0%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.14 (Fig. 3.14.1-3.14.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 36 species (refer to Table 3.14.1 in Annexure 3.14).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 110 recorded species. This includes 2 mammal species, 10 reptile species, 2 amphibian species, 50 bird species, and 46 species of butterflies (refer to Table 3.14.2-3.14.3 in Annexure 3.14).

3.3 *Species of conservation significance:* Highlighted in Table 3.14.1-3.14.3

3.4 *Major plant invasive alien species:* Not Available

3.5 *Major animal invasive alien species:* Not Available

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.14.4 in Annexure 3.14
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	✓ Yes ❒ No	Results into purification
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for thesite	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Observed while field visit by bison communities
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Tourism development		✓ Wetland/ Wetlands complex boundary ❒ Zone of influence	May permitted

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V.M., Palot, M.J., & Ganesh, S.R. (2018). *A checklist of reptiles of India* (Version 3.0). 35 pp. Available online at www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
3. Bibby, C.J., Burgess, N.D., & Hill, D.A. (1993). *Bird census techniques*. Academic Press Limited, London.
4. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of Presidency of Madras*. Adlard and Son, London.
5. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press, New York.

6. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
7. Ratnam, K. *Birds of Tamil Nadu*.
8. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009.
9. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
10. Matthew, K. M. (1981). *The material for the flora of the Tamil Nadu Carnatic*. Madras, India.
11. Matthew, K. M. (1982). *Illustrations on the flora of the Tamil Nadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
12. Matthew, K. M. (1983). *The flora of Tamil Nadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
13. Matthew, K. M. (1988). *Further illustrations on the flora of the Tamil Nadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
14. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.

ANNEXURE 3.14

Fig. 3.14.1. Zone of Influence of Konalaru Wetland

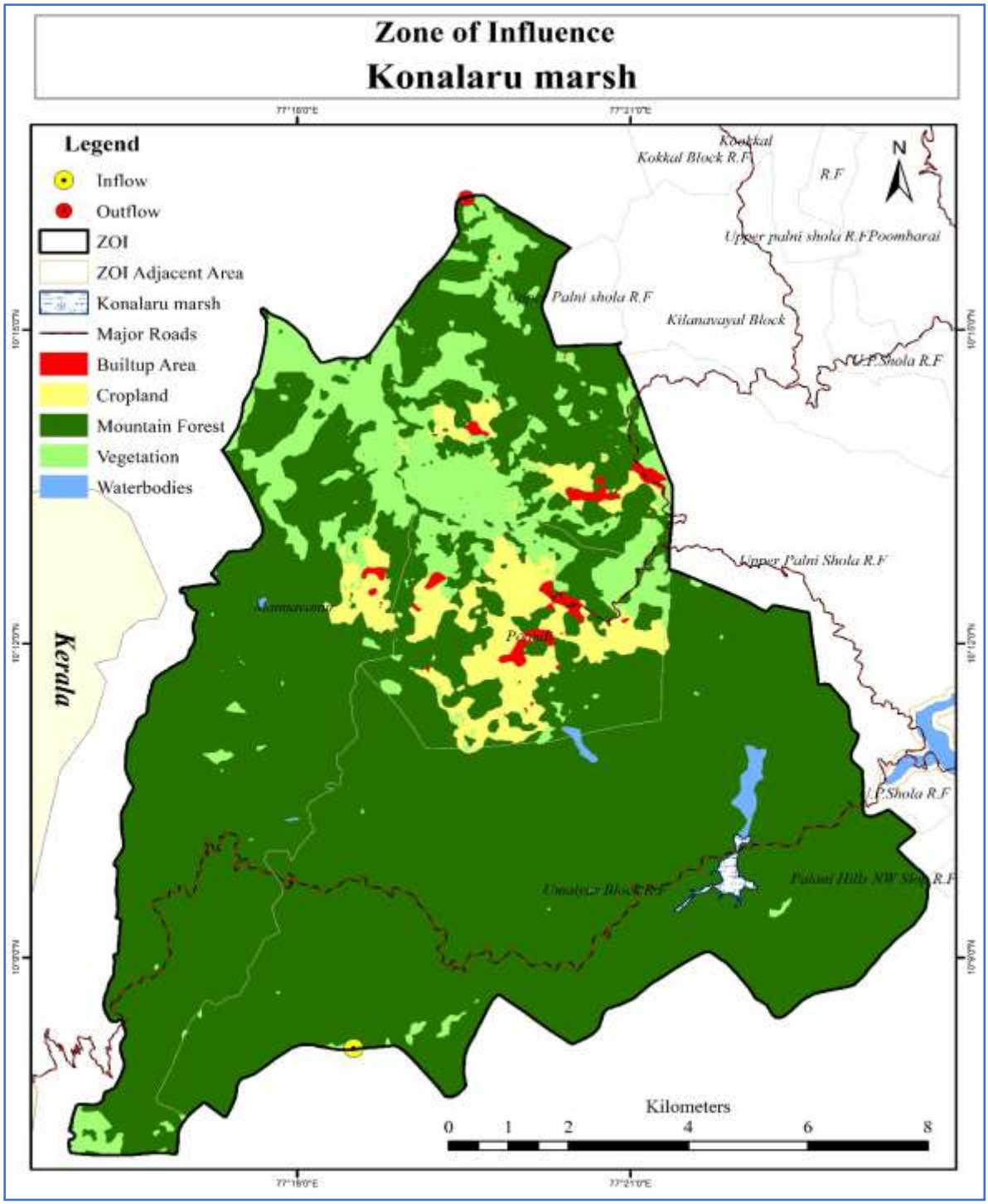


Fig. 3.14.2 Map (2014 *vs.* 2024) and Land Use/ Land Cover of Konalaru Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland



Table 3.14.1. IUCN Status of Floral Species in Konalaru Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
2.	*Brachiaria ramosa*	Poaceae		Grass	NE
3.	*Boswellia serrata*	Burseraceae		Tree	LC
4.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
5.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC
6.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
7.	*Cordia domestica*	Cordiaceae		Tree	LC
8.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
9.	*Crateva magna*	Capparaceae		Tree	LC
10.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
11.	*Cyperus iria*	Cyperaceae		Sedge	NE
12.	*Dolichandrone atrovirens*	Bignoniaceae		Tree	LC
13.	*Diospyros montana*	Ebenaceae		Tree	LC
14.	*Diospyros malabarica*	Ebenaceae		Tree	LC
15.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
16.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
17.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
18.	*Erythrina suberosa*	Papilionaceae		Tree	LC
19.	*Ficus tinctoria*	Moraceae	Kallathi	Tree	LC
20.	*Homonoia riparia*	Euphoraceae		Tree	LC
21.	*Isachne miliacea*	Poaceae	-	Grass	LC
22.	*Ischaemum indicum*	Poaceae	-	Grass	LC
23.	*Ludwigia adscendens*	Onagraceae		Herb	NE
24.	*Mallotus nudiflorus*	Euphorbiaceae		Tree	LC
25.	*Mitragyna parvifolia*	Rubiaceae		Tree	LC
26.	*Pandanus amaryllifolius*	Pandanaceae		Tree	LC

27.	*Pongamia pinnata*	Papilionaceae	Pungai	Tree	LC
28.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
29.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
30.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC
31.	*Terminalia arjuna*	Combretaceae		Tree	LC
32.	*Terminalia chebula*	Combretaceae		Tree	LC
33.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
34.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
35.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
36.	*Vitex leucoxylon*	Lamiaceae		Tree	LC

Table 3.14.2. IUCN Status of Selected Fauna Species in Konalaru Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
B. Reptile					
1.	*Ahaetulla dispar*	Colubridae	Günther's Vine Snake	LC	*
2.	*Ahaetulla perroteti*	Colubridae	Bronze-headed Vine Snake	EN	*
3.	*Cnemaspis yercaudensis*	Gekkonidae		LC	
4.	*Cnemaspis mysoriensis*	Gekkonidae		LC	
5.	*Cyrtodactylus speciosus*	Gekkonidae	Forest spotted gecko	LC	
6.	*Hemidactylus graniticolus*	Gekkonidae		LC	*
7.	*Calotes versicolor*	Agamidae	Oriental garden lizard	LC	

8.	*Eutropis allapallensis*	Scincidae		LC	
9.	*Uropeltis dindigalensis*	Uropeltidae		LC	
10.	*Trimeresurus gramineus*	Viperidae		LC	
C. Amphibian					
1.	*Duttaphrynus melanostictus*	Bufonidae		LC	*
2.	*Indosylvirana sreeni*	Ranidae		LC	*
D. Butterfly					
1.	*Pachliopta aristolochiae*	Common rose	Papilionidae	LC	
2.	*Pachliopta hector*	Crimson rose	Papilionidae	LC	
3.	*Papilo polymnestor cramer*	Common Mormon	Papilionidae	LC	
4.	*Hypolimnas bolina*	Great Eggfly	Papilionidae	LC	
5.	*Graphium sarpedon*	Common bluebottle	Papilionidae	LC	
6.	*catopsilia Pomona*	Common emigrant	Peridae	LC	
7.	*Leptosia nina*	Psyche	Peridae	LC	
8.	*Catopsilia pyranthe*	Mottled emigrant	Peridae	LC	
9.	*Eurema hecabe*	Common grass yellow	Peridae	LC	
10.	Cepora nerissa	Common Gull	Peridae	LC	
11.	*Colotis amata*	Small Salmon Arab	Peridae	LC	
12.	*Belenois aurota*	Pioneer	Peridae	LC	
13.	*Eurema brigitta*	Small grass yellow	Lycaenidae	LC	
14.	*Zizeeria karsandra*	Dark grass blue	Lycaenidae	LC	
15.	*Zizula hylax*	Tiny grass blue	Lycaenidae	LC	
16.	*Leptotus plinius*	Zebra blue	Lycaenidae	LC	
17.	*Catochrysops Strabo*	Forget –me –not	Lycaenidae	LC	
18.	*Chilades putli*	Small grass jewel	Lycaenidae	LC	
19.	*Celastrina lavendularis*	Plain hedge blue	Lycaenidae	LC	
20.	*Prosotas dubiosa*	Tailless line blue	Lycaenidae	LC	
21.	*Euchrysops cnejus*	Gram blue	Lycaenidae	LC	
22.	*Pseudozizeeria maha*	Pale grass blue	Lycaenidae	LC	
23.	*Chilades lajus*	Lime blue	Lycaenidae	LC	
24.	*Prosotas nora*	Common line blue	Lycaenidae	LC	

25.	*Spindasis schistacea*	Plumbeous silverline	Lycaenidae	LC	
26.	*Chilades pandava*	Plains cupid	Lycaenidae	LC	
27.	*Azanus ubaldus*	Bright babul blue	Lycaenidae	LC	
28.	*Zizina Otis indica*	Lesser grass blue	Lycaenidae	LC	
29.	*Castalius rosimon*	Common pierrot	Lycaenidae	LC	
30.	*Danus chrysippus*	Plain tiger	Nymphalidae	LC	
31.	*Tirumala limniace*	Blue tiger	Nymphalidae	LC	
32.	*Tirumala septentrionis*	Dark blue tiger	Nymphalidae	LC	
33.	*Danus genutia*	Striped tiger	Nymphalidae	LC	
34.	*kaniska canace*	Blue admiral	Nymphalidae	LC	
35.	*Euploea core*	Common Indian crow	Nymphalidae	LC	
36.	*Euploea core*	Common crow	Nymphalidae	LC	
37.	*Ypthima ceylonica*	White fourring	Nymphalidae	LC	
38.	*Ypthima huebneri*	Common fourring	Nymphalidae	LC	
39.	*Acraea violae*	Tawny coster	Nymphalidae	LC	
40.	*Ypthimia*	Common fivering	Nymphalidae	LC	
41.	*Junonia iphita*	Chocolate pansy	Nymphalidae	LC	
42.	*Junonia lemonias*	Lemon pansy	Nymphalidae	LC	
43.	*Hypolimnas misippus*	Danaid eggfly	Nymphalidae	LC	
44.	*Ariadne Ariadne*	Angled castor	Nymphalidae	LC	
45.	*Chazara briseis*	Hermit	Nymphalidae	LC	
46.	*Orsotrioena medus*	Nigger	Nymphalidae	LC	

LC – Least Concern; * - Yes

Table 3.14.3. IUCN Status of Bird Species in Konalaru Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Alcedo atthis*	Common Kingfisher	T	LC	*
3.	*Amaurornis phoenicurus*	White-breasted Waterhen	D	LC	*
4.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
5.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	*

6.	*Coracias benghalensis*	Indian Roller	T	LC	
7.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC	*
8.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	
9.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	
10.	*Dicrurus adsimilis*	Black Drongo	T	LC	
11.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	*
12.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	
13.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
14.	*Eudynamys scolopacea*	Asian Koel	T	LC	
15.	*Falco tinnunculus*	Common Kestrel	T	LC	
16.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
17.	*Gallinula chloropus*	Common Moorhen	A	LC	
18.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
19.	*Glareola maldivarum*	Oriental Pratincole	A	LC	*
20.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	
21.	*Haliastur indus*	Brahminy Kite	T	LC	*
22.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
23.	*Hirundo rustica*	Barn Swallow	T	LC	*
24.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
25.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
26.	*Lonchura Malacca*	Black-headed Munia	D	LC	*
27.	*Merops orientalis*	Green Bee-eater	T	LC	
28.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
29.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
30.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
31.	*Milvus migrans*	Black Kite	T	LC	
32.	*Motacilla flava*	Yellow Wagtail	D	LC	
33.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
34.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
35.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
36.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*

37.	*Passer domesticus*	House Sparrow	T	LC	
38.	*Phalacrocorax niger*	Little Cormorant	A	LC	
39.	*Plegadis falcinellus*	Glossy Ibis	A	LC	
40.	*Ploceus manyar*	Streaked Weaver	T	LC	
41.	*Pluvialis squatarola*	Grey Plover	A	LC	*
42.	*Prinia inornate*	Plain Prinia	T	LC	
43.	*Psittacula krameria*	Rose-ringed Parakeet	T	LC	
44.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
45.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
46.	*Saxicola caprata*	Pied Bush Chat	T	LC	
47.	*Streptopelia chinensis*	Spotted Dove	T	LC	
48.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	
49.	*Tringa glareola*	Wood Sandpiper	A	LC	
50.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.14.4. IUCN Status of major medicinal plant species in Konalaru Marsh Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Amorphophallus paeoniifolius*	Araceae		Herb
2.	*Brachiaria ramosa*	Poaceae		Grass
3.	*Boswellia serrate*	Burseraceae		Tree
4.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber
5.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb
6.	*Erythrina suberosa*	Papilionaceae		Tree
7.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub
8.	*Syzygium cumini*	Myrtaceae	Naval	Tree
9.	*Terminalia arjuna*	Combretaceae		Tree
10.	*Terminalia chebula*	Combretaceae		Tree
11.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
12.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb

13.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
14.	*Vitex leucoxylon*	Lamiaceae		Tree

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.15. VELLODE BIRD SANCTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Vellode Birds Sanctuary or Vellode Kanmoi

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Mettuppalayam, Semandam Palayam, Sellappampalayam, Thalaiyakattur, Pungambadi, Thenmugam vellode, Vellode, Perundurai

1.3 *Name of the District (s) in which Wetlands complex located:* Erode

1.4 *Geographical coordinates:*

- ► Latitude: 11˚15’06” N
- ► Longitude: 77˚39’06” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 74.71 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	✓ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2; Maximum - 4.5

2.4 *Elevation (m above mean sea level):* 100

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify: Perumpallam Canal
- ✓ Name of River/ Canal System : Bhavani River (Perumpallam Canal)

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ❒ Feeds groundwater river to sea
- ✓ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ❒ Mesotrophic
- ✓ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 150.6

b) Temperature (°C) Minimum 13.05 ; Maximum 18.95

c) Humidity (%) Minimum 81.7 ; Maximum 88.4

2.7 *Area of zone of influence (in ha):* 6673.49 ha (with an irregular radius of 1.12 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	7%
Agriculture	:	55%
Settlements (Rural)	:	26%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	1%
Waste Land	:	11%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.15 (Fig. 3.15.1-3.15.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 62 species (refer to Table 3.15.1 in Annexure 3.15).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 183 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 144 bird species, and 21 species of butterflies (refer to Table 3.15.2-3.15.3 in Annexure 3.15).

3.3 *Species of conservation significance:* Highlighted in Table 3.15.1-3.15.3

3.4 *Major plant invasive alien species:* The Wetland supports 7 plant invasive species (refer to Table 3.15.4 in Annexure 3.15).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 15.5 in Annexure 15).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	When it reaches its Full Supply level (FSL), the water may withdrawn for agriculture
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal Plants are around the Wetland. (refer to Table 3.15.6 in Annexure 3.15)
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts & Bird watching
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the embankment of the Wetland
Is a site for recreation and tourism	✓ Yes ❒ No	Receives a good population of nature enthusiasts & Bird watching
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variety of amphibians were surviving

Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for thesite	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a temple around the embankment of the Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒ Medium ✓Low	✓Present ❒Potential	Substantial water flow from the surrounding watershed
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High	✓ Present	Listed in Table 3.15.4 in Annexure 3.15

	❒Medium ✓ Low	❒ Potential	
Any other, please list	❒High ❒Medium ❒Low	❒Present ❒Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundar ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Ahmad, N. (1980). Some aspects of economic resources of Sunderbans mangrove forests of Bangladesh. In P. Soepadmo (Ed.), *Mangrove environment: Research and management* (pp. 50-51). Report on UNESCO Asian Symposium, held at University of Malaya, Kuala Lumpur, Malaysia, 25-29 August 1980.
2. Anonymous. (1991). *India 1990: A reference annual*. Research and Reference Division, Ministry of Information and Broadcasting, Govt. of India, Delhi.
3. Anonymous. (1993). *Directory of Indian Wetlands*. World Wildlife Federation, New Delhi.
4. Anonymous. (1994). *World Development Report*. World Bank Development Report.
5. Chopra, R. (1985). *The state of India's environment*. Ambassador Press, New Delhi.
6. Choudhury, B.C. (2000). Conserving Wetlands: Emerging scenario. In R. Badola & B. M. Rathore (Eds.), *Proceedings of the workshop on conserving biodiversity in the 21st century,*

through integrated conservation and development planning on a regional scale (pp. 131-138). LBSNA Mussorie and WII Dehradun.

7. Das, S., Behera, S.C., Kar, A., Narendra, P., & Guha, S. (1997). Hydrogeomorphological mapping in ground water exploration using remotely sensed data: A case study in Keonjhar District, Orissa. *Journal of the Indian Society of Remote Sensing, 25*, 247-250.
8. Das, K.K., Prasad, S.N., Roy, P.S., & Bhan, S.K. (1994). Mapping of potential crane habitat in Etawah and Mainpuri Districts (U.P.) using satellite remote sensing techniques. *A Project Report*: Indian Institute of Remote Sensing, Dehradun and Salim Ali Centre for

ANNEXURE 3.15

Fig 3.15.1. Zone of Influence of Vellode Bird Sanctuary

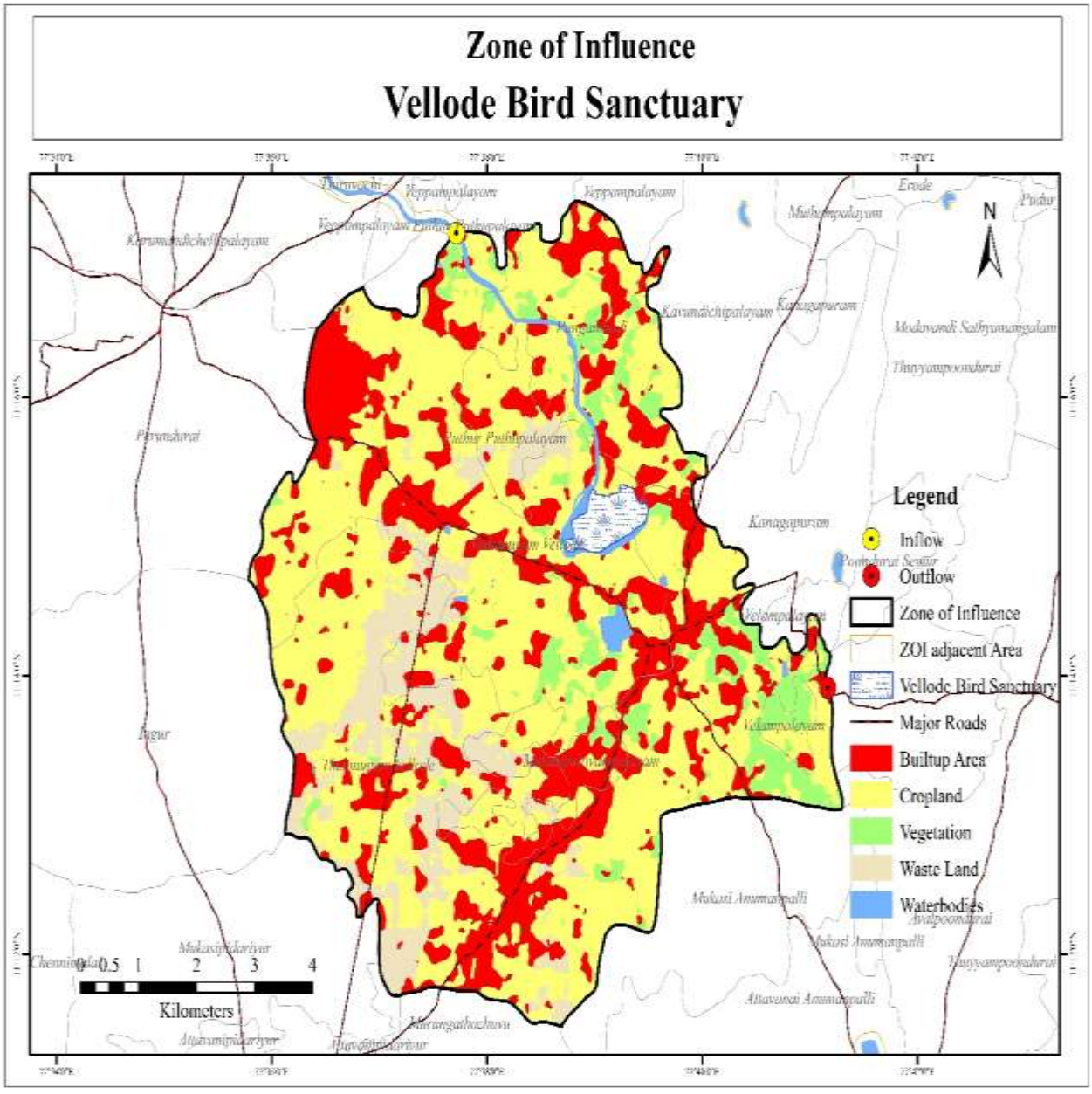


Fig 3.15.2. Map (2004 *vs*. 2024) and Land Use/ Land Cover of Vellode Bird Sanctuary

Map of the Wetland in 2010



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

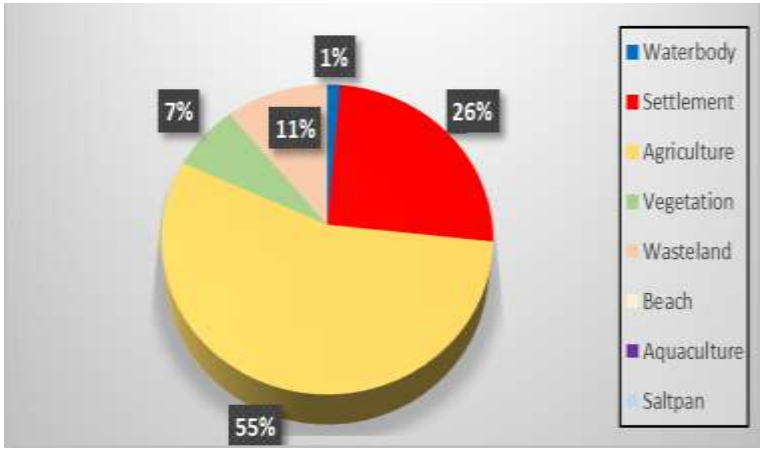


Table 3.15.1. IUCN Status of Floral Species in Vellode Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Alangium salvifolium*	Alangiaceae	Azhinjil	Tree	LC
9.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
10.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
11.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
12.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
13.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
14.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
15.	*Brachiaria ramosa*	Poaceae		Grass	NE
16.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
17.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
18.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
19.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
20.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
21.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
22.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
23.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
24.	*Digitaria abludens*	Poaceae		Grass	NE
25.	*Digitaria ciliaris*	Poaceae		Grass	NE
26.	*Eragrostis viscosa*	Poaceae	-	Grass	LC

27.	*Ficus benghalensis*	Moraceae	Aal	Tree	LC
28.	*Ficus hispida*	Moraceae	Peyatthi	Tree	LC
29.	*Ficus racemosa*	Moraceae	Atthi	Tree	LC
30.	*Ficus religiosa*	Moraceae	Arasu	Tree	LC
31.	*Hyptis suaveolens*	Labiatae		Shrub	NE
32.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
33.	*Ischaemum indicum*	Poaceae	-	Grass	LC
34.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
35.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
36.	*Justicia prostrata*	Acanthaceae		Herb	NE
37.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
38.	*Lansium parasiticum*	Meliaceae	Ootuuni maram	Tree	LC
39.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
40.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
41.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
42.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
43.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
44.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
45.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
46.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
47.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
48.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
49.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
50.	*Streblus asper*	Moraceae	Kuruvipala	Tree	LC
51.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC
52.	*Terminalia arujuna*	Combretaceae		Tree	LC
53.	*Terminalia catappa*	Combretaceae	Naattu Badaam	Tree	NE

54.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
55.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
56.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
57.	*Trachys muricata*	Poaceae	-	Grass	LC
58.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
59.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
60.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
61.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
62.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.15.2. IUCN Status of Selected Fauna Species in Vellode Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	*
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	*
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	
6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC	
C. Amphibian					

1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
1.	*Euthalia nais*	Baronet	Nymphalidae	LC	*
2.	*Tirumala limniace*	Blue Tiger	Nymphalidae	LC	*
3.	*Euploea core*	Common crow	Nymphalidae	LC	*
4.	*Catopsilia pomona*	Common Emigrant	Pieridae	NE	*
5.	*Melanitis leda*	Common evening brown	Nymphalidae	LC	*
6.	*Eurema hecabe*	Common grass yellow	Pieridae	LC	*
7.	*Delias eucharis*	Common jezebel	Pieridae	LC	*
8.	*Phalanta phalantha*	Common leopard	Nymphalidae	LC	*
9.	*Papilio demoleus*	Common lime	Papilionidae	NE	*
10.	*Papilio polytes*	Common mormon	Papilionidae	NE	*
11.	*Atrophaneura hector*	Crimson rose	Papilionidae	LC	*
12.	*Hypolimnas misippus*	Danaid eggfly	Nymphalidae	LC	*
13.	*Euchrysops cnejus*	Gram Blue	Lycaenidae	LC	*
14.	*Hypolimnas bolina*	Great eggfly	Nymphalidae	LC	*
15.	*Junonia atlites*	Grey pansy	Nymphalidae	LC	*
16.	*Junonia lemonias*	Lemon pansy	Nymphalidae	NE	*
17.	*Catopsilia pyranthe*	Mottled Emigrant	Pieridae	NE	*
18.	*Pseudozizeeria maha*	Pale Grass Blue	Lycaenidae	NE	*
19.	*Junonia almana*	Peacock pansy	Nymphalidae	LC	*

20.	*Belenoisaurota*	Pioneer	Pieridae	LC	*
21.	*Danaus chrysippus*	Plain tiger	Nymphalidae	LC	*

LC – Least Concern; * - Yes

Table 3.15.3. IUCN Status of Bird Species in Vellode Bird Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Aegithina tiphia*	Common Iora	T	LC	*
6.	*Alauda gulgula*	Oriental Skylark	T	LC	
7.	*Alcedo atthis*	Common Kingfisher	T	LC	*
8.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
9.	*Anas acuta*	Northern Pintail	A	LC	
10.	*Anas clypeata*	Northern Shoveller	A	LC	
11.	*Anas crecca*	CommonTeal	A	LC	*
12.	*Anas indicus*	Bar-headed Goose	A	LC	
13.	*Anas Penelope*	EurasianWigeon	A	LC	
14.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
15.	*Anas querquedula*	Garganey	A	LC	
16.	*Anastomus oscitans*	Asian Openbill	A	LC	*
17.	*Anhinga melanogaster*	Darter	A	LC	
18.	*Anthus richardi*	Richard's Pipit	D	LC	
19.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
20.	*Apus affinis*	House Swift	T	LC	
21.	*Ardea cinerea*	Grey Heron	A	LC	*
22.	*Ardea purpurea*	Purple Heron	A	LC	
23.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
24.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
25.	*Athene brama*	Spotted Owlet	T	LC	

26.	*Bubulcus ibis*	Cattle Egret	D	LC	*
27.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
28.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
29.	*Burhinus oedicnemus*	Stone Curlew	A	LC	
30.	*Butas turteesa*	White-eyed Buzzard	T	LC	
31.	*Buteo buteo*	Common Buzzard	T	LC	
32.	*Butorides striatus*	Little Green Heron	A	LC	
33.	*Cacomantis passerines*	Indian Plaintive Cuckoo	T	LC	
34.	*Calidris ferruginea*	Curlew sandpiper	A	LC	
35.	*Calidris pugnax*	Ruf	A	LC	
36.	*Calidris minuta*	Little Stint	A	LC	*
37.	*Calidris temminckii*	Temminck's stint	A	LC	
38.	*Caprimulgus indicus*	Indian Jungle Nightjar	T	LC	
39.	*Casmerodius albus*	Great Egret	A	LC	
40.	*Centropus sinensis*	Greater Coucal	T	LC	
41.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
42.	*Charadrius alexandrines*	Kentish Plover	A	LC	
43.	*Charadrius dubius*	Little Ringed Plover	A	LC	
44.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
45.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
46.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
47.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
48.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
49.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
50.	*Circus macrourus*	Pallid Harrier	T	LC	
51.	*Circus melanoleucos*	Pied Harrier	T	LC	
52.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
53.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
54.	*Columba livia*	Rock Pigeon	T	LC	
55.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
56.	*Coracias benghalensis*	Indian Roller	T	LC	*

57.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
58.	*Corvus splendens*	House Crow	T	LC	*
59.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
60.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
61.	*Dicaeum erythrorhynchos*	Pale-billed Flowerpecker	T	LC	*
62.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
63.	*Dupetor flavicollis*	Black Bittern	A	LC	
64.	*Egretta garzetta*	Little Egret	A	LC	*
65.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
66.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
67.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
68.	*Falco tinnunculus*	Common Kestrel	T	LC	
69.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
70.	*Fulica atra*	Coot	A	LC	
71.	*Gallinago stenura*	Pintail Snipe	A	LC	
72.	*Gallicrex cinerea*	Watercock	A	LC	
73.	*Gallinula chloropus*	Common Moorhen	A	LC	*
74.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
75.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
76.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
77.	*Haliastur indus*	Brahminy Kite	T	LC	*
78.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
79.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
80.	*Hirundo rustica*	Barn Swallow	T	LC	
81.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
82.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
83.	*Icthyophaga leucogaster*	White-bellied sea eagle	T	LC	
84.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
85.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
86.	*Limosa limosa*	Black-tailed Godwit	A	LC	
87.	*Lonchura Malacca*	Black-headed Munia	D	LC	

88.	*Merops orientalis*	Green Bee-eater	T	LC	*
89.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
90.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
91.	*Milvus migrans*	Black Kite	T	LC	*
92.	*Mirafra affinis*	Jerdon's Bushlark	T	LC	*
93.	*Motacilla flava*	Yellow Wagtail	D	LC	
94.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
95.	*Mycteria leucocephala*	Painted Stork	A	NT	*
96.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
97.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
98.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
99.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
100.	*Pavo cristatus*	Indian Peafowl	T	LC	*
101.	*Passer domesticus*	House Sparrow	T	LC	*
102.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	*
103.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
104.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
105.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
106.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
107.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
108.	*Phaenicophaeus tristis*	Green-billed Malkoha	T	LC	
109.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
110.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
111.	*Ploceus manyar*	Streaked Weaver	T	LC	
112.	*Pluvialis squatarola*	Grey Plover	A	LC	
113.	*Porphyrio porphyria*	Purple Swamphen	A	LC	*
114.	*Prinia inornata*	Plain Prinia	T	LC	*
115.	*Prinia socialis*	Ashy Prinia	T	LC	*
116.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	*
117.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
118.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*

119.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
120.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
121.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
122.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
123.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC	
124.	*Sterna albifrons*	Little Tern	A	LC	*
125.	*Sterna anaethetus*	Bridled Tern	A	LC	
126.	*Sterna aurantia*	River Tern	A	LC	*
127.	*Sterna caspia*	CaspianTern	A	LC	
128.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
129.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
130.	*Tachybaptus ruficollis*	Little Grebe	A	LC	*
131.	*Tachymarptis melba*	Alpine Swift	T	LC	
132.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC	
133.	*Terpsiphone paradise*	AsianParadise-Flycatcher	T	LC	
134.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC	
135.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
136.	*Tringa ochropus*	Green Sandpiper	A	LC	*
137.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
138.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
139.	*Turnix suscitator*	Common Buttonquail	T	LC	
140.	*Tyto alba*	Barn Owl	T	LC	*
141.	*Upupa epops*	Hoopoe	T	LC	
142.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
143.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
144.	*Zoothera citrine*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.15.4. IUCN Status of major plant invasive alien species in Vellode Bird Sanctuary

S. No.	Species	Family	Tamil Name
1.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni

2.	*Hyptis suaveolens*	Labiatae	
3.	*Ipomoea carnea*	Convolvulaceae	
4.	*Lantana camara*	Verbenaceae	Unnichedi
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Typha angustifolia*	Typhaceae	Sambu
7.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.15.5. IUCN Status of major animal invasive alien species in Vellode Bird Sanctuary

S. No.	Species	Family	Tamil Name
1.	*Oreochromis* species	Cichlidae	Nile Tilapia
2.	Clarias gariepinus	Clariidae	Afrikka Perung Kolli Meen

Table 3.15.6. IUCN Status of major medicinal plant species in Vellode Bird Sanctuary

S.No	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Aerva lanata*	Amaranthaceae	Peelai	Herb
7.	*Borassus flabellifer*	Arecaceae	Panai	Tree
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
13.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
14.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
15.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
16.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.16. PONNERI LAKE

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Ponneri Lake

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Konnerikuppam, Ekambarapuram, Oilmohammadpettai, Thimmasamudram, Karaipettai, Kanchipuram

1.3 *Name of the District (s) in which Wetlands complex located:* Kancheepuram

1.4 *Geographical coordinates:*

► Latitude: 12˚52’02.2” N

► Longitude: 79˚42’25.3” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department & Water Resources Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 131.48 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2; Maximum - 3.5

2.4 *Elevation (m above mean sea level):* 86

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ❒ Mesotrophic
- ✓ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 300.3

b) Temperature (°C) Minimum 24.6 ; Maximum 39.25

c) Humidity (%) Minimum 64.7 ; Maximum 70.9

2.7 *Area of zone of influence (in ha):* 6286.39 ha (with an irregular radius of 4.5 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	1%
Agriculture	:	37%
Settlements (Rural)	:	0%
Settlements (Urban)	:	45%
Industrial	:	0%
Waterbody	:	5%
Waste Land	:	12%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.16 (Fig. 3.16.1-3.16.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 59 species (refer to Table 3.16.1 in Annexure 3.16).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 120 recorded species. This includes 3 mammal species, 4 reptile species, 8 amphibian species, 94 bird species, and 11 species of butterflies (refer to Table 3.16.2-3.16.3 in Annexure 3.16).

3.3 *Species of conservation significance:* Highlighted in Table 3.16.1-3.16.3

3.4 *Major plant invasive alien species:* The Wetland supports 3 plant invasive species (refer to Table 3.16.4 in Annexure 3.16).

3.5 *Major animal invasive alien species:* Not available.

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water has been drawn from outflow for agricultural activities
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 16.6 in Annexure 16
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variety of amphibians were surviving

Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for the site	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing activity is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing activity is observed
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Water has been drawn from outflow for agricultural activities
Bathing or wallowing of domestic animals	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Cattle wallowing is observed
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒ Medium ✓Low	✓Present ❒Potential	Municipal solid wastes has been dumped around the bund
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒ Medium ✓Low	✓Present ❒Potential	Substantial water flow from the surrounding watershed
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High	✓ Present	Listed in Table 3.16.4 in

	❒Medium ✓ Low	❒ Potential	Annexure 3.16
Any others	❒High ❒Medium ❒Low	❒Present ❒Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well & Observed more in numbers		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Abhisheka, K., David, J.P., Prashanth, M.B., Seshadri, K.S., & Ganesh, T. (2013). First detailed survey of waterbirds in Tirunelveli and Tuticorin districts, Tamil Nadu, India. *Journal of Threatened Taxa, 5*(12), 4641–4652. https://doi.org/10.11609/JoTT.o3125.4641-4652
2. Aengals, R., Sathish Kumar, V.M., Palot, M.J., & Ganesh, S.R. (2018). A checklist of reptiles of India (Version 3.0). 35 pp. Available at www.zsi.gov.in (Last update: May 2018).
3. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
4. Bibby, C.J., Burgess, N.D., & Hill, D.A. (1993). *Bird census techniques*. Academic Press Limited, London.

5. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of the Presidency of Madras*. Adlard and Son, London. pp. 1-3.
6. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press, New York.
7. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
8. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
9. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009
10. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
11. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
12. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
13. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.

ANNEXURE 3.16

Fig 3.16.1. Zone of Influence of Ponneri Lake

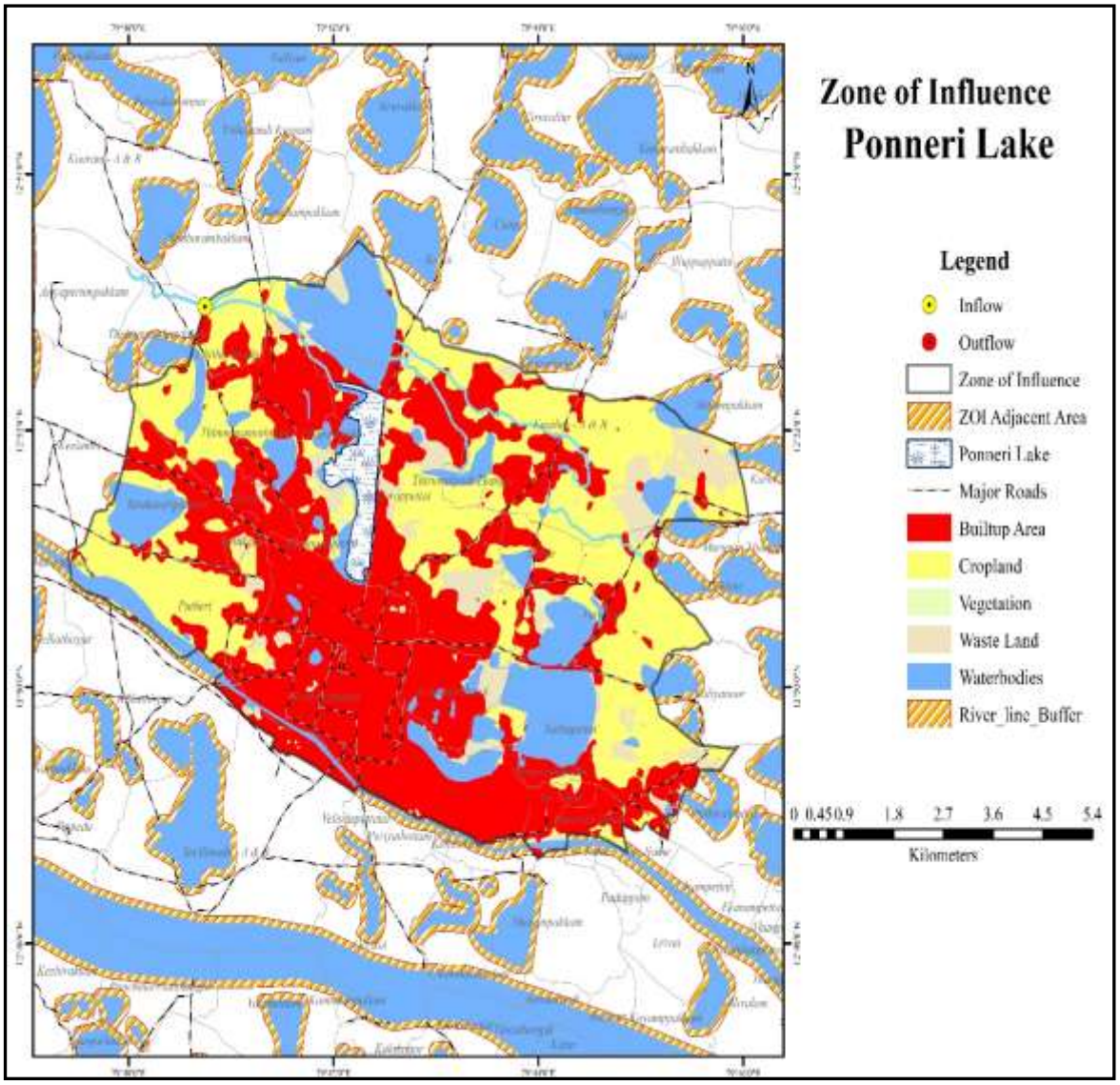


Fig 3.16.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Ponneri Lake

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

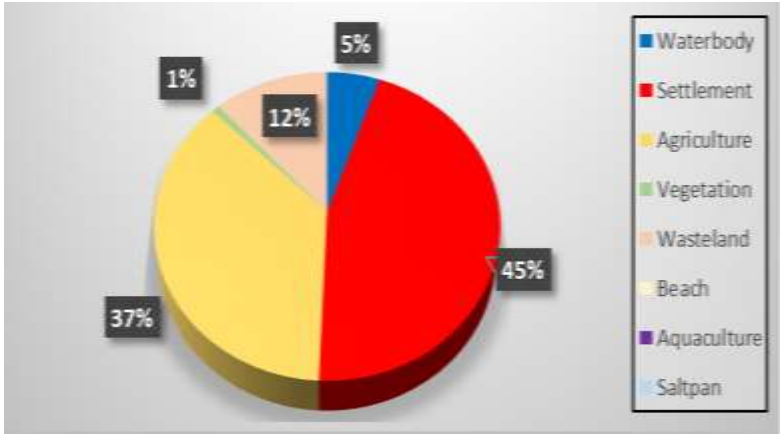


Table 3.16.1. IUCN Status of Floral Species in Ponneri Lake

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
9.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
10.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
11.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
14.	*Brachiaria ramosa*	Poaceae		Grass	NE
15.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
16.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
17.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
18.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
19.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
20.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
21.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
22.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
23.	*Digitaria abludens*	Poaceae		Grass	NE
24.	*Digitaria ciliaris*	Poaceae		Grass	NE
25.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
26.	*Hyptis suaveolens*	Labiatae		Shrub	NE

27.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
28.	*Ischaemum indicum*	Poaceae	-	Grass	LC
29.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
30.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
31.	*Justicia prostrata*	Acanthaceae		Herb	NE
32.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
33.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
34.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
35.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
36.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
37.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
38.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
39.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
40.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
41.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
42.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
43.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
44.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
45.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
46.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
47.	*Trachys muricata*	Poaceae	-	Grass	LC
48.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
49.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
50.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
51.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
52.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.16.2. IUCN Status of Selected Fauna Species in Ponneri Lake

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Status
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	*
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	*
3.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	
4.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
C. Amphibian					
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
22.	*Euploea core*	Nymphalidae	Common crow	NE	
23.	*Catopsilia pomona*	Pieridae	Common Emigrant	LC	
24.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	

25.	*Eurema hecabe*	Pieridae	Common grass yellow	NE	
26.	*Papilio demoleus*	Papilionidae	Common lime	NE	
27.	*Papilio polytes*	Papilionidae	Common mormon	NE	
28.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	
29.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	
30.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	LC	
31.	*Junonia almana*	Nymphalidae	Peacock pansy	LC	
32.	*Danaus chrysippus*	Nymphalidae	Plain tiger	NE	

LC – Least Concern; * - Yes

Table 3.16.3. IUCN Status of Bird Species in Ponneri Lake

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	Status
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	D	LC	*
3.	*Alauda gulgula*	Oriental Skylark	T	LC	
4.	*Alcedo atthis*	Common Kingfisher	T	LC	*
5.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
6.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
7.	*Anastomus oscitans*	Asian Openbill	A	LC	
8.	*Anhinga melanogaster*	Darter	A	LC	*
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Ardea cinerea*	Grey Heron	A	LC	*
11.	*Ardea purpurea*	Purple Heron	A	LC	
12.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
13.	*Bubulcus ibis*	Cattle Egret	D	LC	*
14.	*Casmerodius albus*	Great Egret	A	LC	
15.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
16.	*Charadrius dubius*	Little Ringed Plover	A	LC	
17.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
18.	*Circus macrourus*	Pallid Harrier	T	LC	

19.	*Circus melanoleucos*	Pied Harrier	T	LC	
20.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
21.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
22.	*Columba livia*	Rock Pigeon	T	LC	
23.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
24.	*Coracias benghalensis*	Indian Roller	T	LC	*
25.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
26.	*Corvus splendens*	House Crow	T	LC	*
27.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
28.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
29.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
30.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
31.	*Dupetor flavicollis*	Black Bittern	A	LC	
32.	*Egretta garzetta*	Little Egret	A	LC	*
33.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
34.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
35.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
36.	*Falco tinnunculus*	Common Kestrel	T	LC	
37.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
38.	*Fulica atra*	Coot	A	LC	
39.	*Gallicrex cinerea*	Watercock	A	LC	
40.	*Gallinula chloropus*	Common Moorhen	A	LC	*
41.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
42.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
43.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
44.	*Haliastur indus*	Brahminy Kite	T	LC	*
45.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
46.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
47.	*Hirundo rustica*	Barn Swallow	T	LC	
48.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
49.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	

50.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
51.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
52.	*Limosa limosa*	Black-tailed Godwit	A	LC	
53.	*Lonchura malacca*	Black-headed Munia	D	LC	
54.	*Merops orientalis*	Green Bee-eater	T	LC	*
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
57.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Motacilla flava*	Yellow Wagtail	D	LC	
60.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
61.	*Mycteria leucocophala*	Painted stork	A	NT	
62.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
63.	*Nettapus coromandelianus*	Cotton Pygmy Goose	A	LC	
64.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
65.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
66.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
67.	*Passer domesticus*	House Sparrow	T	LC	*
68.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
69.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
70.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
71.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
72.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
73.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
74.	*Ploceus manyar*	Streaked Weaver	T	LC	
75.	*Pluvialis squatarola*	Grey Plover	A	LC	
76.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
77.	*Prinia inornata*	Plain Prinia	T	LC	
78.	*Prinia socialis*	Ashy Prinia	T	LC	*
79.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
80.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	

81.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
82.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
83.	*Sarkidiornis melanotos*	Comb Duck			
84.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
85.	*Sterna aurantia*	River Tern	A	LC	
86.	*Sternula albifrons*	Little Tern	A	LC	*
87.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
88.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
89.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
90.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
91.	*Tringa glareola*	Wood Sandpiper	A	LC	*
92.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
93.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
94.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.16.4. IUCN Status of major plant invasive alien species in Ponneri Lake

S. No.	Species	Family	Tamil Name
1.	*Albizia saman*	Fabaceae*	Rain tree
2.	*Alternanthera pungens*	Amaranthaceae	
3.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
4.	*Hyptis suaveolens*	Labiatae	
5.	*Ipomoea carnea*	Convolvulaceae	
6.	*Lantana camara*	Verbenaceae	Unnichedi
7.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
8.	*Typha angustifolia*	Typhaceae	Sambu
9.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.16.5. IUCN Status of major medicinal plant species in Ponneri Lake

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
2.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC
3.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
4.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
5.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
6.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
7.	*Terminalia chebula*	Combretaceae		Tree	LC
8.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
9.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
10.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.17. MUTTUKKADU BACKWATERS

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Muttukkadu Backwaters

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Kovalam, Kunnakkadu, Kolapanchery, Kelambakkam, Thiruvidanthai, Padur,

1.3 *Name of the District (s) in which Wetlands complex located: Kancheepuram*

1.4 *Geographical coordinates:*

► Latitude: 12˚48’8.7084” N

► Longitude: 80˚14’18.1896” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 341.79 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs ✓ Backwaters
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 4; Maximum - 5.5

2.4 *Elevation (m above mean sea level):* 0

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: Backwaters from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 262.1

b) Temperature (°C) Minimum 24.6 ; Maximum 39.5

c) Humidity (%) Minimum 64.7 ; Maximum 70.9

2.7 *Area of zone of influence (in ha):* 9442.30 ha (with an irregular radius of 4.5 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	17%
Agriculture	:	0%
Settlements (Rural)	:	0%
Settlements (Urban)	:	45%
Industrial	:	0%
Waterbody	:	17%
Waste Land	:	7%
Saltpan	:	14%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.17 (Fig. 3.17.1-3.17.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 52 species (refer to Table 3.17.1 in Annexure 3.17).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 181 recorded species. This includes 7 mammal species, 21 reptile species, 9 amphibian species, 132 bird species, and 12 species of butterflies (refer to Table 3.17.2-3.17.3 in Annexure 3.17).

3.3 *Species of conservation significance:* Highlighted in Table 3.17.1-3.17.3.

3.4 *Major plant invasive alien species:* The Wetland supports 9 plant invasive species (refer to Table 3.17.4 in Annexure 3.17).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.17.5 in Annexure 3.17).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 17.6 in Annexure 17
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts & Especially for Boating
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	✓ Yes ❒ No	Receives a good population of nature enthusiasts & Especially for Boating
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	❒ Yes ✓ No	

Mangroves	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.
Saltpan	✓ Yes ❒ No	Saltpans were observed while ground-truthing

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Boating is there for fishing
Saltpans	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Saltpans were observed while ground-truthing

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Unauthorized sewage disposal
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High	✓ Present	Listed in Table 3.17.4 in Annexure

	❒Medium ✓ Low	❒ Potential	3.17
Any others	❒High ❒Medium ❒Low	❒Present ❒Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater	Prohibited	✓ Wetland/ Wetland complex boundary ❒ Zone of influence			Unauthorized sewage disposal

Construction of boat jetties, and facilities for temporary use, as pantoon bridges	Prohibited	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			There is a boat jetty for each access & anchorage of boats
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of the Presidency of Madras*. Adlard and Son, London. pp. 1-3.
2. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
3. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
4. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
5. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
6. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India. Series 1, Vol. 1*. Botanical Survey of India, Southern Circle, Coimbatore. pp. 1-184.

7. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
8. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
9. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
10. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009
11. Shree, N.R., & Malathi, E. (2023). A checklist of avifauna from different microhabitats in Muttukadu backwaters, Tamilnadu, India. *Journal of Asia-Pacific Biodiversity*. https://doi.org/10.1016/j.japb.2023.09.004

ANNEXURE 3.17

Fig 3.17.1. Zone of Influence of Muttukkadu Backwaters

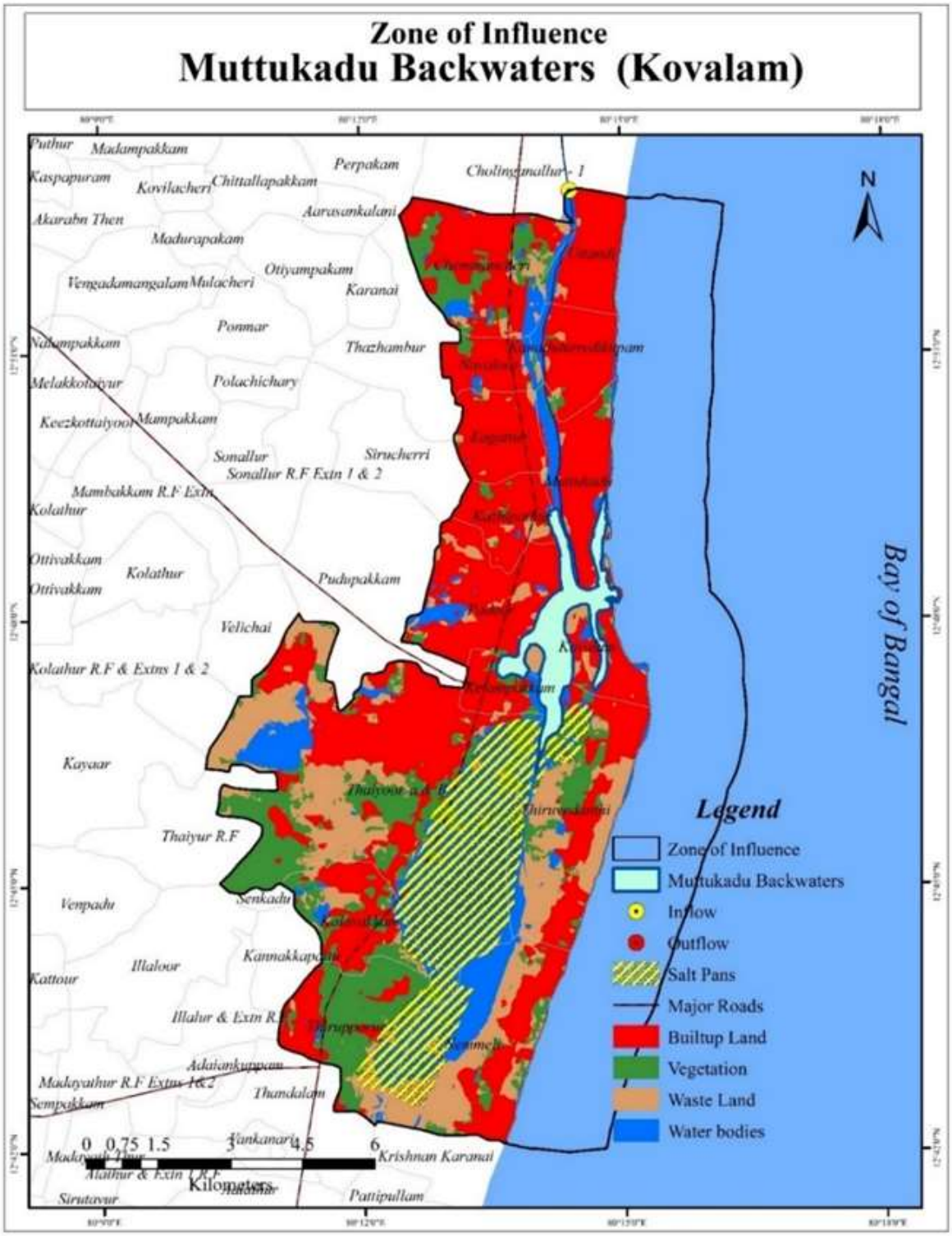


Fig 3.17.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Muttukkadu Backwaters

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

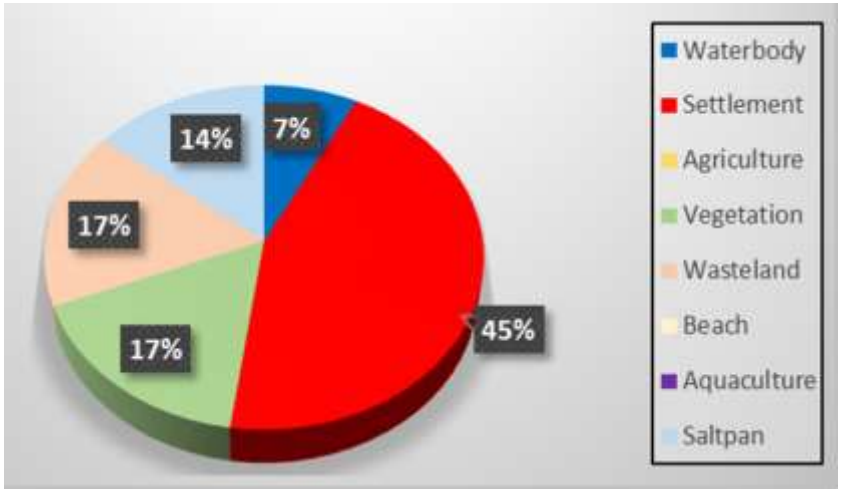


Table 3.17.1. IUCN Status of Floral Species in Muttukkadu Backwaters

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
2.	*Acalypha ciliata*	Euphorbiaceae	Agal	Herb	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
9.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
10.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
11.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
19.	*Digitaria ciliaris*	Poaceae		Grass	NE
20.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
21.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
22.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
23.	*Ischaemum indicum*	Poaceae	-	Grass	LC
24.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
25.	*Justicia prostrata*	Acanthaceae		Herb	NE
26.	*Lannea coromandelica*	Anacardiaceae	Odhiya maram	Tree	LC

27.	*Launaea bellidifolia*	Asteraceae		Herb	LC
28.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
29.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
30.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
31.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
32.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
33.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
34.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
35.	*Pedalium murex*	Pedaliaceae		Herb	NE
36.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
37.	*Physalis minima*	Malvaceae	Tholtakkali	Herb	LC
38.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
39.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
40.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
41.	*Senna siamea*	Fabaceae		Tree	LC
42.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
43.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
44.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
45.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
46.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
47.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
48.	*Trachys muricata*	Poaceae	-	Grass	LC
49.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
50.	*Tridax procumbens*	Compositae	Vettukkaaya chedi	Herb	LC
51.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
52.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.17.2. IUCN Status of Selected Fauna Species in Muttukkadu Backwaters

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Macaca radiata*	Cercopithecidae	Bonnet macaque	
2.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
3.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC
4.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
5.	Rattus rattus	Muridae	House rat	LC
6.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
7.	*Canis aureus*	Canidae	Jackal	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
17.	*Naja naja*	Elapidae	Cobra	LC

18.	*Bungarus caeruleus*	Elapidae	Krait	LC
19.	*Vipera russelli*	Viperidae	Russell's viper	LC
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU
C. Amphibian				
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Common crow	Nymphalidae	LC
2.	*Catopsilia pomona*	Common Emigrant	Pieridae	NE
3.	*Melanitis leda*	Common evening brown	Nymphalidae	LC
4.	*Eurema hecabe*	Common grass yellow	Pieridae	LC
5.	*Papilio demoleus*	Common lime	Papilionidae	NE
6.	*Papilio polytes*	Common mormon	Papilionidae	NE
7.	*Junonia lemonias*	Lemon pansy	Nymphalidae	NE
8.	*Catopsilia pyranthe*	Mottled Emigrant	Pieridae	NE
9.	*Pseudozizeeria maha*	Pale Grass Blue	Lycaenidae	NE
10.	*Junonia almana*	Peacock pansy	Nymphalidae	LC
11.	*Danaus chrysippus*	Plain tiger	Nymphalidae	LC
12.	*Acraea violae*	Tawny coster	Nymphalidae	LC

LC – Least Concern; * - Yes

Table 3.17.3. IUCN Status of Bird Species in Muttukkadu Backwaters

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Accipiter badius*	Shikra	T	LC
2.	*Acridotheres tristis*	Common Myna	T	LC
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC
5.	*Aegithina tiphia*	Common Iora	T	LC
6.	*Alauda gulgula*	Oriental Skylark	T	LC
7.	*Alcedo atthis*	Common Kingfisher	T	LC
8.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC
9.	*Anas acuta*	Northern Pintail	A	LC
10.	*Anas clypeata*	Northern Shoveller	A	LC
11.	*Anas crecca*	CommonTeal	A	LC
12.	*Anas Penelope*	EurasianWigeon	A	LC
13.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC
14.	*Anas querquedula*	Garganey	A	LC
15.	*Anastomus oscitans*	Asian Openbill	A	LC
16.	*Anhinga melanogaster*	Darter	A	LC
17.	*Anthus richardi*	Richard's Pipit	D	LC
18.	*Anthus rufulus*	Paddy-field Pipit	D	LC
19.	*Apus affinis*	House Swift	T	LC
20.	*Ardea cinerea*	Grey Heron	A	LC
21.	*Ardea purpurea*	Purple Heron	A	LC
22.	*Ardeola grayii*	Indian Pond Heron	A	LC
23.	*Artamus fuscus*	Ashy Woodswallow	T	LC
24.	*Athene brama*	Spotted Owlet	T	LC
25.	*Bubulcus ibis*	Cattle Egret	D	LC
26.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC
27.	*Burhinus recurvirostris*	Great Thick-knee	A	LC
28.	*Burhinus oedicnemus*	Stone Curlew	A	LC
29.	*Butas turteesa*	White-eyed Buzzard	T	LC

30.	*Buteo buteo*	Common Buzzard	T	LC
31.	*Butorides striatus*	Little Green Heron	A	LC
32.	*Cacomantis passerinus*	Indian Plaintive Cuckoo	T	LC
33.	*Calidris minuta*	Little Stint	A	LC
34.	*Caprimulgus indicus*	Indian Jungle Nightjar	T	LC
35.	*Casmerodius albus*	Great Egret	A	LC
36.	*Centropus sinensis*	Greater Coucal	T	LC
37.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC
38.	*Ceryle rudis*	Pied Kingfisher	D	LC
39.	*Charadrius alexandrinus*	Kentish Plover	A	LC
40.	*Charadrius dubius*	Little Ringed Plover	A	LC
41.	*Chlidonias hybridus*	Whiskered Tern	A	LC
42.	*Chlidonias leucopterus*	White-winged Tern	A	LC
43.	*Ciconia episcopus*	Woolly-necked Stork	A	LC
44.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC
45.	*Circus macrourus*	Pallid Harrier	T	LC
46.	*Circus melanoleucos*	Pied Harrier	T	LC
47.	*Cisticola juncidis*	Zitting Cisticola	T	LC
48.	*Clamator jacobinus*	Pied Cuckoo	T	LC
49.	*Columba livia*	Rock Pigeon	T	LC
50.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
51.	*Coracias benghalensis*	Indian Roller	T	LC
52.	*Corvus macrorhynchus*	Large-billed Crow	T	LC
53.	*Corvus splendens*	House Crow	T	LC
54.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
55.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
56.	*Dicrurus adsimilis*	Black Drongo	T	LC
57.	*Dupetor flavicollis*	Black Bittern	A	LC
58.	*Egretta garzetta*	Little Egret	A	LC
59.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
60.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC

61.	*Eudynamys scolopacea*	Asian Koel	T	LC
62.	*Falco tinnunculus*	Common Kestrel	T	LC
63.	*Francolinus pondicerianus*	Grey Francolin	T	LC
64.	*Fulica atra*	Coot	A	LC
65.	*Gallicrex cinerea*	Watercock	A	LC
66.	*Gallinula chloropus*	Common Moorhen	A	LC
67.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
68.	*Glareola maldivarum*	Oriental Pratincole	A	LC
69.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
70.	*Haliastur indus*	Brahminy Kite	T	LC
71.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
72.	*Himantopus himantopus*	Black-winged Stilt	A	LC
73.	*Hirundo rustica*	Barn Swallow	T	LC
74.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
75.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
76.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC
77.	*Ixobrychus sinensis*	Yellow Bittern	A	LC
78.	*Limosa limosa*	Black-tailed Godwit	A	LC
79.	*Lonchura malacca*	Black-headed Munia	D	LC
80.	*Merops orientalis*	Green Bee-eater	T	LC
81.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
82.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
83.	*Milvus migrans*	Black Kite	T	LC
84.	*Motacilla flava*	Yellow Wagtail	D	LC
85.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC
86.	*Mycteria leucocephala*	Painted Stork	A	NT
87.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC
88.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC
89.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
90.	*Orthotomus sutorius*	Common Tailorbird	T	LC
91.	*Passer domesticus*	House Sparrow	T	LC

92.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC
93.	*Phalacrocorax carbo*	Great Cormorant	A	LC
94.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC
95.	*Phalacrocorax niger*	Little Cormorant	A	LC
96.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC
97.	*Phoenicopterus ruber*	Greater Flamingo	A	LC
98.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC
99.	*Plegadis falcinellus*	Glossy Ibis	A	LC
100.	*Ploceus manyar*	Streaked Weaver	T	LC
101.	*Pluvialis squatarola*	Grey Plover	A	LC
102.	*Porphyrio porphyrio*	Purple Swamphen	A	LC
103.	*Prinia inornata*	Plain Prinia	T	LC
104.	*Prinia socialis*	Ashy Prinia	T	LC
105.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC
106.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
107.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
108.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC
109.	*Saxicola caprata*	Pied Bush Chat	T	LC
110.	*Saxicoloides fulicata*	Indian Robin	T	LC
111.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC
112.	*Sterna albifrons*	Little Tern	A	LC
113.	*Sterna anaethetus*	Bridled Tern	A	LC
114.	*Sterna aurantia*	River Tern	A	LC
115.	*Sterna caspia*	CaspianTern	A	LC
116.	*Streptopelia chinensis*	Spotted Dove	T	LC
117.	*Sturnus pagodarum*	Brahminy Starling	T	LC
118.	*Tachybaptus ruficollis*	Little Grebe	A	LC
119.	*Tachymarptis melba*	Alpine Swift	T	LC
120.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC
121.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC
122.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC

123.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
124.	*Tringa ochropus*	Green Sandpiper	A	LC
125.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC
126.	*Turdoides affinis*	Yellow-billed Babbler	T	LC
127.	*Turnix suscitator*	Common Buttonquail	T	LC
128.	*Tyto alba*	Barn Owl	T	LC
129.	*Upupa epops*	Hoopoe	T	LC
130.	*Vanellus indicus*	Red-wattled Lapwing	D	LC
131.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC
132.	*Zoothera citrina*	Orange-headed Thrush	T	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.17.4. IUCN Status of major plant invasive alien species in Muttukkadu Backwaters

S. No.	Species	Family	Tamil Name
1.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Prosopis julifera*	Fabaceae	Semai karuvel
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Senna siamea*	Fabaceae	
7.	*Senna tora*	Caesalpiniaceae	Oosithagarai
8.	*Typha angustifolia*	Typhaceae	Sambu
9.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.17.5. IUCN Status of major animal invasive alien species in Muttukkadu Backwaters

S. No.	Species	Family	Common name	IUCN
A. Mammal				
	Rattus rattus	Muridae	House Rat	LC
B. Reptile				
	Hemidactylus Frenatus	Gekkonidae	House gecko	LC

Table 3.17.6. IUCN Status of major medicinal plant species in Muttukkadu Backwaters

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha ciliata*	Euphorbiaceae	Agal	Herb
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb
8.	*Alternanthera pungens*	Amaranthaceae		Herb
9.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
11.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
12.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
13.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
14.	*Mukia leiosperma*	Cucurbitaceae		Climber
15.	*Pedalium murex*	Pedaliaceae		Herb
16.	*Physalis minima*	Malvaceae	Tholtakkali	Herb
17.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
18.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
19.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
20.	*Trianthema portulacastrum*	Aizoaceae		Herb
21.	*Tridax procumbens*	Compositae	Vettukkaaya chedi	Herb
22.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided

- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.18. VEMBANNUR WETLAND COMPLEX

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Vembannur Wetland Complex or Vembannur Tank

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Rajakamangalam Block, Vembannur, Melasankarankuzhi, Perumselvavilai, Parappuvilai

1.3 *Name of the District (s) in which Wetlands complex located:* Kanyakumari

1.4 *Geographical coordinates:*

► Latitude: 8˚7’21.72” N

► Longitude: 77˚22’17.76” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department & Public Works Development

Section 2: Site Characteristics

2.1 *Area of Wetland:* 19.8 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
✓ Human-made	❒ Aquaculture pond ✓ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 3; Maximum - 4.5

2.4 *Elevation (m above mean sea level):* 18

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: receives water from the Pannaivakkal Stream
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 361.8

b) Temperature (°C) Minimum 24.15 ; Maximum 34.9

c) Humidity (%) Minimum 75.5 ; Maximum 80.6

2.7 *Area of zone of influence (in ha):* 4696.03 ha (with an irregular radius of 3.87 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	29%
Agriculture	:	25%
Settlements (Rural)	:	44%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	2%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.18 (Fig. 3.18.1-3.18.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 95 species. (refer to Table 3.18.1 in Annexure 3.18).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 78 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 49 bird species, and 11 species of butterflies (refer to Table 3.18.2-3.18.3 in Annexure 18).

3.3 *Species of conservation significance:* Highlighted in Table 3.18.1-3.18.3

3.4 *Major plant invasive alien species:* The Wetland supports 8 plant invasive species (refer to Table 3.18.4 in Annexure 3.18).

3.5 *Major animal invasive alien species:* Not available.

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Essential Water Source for Agriculture
Fisheries	✓ Yes ❒ No	Fishing done by localates
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.18.5 in Annexure 3.18
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the Wetland.
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	

Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for thesite	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a small Temple around the Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Extracted from the flowing bed of the Wetland
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ❒✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒ Medium ✓ Low	✓ Present ✓ Potential	Surround the bund of Wetland complex
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium ❒Low	❒Present ❒Potential	
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High	✓ Present	

	❒Medium ✓ Low	❒ Potential	
Increased use of Pesticides and Fertilizer	❒High ❒Medium ✓ Low	✓ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V.M., Palot, M.J., & Ganesh, S.R. (2018). *A checklist of reptiles of India* (Version 3.0). 35 pp. Available at www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
3. Bibby, C.J., Burgess, N.D., & Hill, D.A. (1993). *Bird census techniques*. Academic Press Limited, London.
4. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of the Presidency of Madras*. Adlard and Son, London. pp. 1-3.
5. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press, New York.

6. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
7. Ratnam, K. *Birds of Tamil Nadu*.
8. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
9. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
10. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
11. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
12. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
13. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
14. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India. Series 1, Vol. 1*. Botanical Survey of India, Southern Circle, Coimbatore. pp. 1-184.

ANNEXURE 3.18

Fig 3.18.1. Zone of Influence of Vembannur Wetland

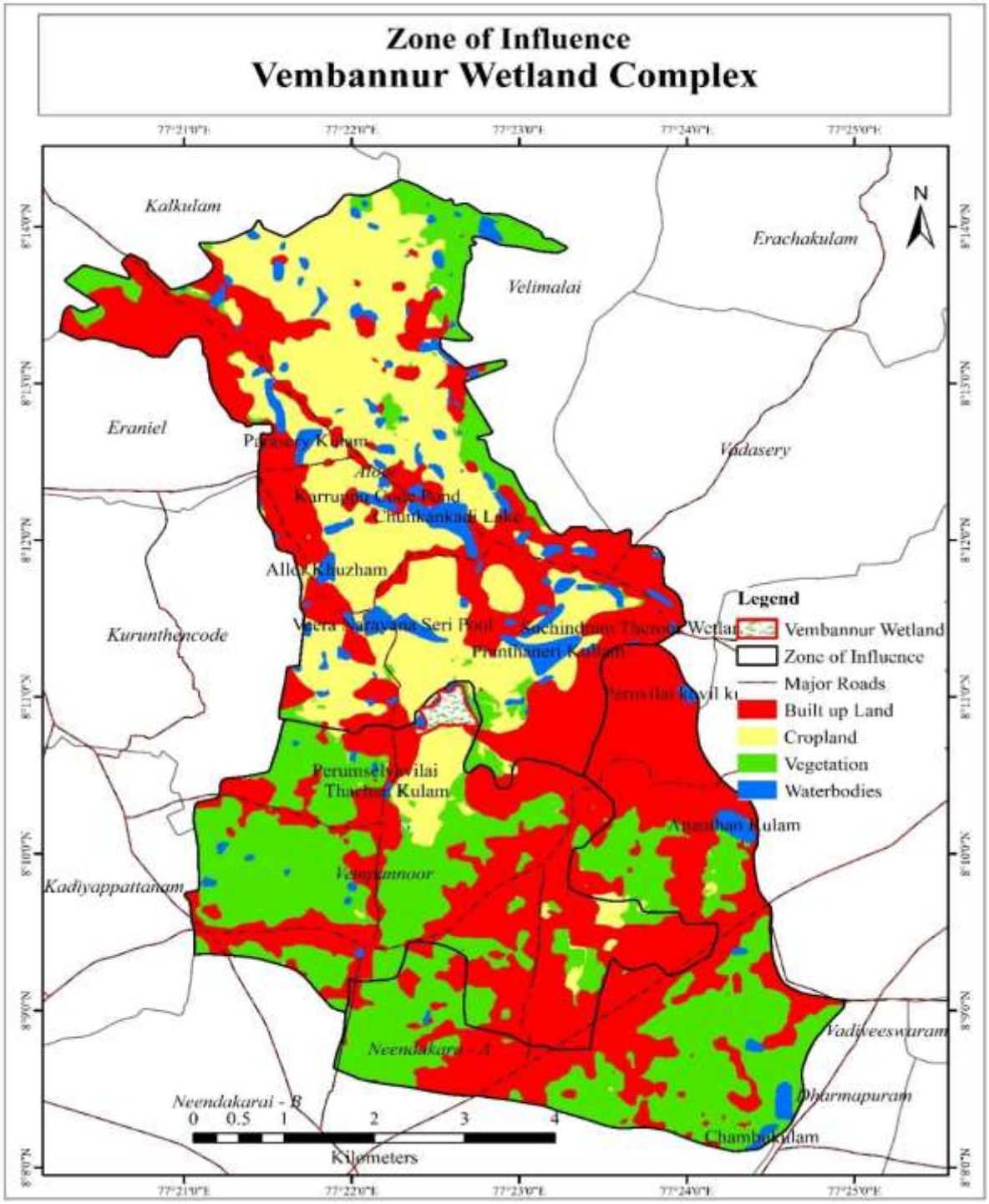


Fig 3.18.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Vembannur Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

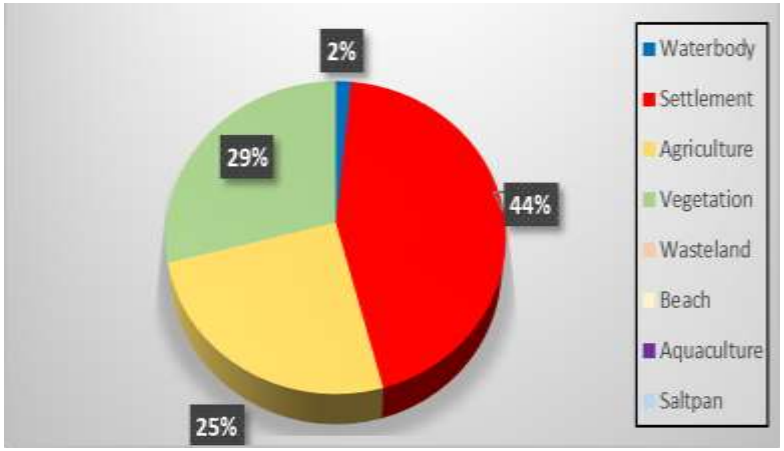


Table 3.18.1. IUCN Status of Floral Species in Vembannur Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
9.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
10.	*Azadiracta indica*	Meliaceae	Vembu	Tree	LC
11.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Brachiaria ramosa*	Poaceae		Grass	NE
14.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
15.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
16.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
17.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
18.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
19.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
20.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
21.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
22.	*Digitaria abludens*	Poaceae		Grass	NE
23.	*Digitaria ciliaris*	Poaceae		Grass	NE
24.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
25.	*Ficus benghalensis*	Moraceae	Allamaram	Tree	LC
26.	*Hyptis suaveolens*	Labiatae		Shrub	NE

27.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
28.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
29.	*Isachne miliacea*	Poaceae	-	Grass	LC
30.	*Ischaemum indicum*	Poaceae	-	Grass	LC
31.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
32.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
33.	*Justicia prostrata*	Acanthaceae		Herb	NE
34.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
35.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
36.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
37.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
38.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
39.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
40.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
41.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
42.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
43.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
44.	*Trachys muricata*	Poaceae	-	Grass	LC
45.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
46.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
47.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
48.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
49.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Aquatic Flora			
S. No.	**Botanical Name**	**Life form**	**Family**
	Pteridophytes		
1	*Azolla pinnata* R.Br.	Floating	Salviniaceae
2	*Ceratopteris thalictroides* (L.) Brongn**.**	Floating	Parkeriaceae
3	*Marsilia minutta* L	Emergent anchored	Marsileaceae
	Angiosperms		
4	*Hygrophila auriculata (Sch.) Heine*	Emergent anchored	Acanthacea
5	*Alternanthera sessilis (L.) R. Br. ex DC.*	Emergent anchored	Amaranthaceae
6	*Alternanthera pungens* Kunth.	Emergent anchored	
7	*Limnophyton obtusifolium* (L.) Miq.	Floating	Alismataceae
8	*Aponogeton natans* (L.) Engl. & K.Krause	Floating leaved anchored	Aponogetonaceae
9	*Pistia stratiotes* L.	Floating	Araceae
10	*Wolffia globosa (Roxb.) Hartog & Plas*	Floating	
11	*Spirodela polyrrhiza* (L.) Schleid.	Floating	
12	*Eclipta prostrata* (L.) L.	Emergent anchored	Asteraceae
	Indotristicha ramosissima (Wight) van Royen	Floating	Podostemaceae
13	*Ipomoea aquatica* Forssk.	Floating leaved anchored	Convolvulaceae
14	*Ipomoea carnea* Jaeq.	Emergent anchored	
15	*Ipomoea obscura* (L.) Ker. G.	Floating leaved anchored	
16	*Cyperus compressus* L.	Emergent anchored	Cyperaceae
17	*Cyperus halpan* L.	Emergent anchored	
18	*Cyperus iria* L.	Emergent anchored	
19	*Cyperus rotundus* L.	Emergent anchored	
20	*Fimbristylis aestivalis* (Retz.) Vahl.	Emergent anchored	
21	*Kyllinga squamulata* Vahl.	Emergent anchored	
22	*Rhynchospora corymbosa* (L.) Bri.	Emergent anchored	
23	*Hydrilla verticillata* (L.f.) Royle	Submerged	Hydrocharitaceae

		anchored	
24	*Ottelia alismoides* (L.) Pers.	Submerged anchored	
25	*Vallisneria natans* (Lour.) H.Hara	Submerged anchored	
26	*Nechamandra alternifolia* (Roxb. ex Wight) Thwaites	Submerged anchored	
27	*Najas graminea* Delile	Submerged anchored	
28	*Najas indica* (Willd.) Cham.	Submerged anchored	
29	*Najas minor* All.	Submerged anchored	
30	*Lemna gibba* L.	Floating	Lemnaceae
31	*Nymphoides hydrophylla* (Lour.) K.	Floating leaved anchored	Menyanthaceae
32	*Neptunia oleracea* Lour.	Floating	Mimosaceae
33	*Nelumbo nucifera Gaertn.*	Floating leaved anchored	Nelumbonaceae
34	*Nymphaea nouchali* Burm. f.	Floating leaved anchored	Nymphaeaceae
35	*Nymphaea pubescens* Willd.	Floating leaved anchored	
36	*Ludwigia adscendens* (L.) Hara	Emergent anchored	Onagraceae
37	*Ludwigia perennis* L.	Emergent anchored	
38	*Panicum repens* L.	Emergent anchored	Poaceae
39	*Cyrtococcum longipes (Wight & Arn. ex Hook.f.) A.Camus*.	Emergent anchored	
40	*Polygonum glabrum* Willd.	Emergent anchored	Polygonaceae
41	*Polygonum barbatum* L.	Emergent anchored	
42	*Eichhornia crassipes* (Mart.) S.L.	Floating	Pontederiaceae
43	*Monochoria vaginalis* (Burm. f.) C. Presl ex Kunth.	Floating	
44	*Trapa natans* L.	Floating	Trapaceae

45	*Typha angustata* B. and Chaub.	Emergent anchored	Typhaceae
46	*Clerodendrum inerme* (L.) Gae.	Floating	Verbenaceae

Table 3.18.2. IUCN Status of Selected Fauna Species in Vembannur Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
22.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	
23.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	
24.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
25.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
26.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	
27.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	
28.	*Bungarus caeruleus*	Elapidae	Common krait	LC	
C. Amphibian					
10.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
11.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
12.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
13.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
14.	*Polypedates maculatus*	Rhacophoridae	Common tree	LC	*

			frog		
15.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
16.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
17.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
13.	*Euploea core*	Nymphalidae	Common crow	LC	PS
14.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE	*
15.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
16.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
17.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
18.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
19.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
20.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
21.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
22.	*Junonia almana*	Nymphalidae	Peacock pansy	LC	*
23.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*

LC – Least Concern; * - Yes

Table 3.18.3. IUCN Status of Bird Species in Vembannur Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	D	LC	
3.	*Alcedo atthis*	Common Kingfisher	T	LC	
4.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
5.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
6.	*Anhinga melanogaster*	Darter	A	LC	

7.	*Anthus rufulus*	Paddy-field Pipit	D	LC	
8.	*Ardea cinerea*	Grey Heron	A	LC	
9.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
10.	*Bubulcus ibis*	Cattle Egret	D	LC	*
11.	*Casmerodius albus*	Great Egret	A	LC	
12.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
13.	*Columba livia*	Rock Pigeon	T	LC	
14.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
15.	*Coracias benghalensis*	Indian Roller	T	LC	*
16.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
17.	*Corvus splendens*	House Crow	T	LC	*
18.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
19.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
20.	*Egretta garzetta*	Little Egret	A	LC	*
21.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
22.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
23.	*Falco tinnunculus*	Common Kestrel	T	LC	
24.	*Gallinula chloropus*	Common Moorhen	A	LC	*
25.	*Haliastur indus*	Brahminy Kite	T	LC	*
26.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
27.	*Lonchura malacca*	Black-headed Munia	D	LC	
28.	*Merops orientalis*	Green Bee-eater	T	LC	*
29.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
30.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
31.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
32.	*Milvus migrans*	Black Kite	T	LC	*
33.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
34.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
35.	*Passer domesticus*	House Sparrow	T	LC	*
36.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
37.	*Phalacrocorax carbo*	Great Cormorant	A	LC	

38.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
39.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
40.	*Prinia inornata*	Plain Prinia	T	LC	
41.	*Prinia socialis*	Ashy Prinia	T	LC	*
42.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
43.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
44.	*Sterna aurantia*	River Tern	A	LC	
45.	*Sternula albifrons*	Little Tern	A	LC	*
46.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
47.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
48.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
49.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.18.4. IUCN Status of major plant invasive alien species in Vembannur Wetland

S.No	Species	Family	Tamil Name
1.	*Albizia saman*	Fabaceae	Rain tree
2.	*Azadiracta indica*	Meliaceae	Vembu
3.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
4.	*Ipomoea carnea*	Convolvulaceae	
5.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal
6.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
7.	*Typha angustifolia*	Typhaceae	Sambu
8.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.18.5. IUCN Status of major medicinal plant species in Vembannur Wetland

S.No	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
4.	*Aerva lanata*	Amaranthaceae	Peelai	Herb

5.	*Azadiracta indica*	Meliaceae	Vembu	Tree
6.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb
7.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
8.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub
9.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
10.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
13.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
14.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
15.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
16.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
17.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.19. SUCHINDRAM THEROOR WETLAND COMPLEX

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Suchindram Theroor Wetland Complex or Suchindram Kulam Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Suchindram

1.3 *Name of the District (s) in which Wetlands complex located:* Kanyakumari

1.4 *Geographical coordinates:*

► Latitude: 8˚9’03” N

► Longitude: 77˚27’14” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 99.62 ha

2.2 *Wetland type*:

Category	**Subcategory**
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
✓ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ✓ Dam/ Reservoir

2.3 *Depth (m):* Average - 2.5; Maximum - 4

2.4 *Elevation (m above mean sea level):* 15

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: receives water from the Kodaiyur river
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 361.8
b) Temperature (°C) Minimum 24.15 ; Maximum 34.9
c) Humidity (%) Minimum 77.2 ; Maximum 80.6

2.7 *Area of zone of influence (in ha):* 8673.5 ha (with an irregular radius of 5.2 km)

2.8 *Major land use within zone of influence*

Land Use	**Percentage**
Forest	0%
Vegetation (Plantation)	17%
Agriculture	27%
Settlements (Rural)	51%
Settlements (Urban)	0%
Industrial	0%
Waterbody	2%
Waste Land	3%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.19 (Fig. 3.19.1-3.19.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 105 species. (refer to Table 3.19.1 in Annexure 3.19).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 123 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 94 bird species, and 11 species of butterflies (refer to Table 3.19.2-3.19.3 in Annexure 3.19).

3.3 *Species of conservation significance:* Highlighted in Table 3.19.1-3.19.3

3.4 *Major plant invasive alien species:* The Wetland supports 8 plant invasive species (refer to Table 3.19.4 in Annexure 3.19).

3.5 *Major animal invasive alien species:* Not available.

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	❒ Yes ✓ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.19.5 in Annexure 3.19
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the Wetland.
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	

Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for thesite	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a Temple around the Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒ Medium ✓ Low	✓ Present ✓ Potential	Household Sewage discharge & Plastics around the bund of Wetland complex
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium ❒Low	❒Present ❒Potential	
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High ❒Medium ✓ Low	✓ Present ❒ Potential	
Increased use of Pesticides and	❒High	❒Present	

Fertilizer	❒ Medium ❒ Low	❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater	Prohibited	✓ Wetland/ Wetland complex boundary ❒ Zone of influence			Household Sewage discharge

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V.M., Palot, M.J., & Ganesh, S.R. (2018). *A checklist of reptiles of India* (Version 3.0). 35 pp. Available at www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
3. Balachandran, S. (1998). Migratory, threatened and rare birds of Kanyakumari District. In R.S. Lal Mohan (Ed.), *Proceedings of the Seminar on Endangered Fauna of Kanyakumari District, Tamil Nadu* (pp. 38-39).
4. Bibby, C.J., Burgess, N.D., & Hill, D.A. (1993). *Bird census techniques*. Academic Press Limited, London.
5. BirdLife International. (2024). Important Bird Area factsheet: Suchindram Therur, Vembanoor. Downloaded from https://datazone.birdlife.org/site/factsheet/suchindram-therur-vembanoor-iba-india on 07/08/2024.

6. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of the Presidency of Madras*. Adlard and Son, London. pp. 1-3.
7. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press, New York.
8. Grubh, R., & Grubh, S. (1989). *Suchindram Kulam: A waterbird sanctuary for Kumari District*. Bombay Natural History Society, Mumbai. Wetlands International. (2002). *Waterbirds population estimates: Third Edition*. Wetlands International Global Series No. 12. Wageningen, the Netherlands.
9. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
10. Ratnam, K. *Birds of Tamil Nadu*.
11. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
12. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
13. Manakadan, R., & Kannan, V. (2001-2002). A study of Spot-billed Pelicans *Pelecanus philippensis* with special reference to its conservation. *Annual Report, Bombay Natural History Society*.
14. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
15. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
16. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
17. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
18. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India. Series 1, Vol. 1*. Botanical Survey of India, Southern Circle, Coimbatore. pp. 1-184.
19. Sridharan, N., Somasundaram, S., Thiyakesan, K., & Vijayan, L. (2011). Status of Wetland birds in Kanyakumari, Thanjavur, Cuddalore, and Nagapattinam districts of Tamil Nadu, India. *Indian Forester, 137*(10), 1177–1182.

ANNEXURE 3.19

Fig. 3.19.1. Zone of Influence of Suchindram Wetland

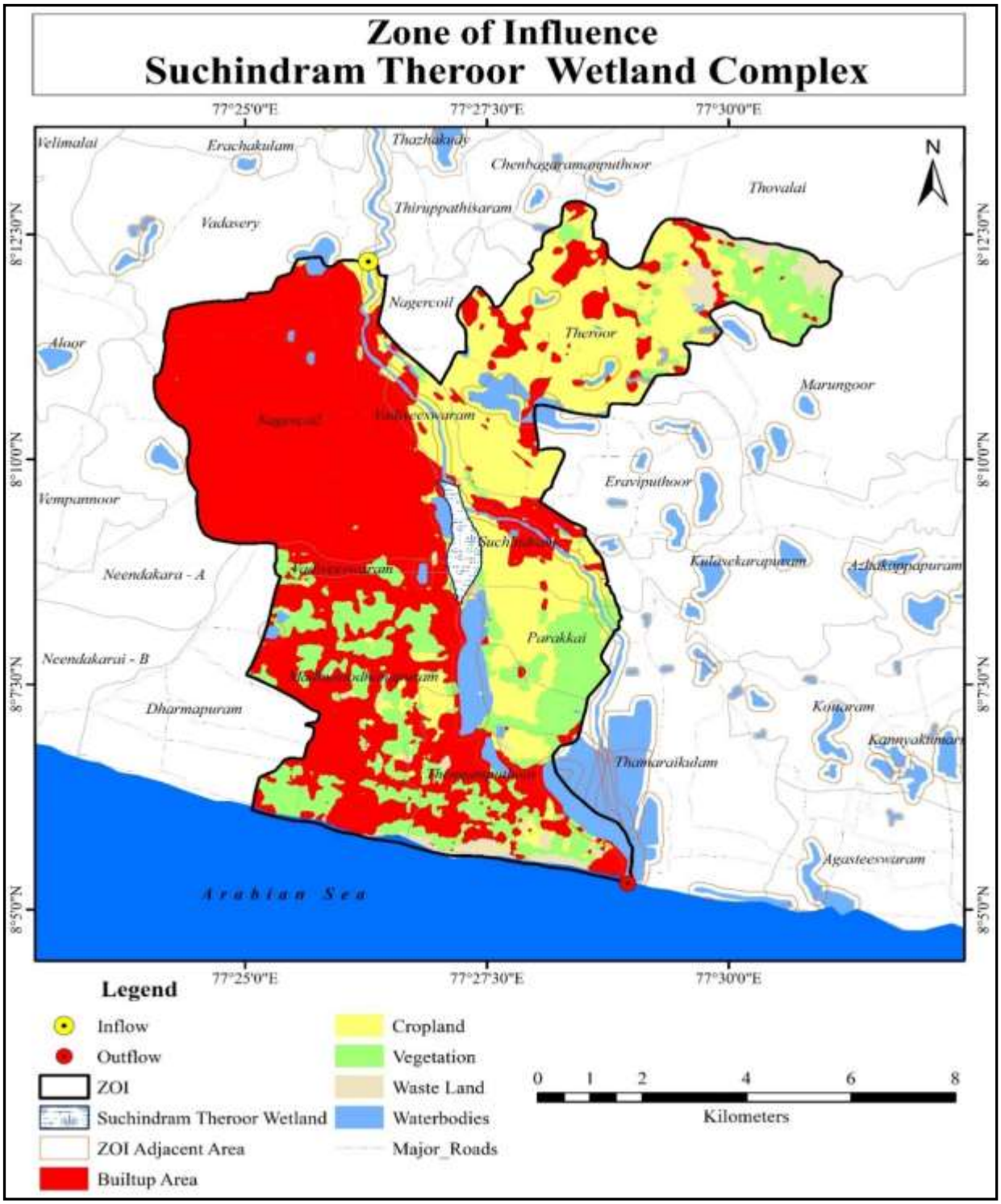


Fig. 3.19.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Suchindram Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

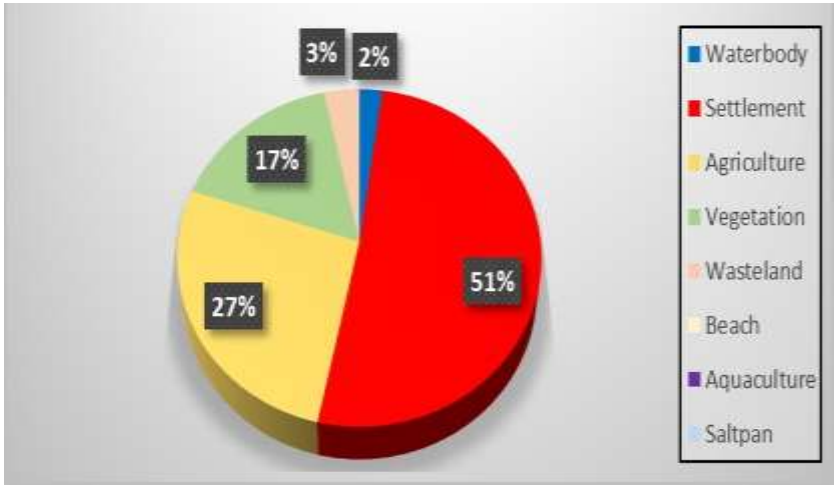


Table 3.19.1. IUCN Status of Floral Species in Suchindram Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
9.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
10.	*Azadiracta indica*	Meliaceae	Vembu	Tree	LC
11.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Brachiaria ramosa*	Poaceae		Grass	NE
14.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
15.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
16.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
17.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
18.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
19.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
20.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
21.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
22.	*Digitaria abludens*	Poaceae		Grass	NE
23.	*Digitaria ciliaris*	Poaceae		Grass	NE
24.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
25.	*Ficus benghalensis*	Moraceae	Allamaram	Tree	LC

26.	*Ficus recemosa*	Moraceae	Cluster fig	Tree	LC
27.	*Ficus religiosa*	Moraceae	Arasamaram	Tree	LC
28.	*Hyptis suaveolens*	Labiatae		Shrub	NE
29.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
30.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
31.	*Isachne miliacea*	Poaceae	-	Grass	LC
32.	*Ischaemum indicum*	Poaceae	-	Grass	LC
33.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
34.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
35.	*Justicia prostrata*	Acanthaceae		Herb	NE
36.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
37.	*Leptochloa fusca*	Poaceae	Mandaipul	Grass	LC
38.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
39.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
40.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
41.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
42.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
43.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
44.	*Santalum album*	Santalaceae	Chanthanam	Tree	LC
45.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
46.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
47.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
48.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
49.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
50.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
51.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
52.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE

53.	*Trachys muricata*	Poaceae	-	Grass	LC
54.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
55.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
56.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
57.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
58.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Aquatic Flora			
S. No.	**Botanical Name**	**Life form**	**Family**
Pteridophytes			
1.	*Azolla pinnata R.Br.*	Floating	Salviniaceae
2.	*Ceratopteris thalictroides (L.) Brongn.*	Floating	Parkeriaceae
3.	*Marsilia minutta L*	Emergent anchored	Marsileaceae
4.	*Hygrophila auriculata (Sch.) Heine*	Emergent anchored	Acanthacea
5.	*Alternanthera sessilis (L.) R. Br. ex DC.*	Emergent anchored	Amaranthaceae
6.	*Alternanthera pungens Kunth.*	Emergent anchored	
7.	*Limnophyton obtusifolium (L.) Miq.*	Floating	Alismataceae
8.	*Aponogeton natans (L.) Engl. & K.Krause*	Floating leaved anchored	Aponogetonaceae
9.	*Pistia stratiotes L.*	Floating	Araceae
10.	*Wolffia globosa (Roxb.) Hartog & Plas*	Floating	
11.	*Spirodela polyrrhiza (L.) Schleid.*	Floating	
12.	*Eclipta prostrata (L.) L.*	Emergent anchored	Asteraceae
13.	*Ipomoea aquatica Forssk.*	Floating leaved anchored	Convolvulaceae
14.	*Ipomoea carnea Jaeq.*	Emergent anchored	
15.	*Ipomoea obscura (L.) Ker. G.*	Floating leaved anchored	
16.	*Cyperus compressus L.*	Emergent anchored	
17.	*Cyperus halpan L.*	Emergent anchored	
18.	*Cyperus iria L.*	Emergent anchored	

19.	*Cyperus rotundus L.*	Emergent anchored	Cyperaceae
20.	*Fimbristylis aestivalis (Retz.) Vahl.*	Emergent anchored	
21.	*Kyllinga squamulata Vahl.*	Emergent anchored	
22.	*Rhynchospora corymbosa (L.) Bri.*	Emergent anchored	
23.	*Hydrilla verticillata (L.f.) Royle*	Submerged anchored	Hydrocharitaceae
24.	*Ottelia alismoides (L.) Pers.*	Submerged anchored	
25.	*Vallisneria natans (Lour.) H.Hara*	Submerged anchored	
26.	*Nechamandra alternifolia (Roxb. ex Wight) Thwaites*	Submerged anchored	
27.	*Najas graminea Delile*	Submerged anchored	
28.	*Najas indica (Willd.) Cham.*	Submerged anchored	
29.	*Najas minor All.*	Submerged anchored	
30.	*Lemna gibba L.*	Floating	Lemnaceae
31.	*Nymphoides hydrophylla (Lour.) K.*	Floating leaved anchored	Menyanthaceae
32.	*Neptunia oleracea Lour.*	Floating	Mimosaceae
33.	*Nelumbo nucifera Gaertn.*	Floating leaved anchored	Nelumbonaceae
34.	*Nymphaea nouchali Burm. f.*	Floating leaved anchored	Nymphaeaceae
35.	*Nymphaea pubescens Willd.*	Floating leaved anchored	
36.	*Ludwigia adscendens (L.) Hara*	Emergent anchored	Onagraceae
37.	*Ludwigia perennis L.*	Emergent anchored	
38.	*Panicum repens L.*	Emergent anchored	Poaceae
39.	*Saccharum spontaenum L.*	Emergent anchored	
40.	*Polygonum glabrum Willd.*	Emergent anchored	Polygonaceae
41.	*Polygonum barbatum L.*	Emergent anchored	
42.	*Eichhornia crassipes (Mart.) S.L.*	Floating	Pontederiaceae
43.	*Monochoria vaginalis (Burm. f.) C. Presl ex Kunth.*	Floating	

44.	*Trapa natans L.*	Floating	Trapaceae
45.	*Typha angustata B. and Chaub.*	Emergent anchored	Typhaceae
46.	*Clerodendrum inerme (L.) Gae.*	Floating	Verbenaceae

Table 3.19.2. IUCN Status of Selected Fauna Species in Suchindram Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	*
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	*
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	
6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC	
C. Amphibian					
18.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
19.	*Duttaphrynus melanostictus*	Bufonidae	Common Indian toad	LC	*
20.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
21.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
22.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
23.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*

24.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
25.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
24.	*Euploea core*	Nymphalidae	Common crow	LC	PS
25.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE	*
26.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
27.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
28.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
29.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
30.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
31.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
32.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
33.	*Junonia almana*	Nymphalidae	Peacock pansy	LC	*
34.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*

LC – Least Concern; * - Yes

Table 3.19.3. IUCN Status of Bird Species in Suchindram Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	D	LC	*
3.	*Alauda gulgula*	Oriental Skylark	T	LC	
4.	*Alcedo atthis*	Common Kingfisher	T	LC	*
5.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
6.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
7.	*Anastomus oscitans*	Asian Openbill	A	LC	
8.	*Anhinga melanogaster*	Darter	A	LC	*
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Ardea cinerea*	Grey Heron	A	LC	*
11.	*Ardea purpurea*	Purple Heron	A	LC	
12.	*Ardeola grayii*	Indian Pond Heron	A	LC	*

13.	*Bubulcus ibis*	Cattle Egret	D	LC	*
14.	*Casmerodius albus*	Great Egret	A	LC	
15.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
16.	*Charadrius dubius*	Little Ringed Plover	A	LC	
17.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
18.	*Circus macrourus*	Pallid Harrier	T	LC	
19.	*Circus melanoleucos*	Pied Harrier	T	LC	
20.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
21.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
22.	*Columba livia*	Rock Pigeon	T	LC	
23.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
24.	*Coracias benghalensis*	Indian Roller	T	LC	*
25.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
26.	*Corvus splendens*	House Crow	T	LC	*
27.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
28.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
29.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
30.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
31.	*Dupetor flavicollis*	Black Bittern	A	LC	
32.	*Egretta garzetta*	Little Egret	A	LC	*
33.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
34.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
35.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
36.	*Falco tinnunculus*	Common Kestrel	T	LC	
37.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
38.	*Fulica atra*	Coot	A	LC	
39.	*Gallicrex cinerea*	Watercock	A	LC	
40.	*Gallinula chloropus*	Common Moorhen	A	LC	*
41.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
42.	*Glareola maldivarum*	Oriental Pratincole	A	LC	

43.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
44.	*Haliastur indus*	Brahminy Kite	T	LC	*
45.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
46.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
47.	*Hirundo rustica*	Barn Swallow	T	LC	
48.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
49.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
50.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
51.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
52.	*Limosa limosa*	Black-tailed Godwit	A	LC	
53.	*Lonchura malacca*	Black-headed Munia	D	LC	
54.	*Merops orientalis*	Green Bee-eater	T	LC	*
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
57.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Motacilla flava*	Yellow Wagtail	D	LC	
60.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
61.	*Mycteria leucocophala*	Painted stork	A	NT	
62.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
63.	*Nettapus coromandelianus*	Cotton Pygmy Goose	A	LC	
64.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
65.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
66.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
67.	*Passer domesticus*	House Sparrow	T	LC	*
68.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
69.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
70.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
71.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
72.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	

73.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
74.	*Ploceus manyar*	Streaked Weaver	T	LC	
75.	*Pluvialis squatarola*	Grey Plover	A	LC	
76.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
77.	*Prinia inornata*	Plain Prinia	T	LC	
78.	*Prinia socialis*	Ashy Prinia	T	LC	*
79.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
80.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
81.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
82.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
83.	*Sarkidiornis melanotos*	Comb Duck			
84.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
85.	*Sterna aurantia*	River Tern	A	LC	
86.	*Sternula albifrons*	Little Tern	A	LC	*
87.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
88.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
89.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
90.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
91.	*Tringa glareola*	Wood Sandpiper	A	LC	*
92.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
93.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
94.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.19.4. IUCN Status of major plant invasive alien species in Suchindram Wetland

S. No.	Species	Family	Tamil Name
1.	*Albizia saman*	Fabaceae	Rain tree
2.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
3.	*Ipomoea carnea*	Convolvulaceae	
4.	*Lantana camara*	Verbenaceae	Unnichedi
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai

6.	*Tylophora indica*	Asclepiadaceae	Naippalai
7.	*Typha angustifolia*	Typhaceae	Sambu
8.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.19.5. IUCN Status of major medicinal plant species in Suchindram Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
4.	*Aerva lanata*	Amaranthaceae	Peelai	Herb
5.	*Azadiracta indica*	Meliaceae	Vembu	Tree
6.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb
7.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
8.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub
9.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
10.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
13.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
14.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided

- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.20. RAJAKAMANGALAM WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Rajakamangalam Wetland or Rajakamangalam Estuary

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Rajakamangalam, Kottavilai, Kaniyakulam, Thoppankudiyiruppu, and Thikkilanvilai

1.3 *Name of the District (s) in which Wetlands complex located:* Kanyakumari

1.4 *Geographical coordinates:*

- Latitude: 8˚7’21.72” N
- Longitude: 77˚22’17.76” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 42.39 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 3; Maximum - 5

2.4 *Elevation (m above mean sea level):* 3

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: receives water from the Tamiraparani
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 361.8
b) Temperature (°C): Minimum 24.15 ; Maximum 34.9
c) Humidity (%) Minimum 77.2 ; Maximum 80.6

2.7 *Area of zone of influence (in ha):* 3404.47 ha (with an irregular radius of 5.2 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	36%
Agriculture	:	1%
Settlements (Rural)	:	23%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	39%
Waste Land	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.20 (Fig. 3.20.1-3.20.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 51 species (refer to Table 3.20.1 in Annexure 3.20).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 121 recorded species. This includes 4 mammal species, 21 reptile species, 9 amphibian species, 75 bird species, and 12 species of butterflies (refer to Table 3.20.2-3.20.3 in Annexure 3.20).

3.3 *Species of conservation significance:* Highlighted in Table 3.20.1-3.20.3

3.4 *Major plant invasive alien species:* The Wetland supports 6 plant invasive species (refer to Table 3.20.4 in Annexure 3.20).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.20.5 in Annexure 3.20).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	❒ Yes ✓ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.20.6 in Annexure 3.20
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds

Supports life cycle of fish or amphibians	✓ Yes ❒ No	
Mining	❒ Yes ✓ No	
Carbon Sequestration	✓ Yes ❒ No	Mangrove plantation leads to carbon sequestration

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing activity is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a Temple around the Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest of biological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High	✓ Present	Presence of *Prosopis Juliflora*

	❒Medium ✓ Low	❒ Potential	
Any others	❒High ❒Medium ❒Low	❒Present ❒Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Balachandran, S. (1994). Some interesting bird records from Kaliveli Lake near Pondicherry. *Journal of the Bombay Natural History Society, 91*, 317–318.
3. Bhalla, R.S., & Prasadm, K.V.D. (2009). *Landscape assessment of the Kaliveli basin, Midterm project report* (p. 46).
4. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of the Presidency of Madras*. Adlard and Son, London. pp. 1-3.
5. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
6. Ratnam, K. *Birds of Tamil Nadu*.

7. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
8. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
9. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
10. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
11. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
12. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
13. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India. Series 1, Vol. 1*. Botanical Survey of India, Southern Circle, Coimbatore. pp. 1-184.
14. Pieter, D. (1987). Kaliveli tank and Yedayanthittu Estuary – a little-known Wetland habitat in Tamil Nadu. *Journal of the Bombay Natural History Society, 84*, 210–214.

ANNEXURE 3.20

Fig 3.20.1. Zone of Influence of Rajakamangalam Wetland

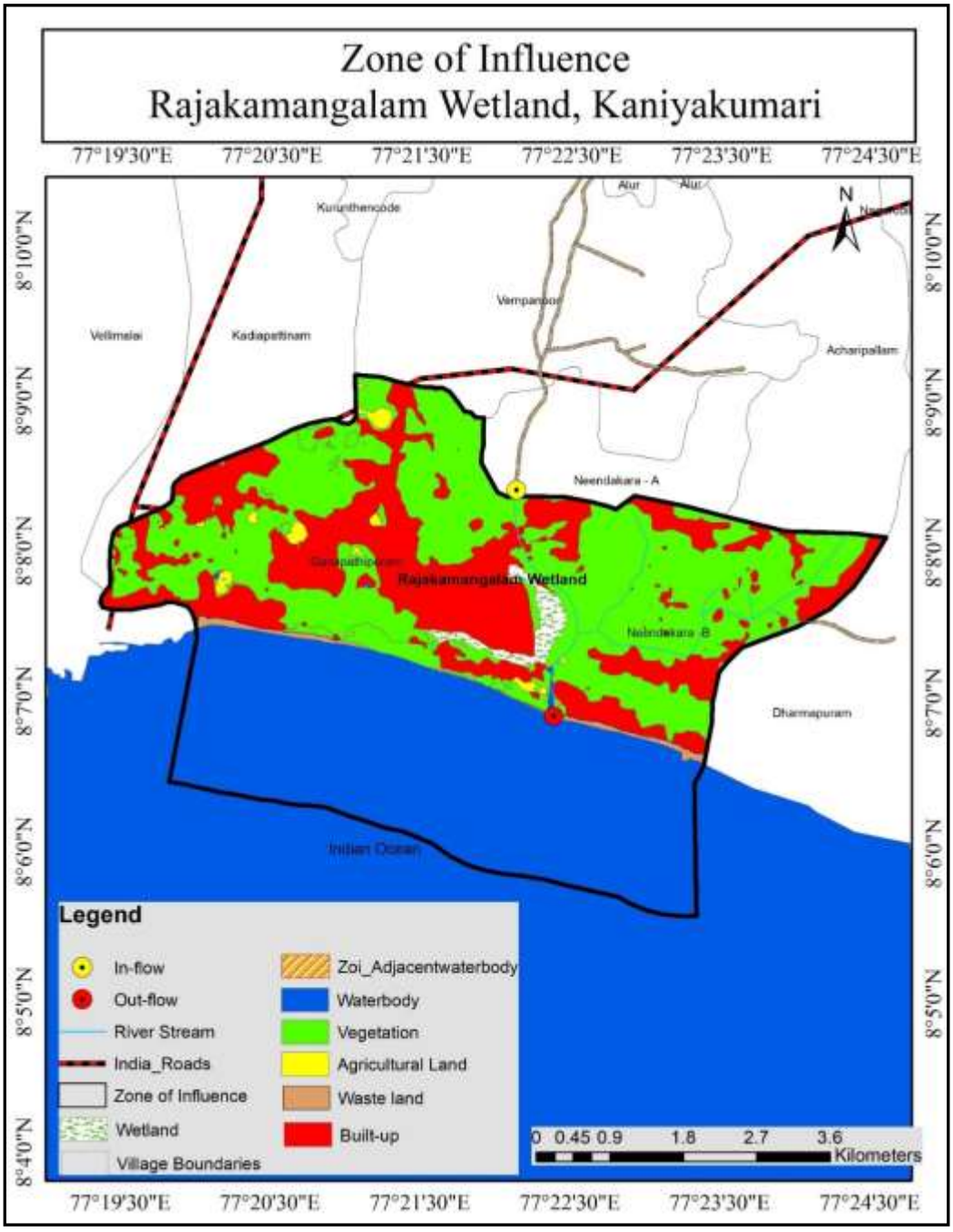


Fig 3.20.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Rajakamangalam Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

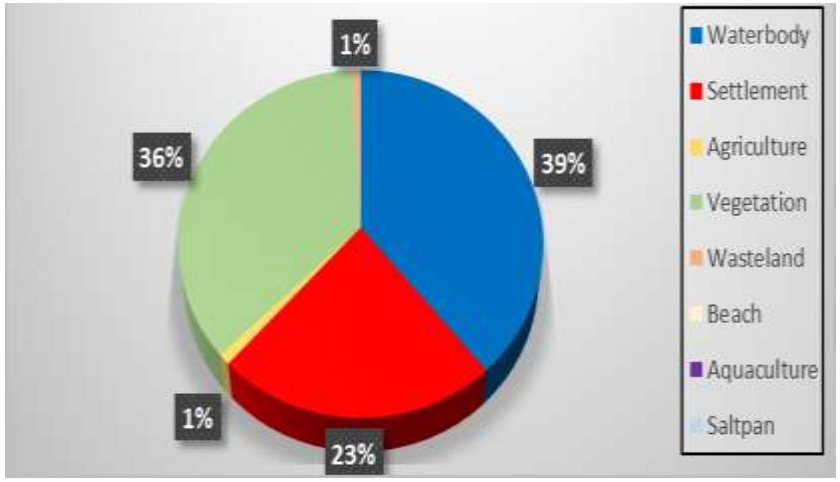


Table 3.20.1. IUCN Status of Floral Species in Rajakamangalam Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Acanthospermum hispidum*	Compositae		Herb	NE
2.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
3.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
4.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
5.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
6.	*Brachiaria mutica*	Poaceae		Grass	NE
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
9.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
10.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
11.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
12.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
13.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
14.	*Cyperus squarrosus*	Cyperaceae		Sedge	NE
15.	*Digitaria ciliaris*	Poaceae		Grass	NE
16.	*Emilia sonchifolia*	Astereceae	Muyalccevi	Herb	NE
17.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
18.	*Geniosporum tenuiflorum*	Laminaceae	Nallathulasi	Herb	NE
19.	*Heliotropium curassavicum*	Boraginaceae		Herb	LC
20.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
21.	*Ischaemum indicum*	Poaceae	-	Grass	LC
22.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
23.	*Launaea bellidifolia*	Asteraceae		Herb	LC
24.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
25.	*Lepisanthes tetraphylla*	Sapindaceae	Neykkoddaan	Tree	LC
26.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE

27.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
28.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
29.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
30.	*Pedalium murex*	Pedaliaceae		Herb	NE
31.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
32.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
33.	*Salacia chinensis*	Celastraceae		Tree	LC
34.	*Salvadora persica*	Salvodaraceae	Peruvilla	Tree	LC
35.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
36.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
37.	*Senna siamea*	Fabaceae		Tree	LC
38.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
39.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
40.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
41.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
42.	*Suaeda maritima*	Amaranthaceae		Herb	LC
43.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
44.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
45.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
46.	*Trachys muricata*	Poaceae	-	Grass	LC
47.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
48.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
49.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
50.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
51.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.20.2. IUCN Status of Selected Fauna Species in Rajakamangalam Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
2.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
3.	*Rattus rattus*	Muridae	House rat	LC	*
4.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	*
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	
17.	*Naja naja*	Elapidae	Cobra	LC	

18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	*
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*		Common tree frog	LC	
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	*
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass	NE	*

			Blue		
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC	*
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC	*

LC – Least Concern; * - Yes

Table 3.20.3. IUCN Status of Bird Species in Rajakamangalam Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Alauda gulgula*	Oriental Skylark	T	LC	
5.	*Alcedo atthis*	Common Kingfisher	T	LC	*
6.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
7.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
8.	*Anastomus oscitans*	Asian Openbill	A	LC	
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Apus affinis*	House Swift	T	LC	
11.	*Ardea cinerea*	Grey Heron	A	LC	*
12.	*Ardea purpurea*	Purple Heron	A	LC	
13.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
14.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
15.	*Athene brama*	Spotted Owlet	T	LC	
16.	*Bubulcus ibis*	Cattle Egret	D	LC	*
17.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
18.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
19.	*Casmerodius albus*	Great Egret	A	LC	
20.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
21.	*Charadrius dubius*	Little Ringed Plover	A	LC	
22.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
23.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
24.	*Cisticola juncidis*	Zitting Cisticola	T	LC	

25.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
26.	*Columba livia*	Rock Pigeon	T	LC	
27.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
28.	*Coracias benghalensis*	Indian Roller	T	LC	*
29.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
30.	*Corvus splendens*	House Crow	T	LC	*
31.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
32.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
33.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
34.	*Egretta gularis*	Western reef heron	A	LC	
35.	*Egretta garzetta*	Little Egret	A	LC	*
36.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
37.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
38.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
39.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
40.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
41.	*Haliastur indus*	Brahminy Kite	T	LC	*
42.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
43.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
44.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
45.	*Lonchura malacca*	Black-headed Munia	D	LC	
46.	*Merops orientalis*	Green Bee-eater	T	LC	*
47.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
48.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
49.	*Milvus migrans*	Black Kite	T	LC	*
50.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
51.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
52.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
53.	*Passer domesticus*	House Sparrow	T	LC	*
54.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	

55.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
56.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
57.	*Platalea leucorodia*	Spoonbill	A	LC	
58.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
59.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
60.	*Prinia inornata*	Plain Prinia	T	LC	
61.	*Prinia socialis*	Ashy Prinia	T	LC	*
62.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
63.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
64.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
65.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
66.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
67.	*Sterna aurantia*	River Tern	A	LC	
68.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
69.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
70.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
71.	*Tadorna ferruginea*	Ruddy Shelduck	A	LC	
72.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
73.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
74.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
75.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.20.4. IUCN Status of major plant invasive alien species in Rajakamangalam Wetland

S. No.	Species	Family	Tamil Name
1.	*Lantana camara*	Verbenaceae	Unnichedi
2.	*Martynia annua*	Martyniaceae	Thael Kodukku
3.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
4.	*Senna siamea*	Fabaceae	
5.	*Typha angustifolia*	Typhaceae	Sambu
6.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.20.5. IUCN Status of major animal invasive alien species in Rajakamangalam Wetland

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
1	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.20.6. IUCN Status of major medicinal plant species in Rajakamangalam Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
7.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
8.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Mukia leiosperma*	Cucurbitaceae		Climber
11.	*Pedalium murex*	Pedaliaceae		Herb
12.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
13.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
14.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
15.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb
16.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
17.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities

- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.21. MANAKUDY ESTUARY WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Manakudy Estuary

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Agaatheeswaram, Melamanakudy, Keelamanakudy, Manakudy Colony, Puthalam, Kovalam

1.3 *Name of the District (s) in which Wetlands complex located:* Kanyakumari

1.4 *Geographical coordinates:*

► Latitude: 8˚5'40.92" N

► Longitude: 77˚29'9.24" E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 63.06 ha

2.2 *Wetland type*:

Category	**Subcategory**
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 3; Maximum - 5.5

2.4 *Elevation (m above mean sea level):* 4

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: receives water from the Pazhayar river
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 361.8

b) Temperature (°C) Minimum 24.15 ; Maximum 34.9

c) Humidity (%) Minimum 75.5 ; Maximum 80.6

2.7 *Area of zone of influence (in ha):* 4508.23 ha (with an irregular radius of 3.87 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	24%
Agriculture	:	14%
Settlements (Rural)	:	25%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	31%
Waste Land	:	2%
Aquaculture	:	4%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.21 (Fig. 3.21.1-3.21.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 64 species (refer to Table 3.21.1 in Annexure 3.21).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 137 recorded species. This includes 4 mammal species, 19 reptile species, 9 amphibian species, 93 bird species, and 12 species of butterflies (refer to Table 3.21.2-3.21.3 in Annexure 3.21).

3.3 *Species of conservation significance:* Highlighted in Table 3.21.1-3.21.3.

3.4 *Major plant invasive alien species:* The Wetland supports 11 plant invasive species (refer to Table 3.21.4 in Annexure 3.21).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.21.5 in Annexure 3.21).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	❒ Yes ✓ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.21.6 in Annexure 3.21
Is a recreational site	✓ Yes ❒ No	Boating and tourism is developing
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	
Has significant cultural and religious values	✓ Yes ❒ No	For traditional rituals, Local festivals, Spiritual activities
Is a site for recreation and tourism	✓ Yes ❒ No	Significant amount of population is exploring the tourism
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds
Supports life cycle of fish or amphibians	✓ Yes ❒ No	

Mining	❒ Yes ✓ No	
Carbon Sequestration	✓ Yes ❒ No	Mangrove plantation leads to carbon sequestration

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for thesite	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing activity is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a Temple around the Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Recreation purpose
Any other	❒ Yes ❒ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.21.4-3.21.5 in Annexure 3.21
Any others	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Balachandran, S. (1994). Some interesting bird records from Kaliveli Lake near Pondicherry. *Journal of the Bombay Natural History Society, 91*, 317–318.
3. Bhalla, R.S., & Prasadm, K.V.D. (2009). *Landscape assessment of the Kaliveli basin, Midterm project report* (p. 46).
4. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of the Presidency of Madras*. Adlard and Son, London. pp. 1-3.
5. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.

6. Jude, D., Karthick, M., Ram Kumar, R., Sathyananth, M., Stephenraj, D., & Azhagu Raj, R. (2022). Avifaunal diversity of Swamythoopu Salt Pan, Kanyakumari, Tamil Nadu, India. *International Journal of Zoological Investigations, 8*(1), 138–151.
7. Ratnam, K. *Birds of Tamil Nadu*.
8. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
9. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
10. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
11. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
12. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
13. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
14. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India. Series 1, Vol. 1*. Botanical Survey of India, Southern Circle, Coimbatore. pp. 1-184.
15. Pieter, D. (1987). Kaliveli tank and Yedayanthittu Estuary – a little-known Wetland habitat in Tamil Nadu. *Journal of the Bombay Natural History Society, 84*, 210–214.

ANNEXURE 3.21

Fig 3.21.1. Zone of Influence of Manakudy Wetland

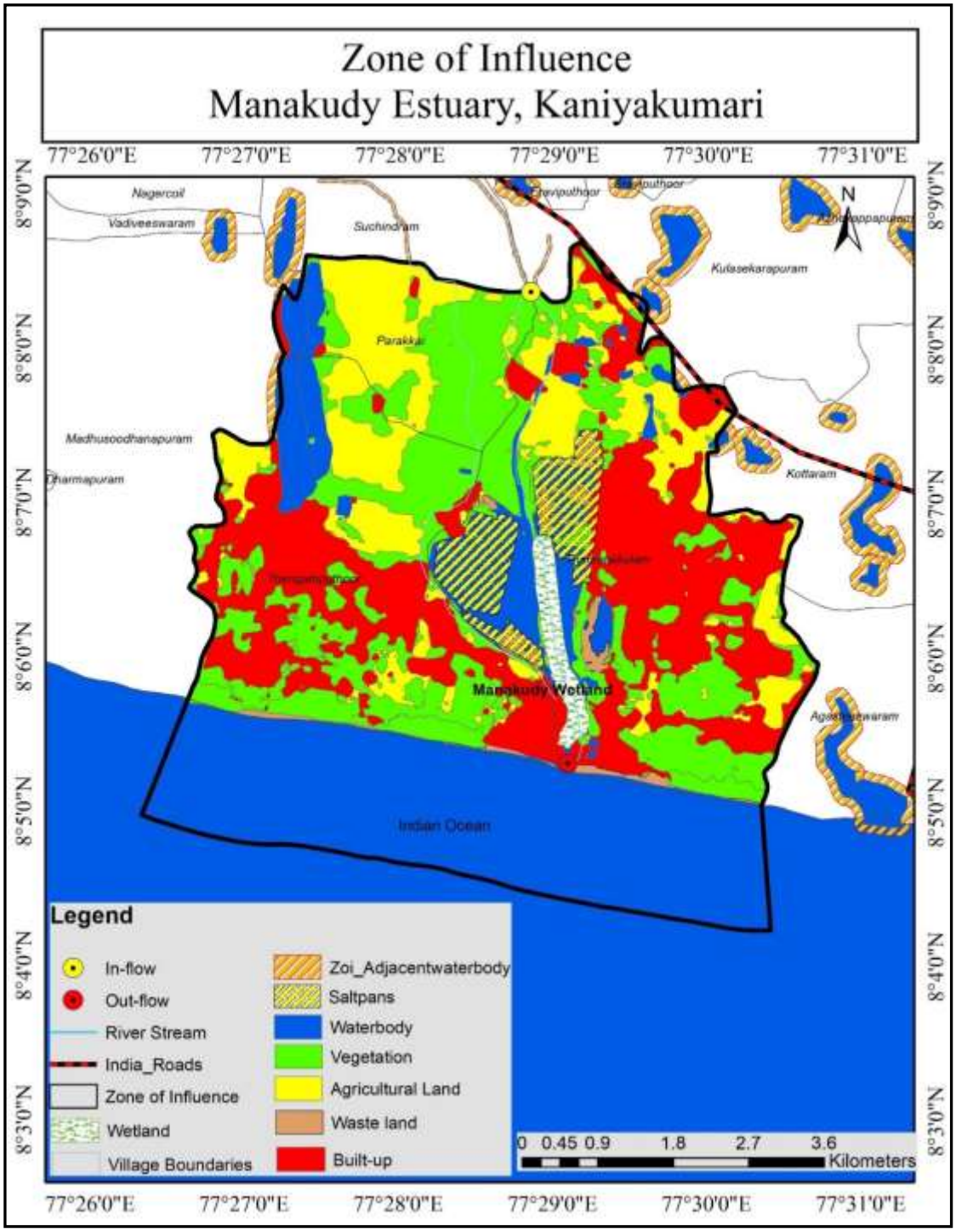


Fig 3.21.2. Map (2014 *vs*. 2021) and Land Use/ Land Cover of Manakudy Wetland

Map of the Wetland in 2014



Map of the Wetland in 2021



Land Use/ Land Cover of the Wetland

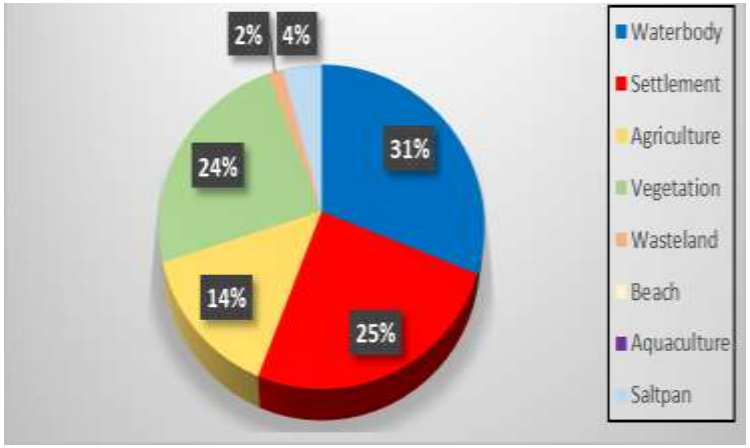


Table 3.21.1. IUCN Status of Floral Species in Manakudy Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Aeluropus lagopoides*	Poaceae	Kadal Arugampullu	Grass	NE
9.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Cyperus squarrosus*	Cyperaceae		Sedge	NE
20.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
21.	*Digitaria ciliaris*	Poaceae		Grass	NE
22.	*Emilia sonchifolia*	Astereceae	Muyalccevi	Herb	NE
23.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
24.	*Geniosporum tenuiflorum*	Laminaceae	Nallathulasi	Herb	NE
25.	*Gisekia pharnaceoides*	Gisekiaceae	Kolikkirai	Herb	NE

26.	*Glinus lotoides*	Molluginaceae	Cerupattai	Herb	NE
27.	*Glinus oppositifolius*	Molluginaceae	Thurapundu	Herb	NE
28.	*Heliotropium curassavicum*	Boraginaceae		Herb	LC
29.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
30.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
31.	*Ischaemum indicum*	Poaceae	-	Grass	LC
32.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
33.	*Justicia prostrata*	Acanthaceae		Herb	NE
34.	*Launaea bellidifolia*	Asteraceae		Herb	LC
35.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
36.	*Lepisanthes tetraphylla*	Sapindaceae	Neykkoddaan	Tree	LC
37.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
38.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
39.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
40.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
41.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
42.	*Pedalium murex*	Pedaliaceae		Herb	NE
43.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
44.	*Prosopis cineraria*	Fabaceae	Vani	Tree	LC
45.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
46.	*Salacia chinensis*	Celastraceae		Tree	LC
47.	*Salvadora persica*	Salvodaraceae	Peruvilla	Tree	LC
48.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
49.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
50.	*Senna siamea*	Fabaceae		Tree	LC
51.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
52.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE

53.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
54.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
55.	*Suaeda maritima*	Amaranthaceae		Herb	LC
56.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
57.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
58.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
59.	*Trachys muricata*	Poaceae	-	Grass	LC
60.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
61.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
62.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
63.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
64.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.21.2. IUCN Status of Selected Fauna Species in Manakudy Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
2.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
3.	*Rattus rattus*	Muridae	House rat	LC	*
4.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	*
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	*

5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	*
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	*
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	*
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	*
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	

8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*		Common tree frog	LC	
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	*
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC	*
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC	*

LC – Least Concern; * - Yes

Table 3.21.3. IUCN Status of Bird Species in Manakudy Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Alauda gulgula*	Oriental Skylark	T	LC	
5.	*Alcedo atthis*	Common Kingfisher	T	LC	*
6.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
7.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
8.	*Anas querquedula*	Garganey	A	LC	
9.	*Anastomus oscitans*	Asian Openbill	A	LC	

10.	*Anthus richardi*	Richard's Pipit	D	LC	
11.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
12.	*Apus affinis*	House Swift	T	LC	
13.	*Ardea cinerea*	Grey Heron	A	LC	*
14.	*Ardea purpurea*	Purple Heron	A	LC	
15.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
16.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
17.	*Athene brama*	Spotted Owlet	T	LC	
18.	*Bubulcus ibis*	Cattle Egret	D	LC	*
19.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
20.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
21.	*Casmerodius albus*	Great Egret	A	LC	
22.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
23.	*Charadrius dubius*	Little Ringed Plover	A	LC	
24.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
25.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
26.	*Ciconia ciconia*	White Stork	A	LC	
27.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
28.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
29.	*Circus macrourus*	Pallid Harrier	T	LC	
30.	*Circus melanoleucos*	Pied Harrier	T	LC	
31.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
32.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
33.	*Columba livia*	Rock Pigeon	T	LC	
34.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
35.	*Coracias benghalensis*	Indian Roller	T	LC	*
36.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
37.	*Corvus splendens*	House Crow	T	LC	*
38.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
39.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
40.	*Dicrurus adsimilis*	Black Drongo	T	LC	*

41.	*Egretta gularis*	Western reef heron	A	LC	
42.	*Egretta garzetta*	Little Egret	A	LC	*
43.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
44.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
45.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
46.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
47.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
48.	*Haliastur indus*	Brahminy Kite	T	LC	*
49.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
50.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
51.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
52.	*Lonchura malacca*	Black-headed Munia	D	LC	
53.	*Merops orientalis*	Green Bee-eater	T	LC	*
54.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
55.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
56.	*Milvus migrans*	Black Kite	T	LC	*
57.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
58.	*Mycteria leucocephala*	Painted stork	A	LC	
59.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
60.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
61.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
62.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
63.	*Passer domesticus*	House Sparrow	T	LC	*
64.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
65.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
66.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
67.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
68.	*Platalea leucorodia*	Spoonbill	A	LC	
69.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
70.	*Ploceus manyar*	Streaked Weaver	T	LC	

71.	*Pluvialis squatarola*	Grey Plover	A	LC	
72.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
73.	*Prinia inornata*	Plain Prinia	T	LC	
74.	*Prinia socialis*	Ashy Prinia	T	LC	*
75.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
76.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
77.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
78.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
79.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
80.	*Sterna aurantia*	River Tern	A	LC	
81.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
82.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
83.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
84.	*Tadorna ferruginea*	Ruddy Shelduck	A	LC	
85.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
86.	*Tringa glareola*	Wood Sandpiper	A	LC	*
87.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
88.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
89.	*Tyto alba*	Barn Owl	T	LC	
90.	*Upupa epops*	Hoopoe	T	LC	
91.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
92.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
93.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.21.4. IUCN Status of major plant invasive alien species in Manakudi Wetland

S. No.	Species	Family	Tamil Name
1.	*Ipomoea carnea*	Convolvulaceae	
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Parthenium hysterophorus*	Compositae	Vishachedi
5.	*Prosopis julifera*	Fabaceae	Semai karuvel

6.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
7.	*Senna siamea*	Fabaceae	
8.	*Senna tora*	Caesalpiniaceae	Oosithagarai
9.	*Suaeda maritima*	Amaranthaceae	
10.	*Typha angustifolia*	Typhaceae	Sambu
11.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.21.5. IUCN Status of major animal invasive alien species in Manakudy Wetland

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
1	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.21.6. IUCN Status of major medicinal plant species in Manakudy Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
7.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
8.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Mukia leiosperma*	Cucurbitaceae		Climber
11.	*Pedalium murex*	Pedaliaceae		Herb
12.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
13.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
14.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
15.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb
16.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
17.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.22. THIRUMULLIVASAL MANGROVE FOREST

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Thirumullivasal Mangrove Forest

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Thennampattiam, Sirkazhi, Thirumullaivasal, Puthur, Koozhaiyar, Kaveripoompattinam, Vanagiri, Poombuhar

1.3 *Name of the District (s) in which Wetlands complex is located:* Mayiladuthurai

1.4 *Geographical coordinates:*

► Latitude: 11˚14’6.054” N

► Longitude: 79˚50’39.2352” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 144.88 ha

2.2 *Wetland type*:

Category	**Subcategory**
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average -1; Maximum - 4

2.4 *Elevation (m above mean sea level):* 0

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Backwaters from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): *178.6*

b) Temperature (°C) Minimum 23.8 ; Maximum 37.95

c) Humidity (%) Minimum 71.8 ; Maximum 77.5

2.7 *Area of zone of influence (in ha):* 5359.69 ha (with an irregular radius of 4.18 km)

2.8 *Major land use within the zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	5%
Agriculture	:	44%
Settlements (Rural)	:	12%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	32%
Aquaculture	:	7%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.22 (Fig. 3.22.1-3.22.2)

Section 3: Biodiversity

3.1 *Notable plant species present in a Wetland:* The Wetland is home to a diverse range of species, totaling 54 (refer to Table 3.22.1 in Annexure 3.22).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 162 recorded species. This includes 7 mammal species, 21 reptile species, 9 amphibian species, 113 bird species, and 12 species of butterflies (refer to Table 3.22.2-3.22.3 in Annexure 3.22).

3.3 *Species of conservation significance:* Highlighted in Table 3.22.1-3.22.3.

3.4 *Major plant invasive alien species:* The Wetland supports 9 plant invasive species (refer to Table 3.22.4 in Annexure 3.22).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.22.5 in Annexure 3.22).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.22.6 in Annexure 3.22
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangrove acts as Buffering agents from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	

Aquaculture	✓ Yes ❒ No	Aquaculture plants were observed while ground-truthing
Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Boating is there for fishing
Aquaculture	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Aquaculture ponds were observed while ground-truthing

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.22.4-3.22.5 in Annexure 3.22
Any others	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	Relevance	Within Wetlands or zoneof influence	Additional info.
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). The Book of Indian Birds (13th Revised Edition). Oxford University Press, New Delhi, 326pp.
2. Gamble, J.S. and C.E.C. Fischer. 1915-1935. Flora of Presidency of Madras, Adlard and Son, London. pp. 1-3.
3. Henry, A.N., Chithra, V.N. and Balakrishnan, P. (1989) Flora of Tamil Nadu India. Series 1: Analysis. Vol. III. Botanical Survey of India, Coimbatore.
4. *K. Ratnam* Bird of Tamil Nadu
5. Kamalakannan, M.& P.O.Nameer (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa 11(8): 13992–14009; https://doi.org/10.11609/jott.4705.11.8.13992–14009.
6. Kehimkar I. The Book of Indian Butterflies. Bombay Natural History Society, 2008, 497.
7. Mathew, K. M. 1981. The Material for the Flora of the Tamilnadu Carnatic, Madras, India.

8. Matthew, K. M. 1982. Illustrations on the Flora of the Tamilnadu Carnatic. Vol. II. The Diocesan press, Madras, India.
9. Matthew, K. M. 1983. The Flora of Tamilnadu Carnatic. Vol. III. The Diocesan press, Madras, India.
10. Matthew, K. M. 1988. Further Illustrations on the Flora of the Tamilnadu Carnatic. Vol. IV. The Diocesan press, Madras, India.
11. Nair, N.C. and A.N. Henry. 1983. Flora of Tamil Nadu, India.Series 1, Vol. 1, Botanical Survey of India, Southern Circle, Coimbatore. 1-184.

ANNEXURE 3.22

Fig 3.22.1. Zone of Influence of Thirumullivasal Mangrove Forest

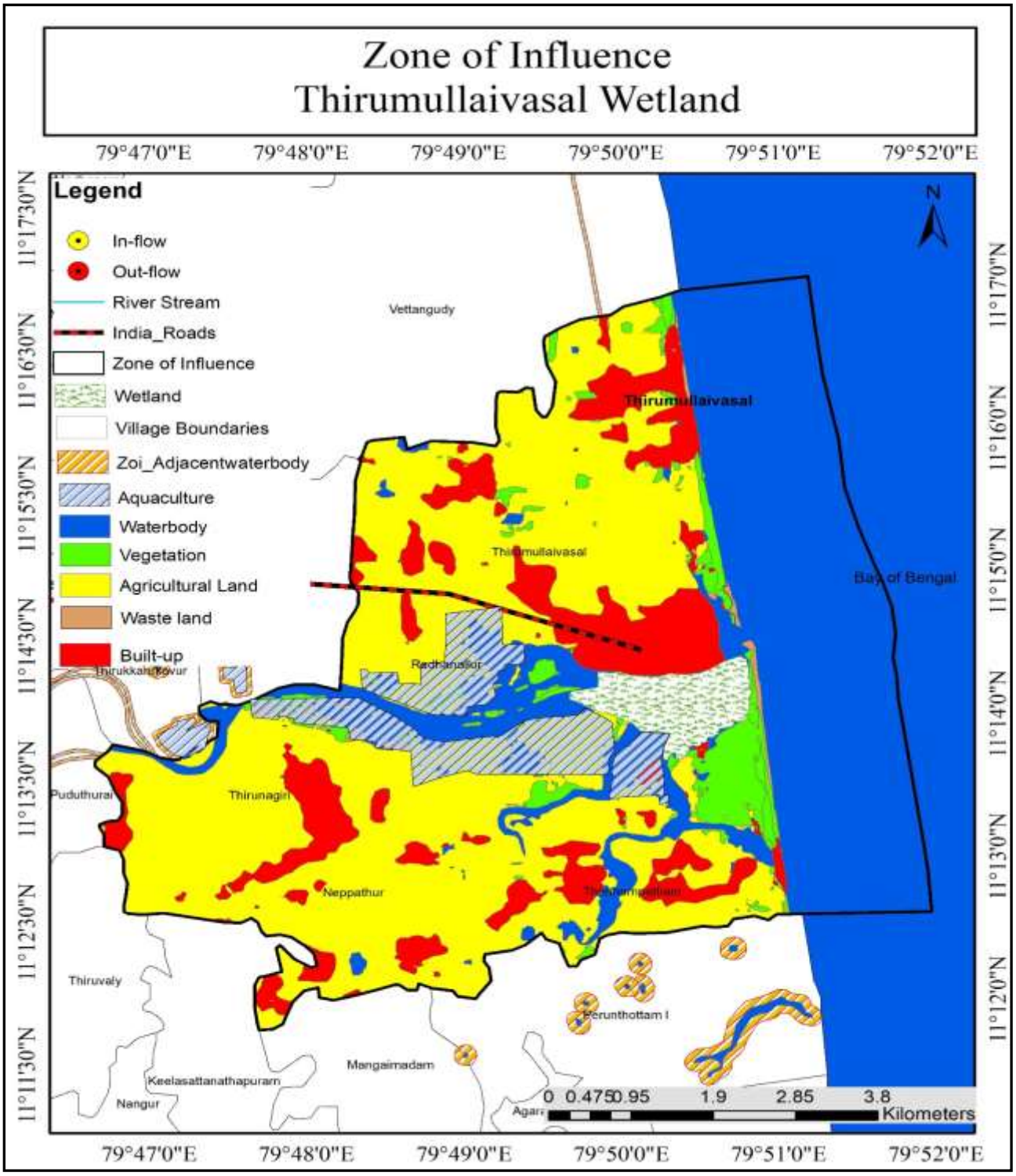


Fig 3.22.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Thirumullivasal Mangrove Forest

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

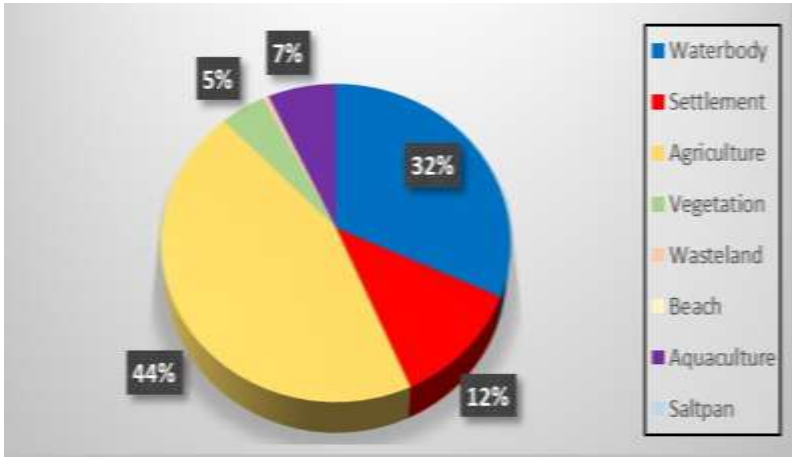


Table 3.22.1. IUCN Status of Floral Species in Thirumullivasal Mangrove Forest

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
9.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Cyperus iria*	Cyperaceae		Sedge	NE
20.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
21.	*Digitaria ciliaris*	Poaceae		Grass	NE
22.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
23.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
24.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
25.	*Ischaemum indicum*	Poaceae	-	Grass	LC

26.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
27.	*Justicia prostrata*	Acanthaceae		Herb	NE
28.	*Launaea bellidifolia*	Asteraceae		Herb	LC
29.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
30.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
31.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
32.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
33.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
34.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
35.	*Pedalium murex*	Pedaliaceae		Herb	NE
36.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
37.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
38.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
39.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
40.	*Senna siamea*	Fabaceae		Tree	LC
41.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
42.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
43.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
44.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
45.	*Rhizophora mucronata*	Rhizophoraceae		Tree	LC
46.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
47.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
48.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
49.	*Trachys muricata*	Poaceae	-	Grass	LC
50.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
51.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
52.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE

53.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
54.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.22.2. IUCN Status of Selected Fauna Species in Thirumullivasal Mangrove Forest

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. *Mammal*				
1.	*Macaca radiata*	Cercopithecidae	Bonnet macaque	
2.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
3.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC
4.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
5.	Rattus rattus	Muridae	House rat	LC
6.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
7.	*Canis aureus*	Canidae	Jackal	LC
B. *Reptile*				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE

16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
17.	*Naja naja*	Elapidae	Cobra	LC
18.	*Bungarus caeruleus*	Elapidae	Krait	LC
19.	*Vipera russelli*	Viperidae	Russell's viper	LC
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU
C. Amphibian				
10.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
11.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
12.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
13.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
14.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
15.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
16.	*Ramanella variegata*	Elapidae	Marbled frog	LC
17.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
18.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Common crow	LC
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
5.	*Papilio demoleus*	Papilionidae	Common lime	NE
6.	*Papilio polytes*	Papilionidae	Common mormon	NE
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC

LC – Least Concern; * - Yes

Table 3.22.3. IUCN Status of Bird Species in Thirumullivasal Mangrove Forest

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	Status
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Alauda gulgula*	Oriental Skylark	T	LC	
5.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
6.	*Alcedo atthis*	Common Kingfisher	T	LC	*
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
8.	*Anas acuta*	Northern Pintail	A	LC	
9.	*Anas clypeata*	Northern Shoveller	A	LC	
10.	*Anas crecca*	CommonTeal	A	LC	
11.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
12.	*Anastomus oscitans*	Asian Openbill	A	LC	
13.	*Anthus richardi*	Richard's Pipit	D	LC	
14.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
15.	*Apus affinis*	House Swift	T	LC	
16.	*Ardea cinerea*	Grey Heron	A	LC	*
17.	*Ardea purpurea*	Purple Heron	A	LC	
18.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
19.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
20.	*Athene brama*	Spotted Owlet	T	LC	
21.	*Bubulcus ibis*	Cattle Egret	D	LC	*
22.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
23.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
24.	*Casmerodius albus*	Great Egret	A	LC	
25.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
26.	*Charadrius dubius*	Little Ringed Plover	A	LC	
27.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
28.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
29.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	

30.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
31.	*Circus macrourus*	Pallid Harrier	T	LC	
32.	*Circus melanoleucos*	Pied Harrier	T	LC	
33.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
34.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
35.	*Columba livia*	Rock Pigeon	T	LC	*
36.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	*
37.	*Coracias benghalensis*	Indian Roller	T	LC	*
38.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
39.	*Corvus splendens*	House Crow	T	LC	*
40.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
41.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
42.	*Dicrurus leucophaeus*	Ashy Drongo	T	LC	*
43.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
44.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
45.	*Dupetor flavicollis*	Black Bittern	A	LC	*
46.	*Egretta garzetta*	Little Egret	A	LC	*
47.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
48.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
49.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
50.	*Falco tinnunculus*	Common Kestrel	T	LC	
51.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
52.	*Gallicrex cinerea*	Watercock	A	LC	
53.	*Gallinula chloropus*	Common Moorhen	A	LC	*
54.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
55.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
56.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
57.	*Haliastur indus*	Brahminy Kite	T	LC	*
58.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	

59.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
60.	*Hirundo rustica*	Barn Swallow	T	LC	*
61.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
62.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
63.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
64.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
65.	*Limosa limosa*	Black-tailed Godwit	A	LC	
66.	*Lonchura malacca*	Black-headed Munia	D	LC	
67.	*Merops orientalis*	Green Bee-eater	T	LC	*
68.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
69.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
70.	*Milvus migrans*	Black Kite	T	LC	*
71.	*Motacilla flava*	Yellow Wagtail	D	LC	
72.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
73.	*Mycteria leucocephala*	Painted Stork	A	NT	*
74.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
75.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
76.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
77.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
78.	*Passer domesticus*	House Sparrow	T	LC	*
79.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
80.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
81.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
82.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
83.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
84.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
85.	*Ploceus manyar*	Streaked Weaver	T	LC	
86.	*Pluvialis squatarola*	Grey Plover	A	LC	
87.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
88.	*Prinia inornata*	Plain Prinia	T	LC	

89.	*Prinia socialis*	Ashy Prinia	T	LC	*
90.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
91.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
92.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
93.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
94.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
95.	*Saxicoloides fulicata*	Indian Robin	T	LC	
96.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC	
97.	*Sterna albifrons*	Little Tern	A	LC	
98.	*Sterna anaethetus*	Bridled Tern	A	LC	
99.	*Sterna aurantia*	River Tern	A	LC	*
100.	*Sterna caspia*	CaspianTern	A	LC	
101.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
102.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
103.	*Tachymarptis melba*	Alpine Swift	T	LC	
104.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC	
105.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
106.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC	
107.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
108.	*Tringa ochropus*	Green Sandpiper	A	LC	*
109.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
110.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
111.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
112.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
113.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.22.4. IUCN Status of major plant invasive alien species in Thirumullivasal Mangrove Forest

S. No.	Species	Family	Tamil Name
1.	*Argemone mexicana*	Papaveraceae	Nai Kadugu
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Parthenium hysterophorus*	Compositae	Vishachedi
5.	*Prosopis julifera*	Fabaceae	Semai karuvel
6.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
7.	*Senna siamea*	Fabaceae	
8.	*Typha angustifolia*	Typhaceae	Sambu
9.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.22.5. IUCN Status of major animal invasive alien species in Thirumullivasal Mangrove Forest

S. No.	Species	Family	Common name	IUCN
C. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
D. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.22.6. IUCN Status of major medicinal plant species in Thirumullivasal Mangrove Forest

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
4.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
5.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
6.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
7.	*Mukia leiosperma*	Cucurbitaceae		Climber
8.	*Pedalium murex*	Pedaliaceae		Herb
9.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub
10.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb

11.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
12.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb
15.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
16.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.23. PUTHUPATTINAM WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Puthupattinam Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Madavamedu, Thandavankulam, Thiruvalaputhur, Puthagaram, Pattavarthi, Mayiladuthurai, Anaimelagaram, Sitharkadu

1.3 *Name of the District (s) in which Wetlands complex is located:* Myladuthurai

1.4 *Geographical coordinates:*

- Latitude: 11˚19’33.98” N
- Longitude: 79˚49’49.19” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 41.68 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2; Maximum - 3.5

2.4 *Elevation (m above mean sea level):* 1

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Backwaters from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): *178.6*

b) Temperature (°C) Minimum 23.8 ; Maximum 37.95

c) Humidity (%) Minimum 71.8 ; Maximum 77.5

2.7 *Area of zone of influence (in ha):* 2941.03 ha (with an irregular radius of 3.08 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	5%
Agriculture	:	35%
Settlements (Rural)	:	11%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	44%
Waste Land	:	1%
Saltpan	:	4%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.23 (Fig. 3.23.1-3.23.2)

Section 3: Biodiversity

3.1 *Notable plant species present in a Wetland:* The Wetland is home to a diverse range of species, totaling 50 (refer to Table 3.23.1 in Annexure 3.23).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 144 recorded species. This includes 5 mammal species, 19 reptile species, 9 amphibian species, 96 bird species, and 15 species of butterflies (refer to Table 3.23.2-3.23.3 in Annexure 3.23).

3.3 *Species of conservation significance:* Highlighted in Table 3.23.1-3.23.3

3.4 *Major plant invasive alien species:* The Wetland supports 3 plant invasive species (refer to Table 3.23.4 in Annexure 3.23).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.23.5 in Annexure 3.23).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal Fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 23.6 in Annexure 23
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangrove acts as Buffering agents from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	

Aquaculture	✓ Yes ❒ No	Aquaculture plants were observed while ground-truthing
Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 23.4-23.5 in Annexure 23
Any others	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Arunprasath, A., Sreeram, S., & Sankara Vel, V. (2023). Karankadu mangroves – an ecological asset to the Indian east coast. *Current Science, 124*(9), 1023.
3. Byju, H., Raveendran, N., Ravichandran, S., & Kishore, R. (2023). An annotated checklist of the avifauna of Karangadu mangrove forest, Ramanathapuram, Tamil Nadu, with notes on the site's importance for waterbird conservation. *Journal of Threatened Taxa, 15*(3), 22813–22822.
4. Chitra, N., & Mahendran, S. (2003). A preliminary list of butterflies of Ramanathapuram District, Tamil Nadu. *Zoos Print Journal, 18*(4), 1090.
5. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of the Presidency of Madras*. Adlard and Son, London. pp. 1-3.

6. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
7. Ratnam, K. *Birds of Tamil Nadu*.
8. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
9. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
10. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
11. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
12. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
13. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
14. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India. Series 1, Vol. 1*. Botanical Survey of India, Southern Circle, Coimbatore. pp. 1-184.

ANNEXURE 3.23

Fig 3.23.1. Zone of Influence of Puthupattinam Wetland

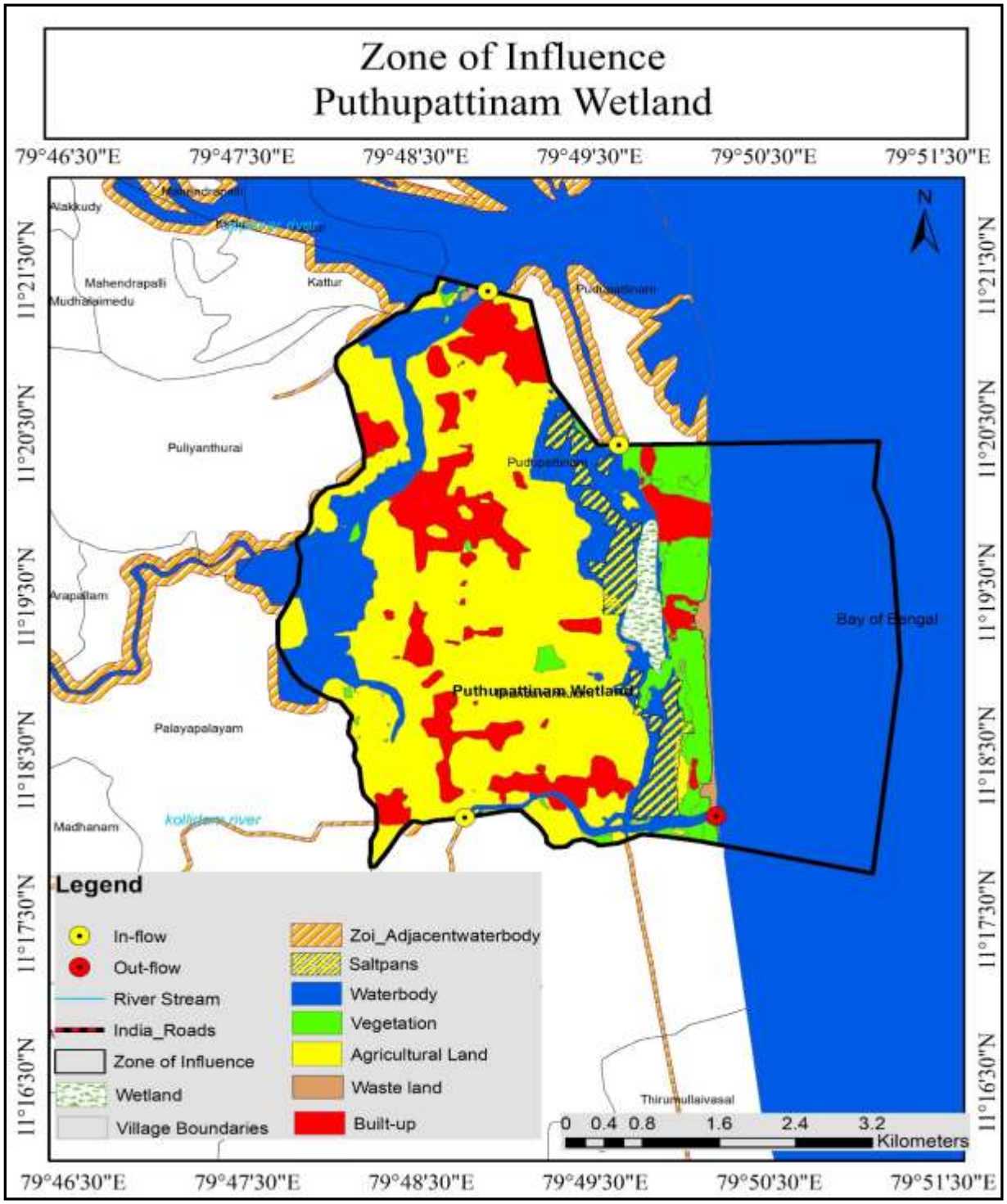


Fig 3.23.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Puthupattinam Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

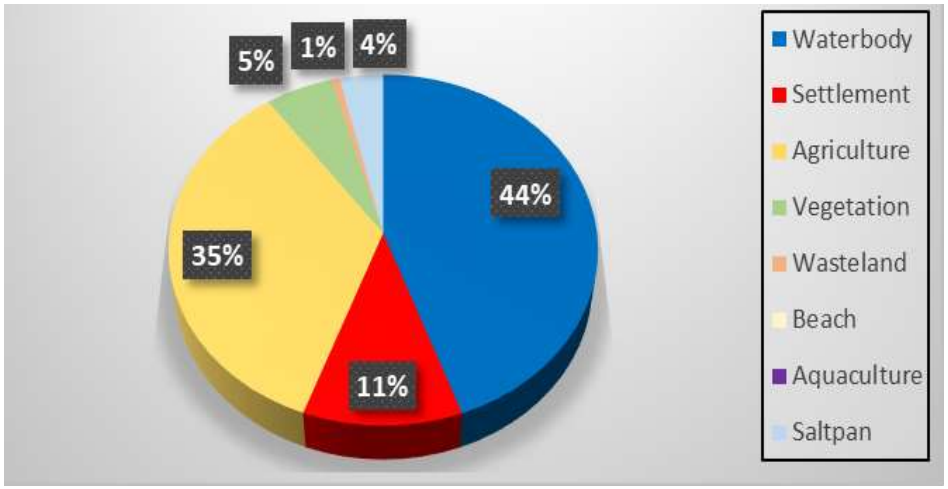


Table 3.23.1. IUCN Status of Floral Species in Puthupattinam Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthus illicifolius*	Acanthaceae	Kozhimulli	Shrub	LC
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
8.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
9.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
10.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
11.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
12.	*Brachiaria mutica*	Poaceae		Grass	NE
13.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
14.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
15.	*Ceriops decandra*	Rhizophoraceae	Chiru kandal	Tree	LC
16.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
17.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
18.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
19.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
20.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
21.	*Digitaria ciliaris*	Poaceae		Grass	NE
22.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
23.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
24.	*Ischaemum indicum*	Poaceae	-	Grass	LC
25.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
26.	*Justicia prostrata*	Acanthaceae		Herb	NE

27.	*Launaea bellidifolia*	Asteraceae		Herb	LC
28.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
29.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
30.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
31.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
32.	*Pedalium murex*	Pedaliaceae		Herb	NE
33.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
34.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
35.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
36.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
37.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
38.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
39.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
40.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
41.	*Rhizophora mucronata*	Rhizophoraceae		Tree	LC
42.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
43.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
44.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
45.	*Trachys muricata*	Poaceae	-	Grass	LC
46.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
47.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
48.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
49.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
50.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.23.2. IUCN Status of Selected Fauna Species in Puthupattinam Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC
3.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
4.	Rattus rattus	Muridae	House rat	LC
5.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
17.	*Naja naja*	Elapidae	Cobra	LC
18.	*Bungarus caeruleus*	Elapidae	Krait	LC
19.	*Vipera russelli*	Viperidae	Russell's viper	LC

C. Amphibian				
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Common crow	LC
2.	*Catopsilia Pomona*	Pieridae	Common Emigrant	NE
3.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
4.	*Papilio demoleus*	Papilionidae	Common lime	NE
5.	*Papilio polytes*	Papilionidae	Common mormon	NE
6.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE
7.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE
8.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE
9.	*Junonia almanac*	Nymphalidae	Peacock pansy	LC
10.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
11.	*Acraea violae*	Nymphalidae	Tawny coster	LC
12.	*Pachliopta aristolochiae*	Papilionidae	Common Rose	NE
13.	*Junonia hierta*	Nymphalidae	Yellow Pansy	LC
14.	*Papilio demoleus*	Papilionidae	Lime butterfly	LC
15.	*Melanitis leda*	Nymphalidae	Common evening brown	LC

LC – Least Concern; * - Yes

Table 3.23.3. IUCN Status of Bird Species in Puthupattinam Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	Status
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Alauda gulgula*	Oriental Skylark	T	LC	*
6.	*Alcedo atthis*	Common Kingfisher	T	LC	*
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
8.	*Anastomus oscitans*	Asian Openbill	A	LC	*
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Apus affinis*	House Swift	T	LC	
11.	*Ardea cinerea*	Grey Heron	A	LC	*
12.	*Ardea purpurea*	Purple Heron	A	LC	
13.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
14.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
15.	*Athene brama*	Spotted Owlet	T	LC	
16.	*Athene brama*	Spoted Owlet	T	LC	
17.	*Bubulcus ibis*	Cattle Egret	D	LC	*
18.	*Calidris pugnax*	Ruf	A	LC	
19.	*Calidris minuta*	Little Stint	A	LC	*
20.	*Calidris temminckii*	Temminck's stint	A	LC	
21.	*Casmerodius albus*	Great Egret	A	LC	
22.	*Centropus sinensis*	Greater Coucal	T	LC	
23.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
24.	*Charadrius alexandrinus*	Kentsh Plover	A	LC	
25.	*Charadrius dubius*	Little Ringed Plover	A	LC	
26.	*Charadrius mongolus*	Lesser Sand Plover	A	LC	
27.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
28.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
29.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	

30.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC	*
31.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
32.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
33.	*Columba livia*	Rock Pigeon	T	LC	
34.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
35.	*Coracias benghalensis*	Indian Roller	T	LC	*
36.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
37.	*Corvus splendens*	House Crow	T	LC	*
38.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
39.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
40.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
41.	*Egretta garzetta*	Little Egret	A	LC	*
42.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
43.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
44.	*Falco tinnunculus*	Common Kestrel	T	LC	
45.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
46.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
47.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
48.	*Haliastur indus*	Brahminy Kite	T	LC	*
49.	*Hieraaetus pennatus*	Booted Eagle	T	LC	*
50.	*Hirundo rustica*	Barn Swallow	T	LC	
51.	*Hydroprogne caspia*	Caspian Tern	A	LC	
52.	*Lanius cristatus*	Brown Shrike	T	LC	
53.	*Lanius vitatus*	Bay-backed Shrike	T	LC	
54.	*Limosa limosa*	Black-tailed Godwit	A	LC	
55.	*Merops orientalis*	Green Bee-eater	T	LC	*
56.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
57.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Mycteria leucocephala*	Painted Stork	A	NT	*

60.	*Numenius phaeopus*	Eurasian whimbrel	A	LC	
61.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
62.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
63.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
64.	*Pandion haliaetus*	Osprey	T	LC	*
65.	*Passer domesticus*	House Sparrow	T	LC	*
66.	*Pernis ptlorhynchus*	Oriental Honey Buzzard	T	LC	*
67.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
68.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
69.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
70.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
71.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
72.	*Pluvialis squatarola*	Grey Plover	A	LC	
73.	*Prinia inornate*	Plain Prinia	T	LC	*
74.	*Prinia socialis*	Ashy Prinia	T	LC	*
75.	*Pseudibis papillosa*	Red-naped Ibis	T	LC	*
76.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
77.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
78.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
79.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
80.	*Sterna albifrons*	Little Tern	A	LC	*
81.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
82.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC	*
83.	*Spilopelia senegalensis*	Laughing Dove	T	LC	*
84.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
85.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
86.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC	
87.	*Thalasseus bergii*	Greater Crested Tern	A	LC	
88.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
89.	*Tringa glareola*	Wood Sandpiper	A	LC	*

90.	*Tringa nebularia*	Common Greenshank	A	LC	*
91.	*Tringa totanus*	Common Redshank	A	LC	*
92.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
93.	*Upupa epops*	Hoopoe	T	LC	
94.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
95.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
96.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.23.4. IUCN Status of major plant invasive alien species in Puthupattinam Wetland

S. No.	Species	Family	Tamil Name
1.	*Argemone mexicana*	Papaveraceae	Nai Kadugu
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Prosopis julifera*	Fabaceae	Semai karuvel
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Senna tora*	Caesalpiniaceae	Oosithagarai
7.	*Typha angustifolia*	Typhaceae	Sambu
8.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.23.5. IUCN Status of major animal invasive alien species in Puthupattinam Wetland

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.23.6. IUCN Status of major medicinal plant species in Puthupattinam Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
3.	*Acanthospermum hispidum*	Compositae		Herb

4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Pedalium murex*	Pedaliaceae		Herb
11.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
12.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.24. POINT CALIMERE WILDLIFE AND BIRDS SANCTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Point Calimere Wildlife and Birds Sanctuary or Kodikkarai Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Kodiyakadu, Kodiyakarai, panchanathikulam and Muthupettai, vedharanyam Taluk and Muthupttai Taluk

1.3 *Name of the District (s) in which Wetlands complex is located:* Nagappattinam

1.4 *Geographical coordinates:*

► Latitude: 10˚18’29.2602” N

► Longitude: 79˚50’26.6532” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 2190 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ✓ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2.5; Maximum - 5

2.4 *Elevation (m above mean sea level):* 6

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Backwaters from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (<0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): *148.8*

b) Temperature (°C): Minimum 24.1 ; Maximum 38.65

c) Humidity (%) Minimum 69.8 ; Maximum 78.8

2.7 *Area of zone of influence (in ha):* 40929.4 ha (with an irregular radius of 11.71 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	9%
Agriculture	:	6%
Settlements (Rural)	:	7%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	48%
Waste Land	:	19%
Beach	:	6%
Saltpan	:	3%
Aquaculture	:	2%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.24 (Fig. 3.24.1-3.24.2)

Section 3: Biodiversity

3.1 *Notable plant species present in a Wetland:* The Wetland is home to a diverse range of species, totaling 67 (refer to Table 3.24.1 in Annexure 3.24).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 204 recorded species. This includes 9 mammal species, 21 reptile species, 9 amphibian species, 152 bird species, and 13 species of butterflies (refer to Table 3.24.2-3.24.3 in Annexure 3.24).

3.3 *Species of conservation significance:* Highlighted in Table 3.24.1-3.24.3

3.4 *Major plant invasive alien species:* The Wetland supports 5 plant invasive species (refer to Table 3.24.4 in Annexure 3.24).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.24.5 in Annexure 3.24).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 24.6 in Annexure 24
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is few temples around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving

Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	
Aquaculture	✓ Yes ❒ No	Aquaculture plants were observed while ground-truthing
Saltpan	✓ Yes ❒ No	Saltpans were observed while ground-truthing
Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing is observed while field visit
Religious practices	✓Yes ❒ No	❒Yes ❒No	There is few temples around the embankment

		✓Not assessed	of the Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Boating is there for fishing
Aquaculture and Saltpan	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Aquaculture and Saltpans were observed while ground-truthing

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium ❒Low	❒Present ❒Potential	

Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 24.4-24.5 in Annexure 24
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence	Upto the boundary is well		
Discharge of treated sewage/ effluent /		❒ Wetland/ Wetland complex			

wastewater		boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	Relevance	Within Wetlands or zoneof influence	Additional info.
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Balasubrahmanyan, K. (1994). Micro-invertebrate benthic fauna of Pichavaram mangroves. In Deshmukh, S. V. & Balaji, V. (Eds.), *Conservation of mangrove forest genetic resources – A training manual* (pp. 257–259). ITTO-CRSARO Project, M.S. Swaminathan Foundation, Madras.
3. Blasco, F. (1975). The mangroves of India. *Inst. Franc. Pondicherry. Trav. Seck. Sci. Tech.*, 14, 175.
4. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of the Presidency of Madras*. Adlard and Son, London. pp. 1-3.

5. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
6. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa*, *11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
7. Kathiresan, K., Moorthy, P., & Rajendran, N. (1994). Seedling performance of mangrove *Rhizophora apiculata* (Rhizophorales: Rhizophoraceae) in different environs. *Indian Journal of Marine Sciences, 23*, 168–169.
8. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
9. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
10. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
11. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
12. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
13. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India. Series 1, Vol. 1*. Botanical Survey of India, Southern Circle, Coimbatore. pp. 1-184.
14. Ratnam, K. *Birds of Tamil Nadu*.

ANNEXURE 3.24

Fig 3.24.1. Zone of Influence of Point Calimere Wildlife and Birds Sanctuary

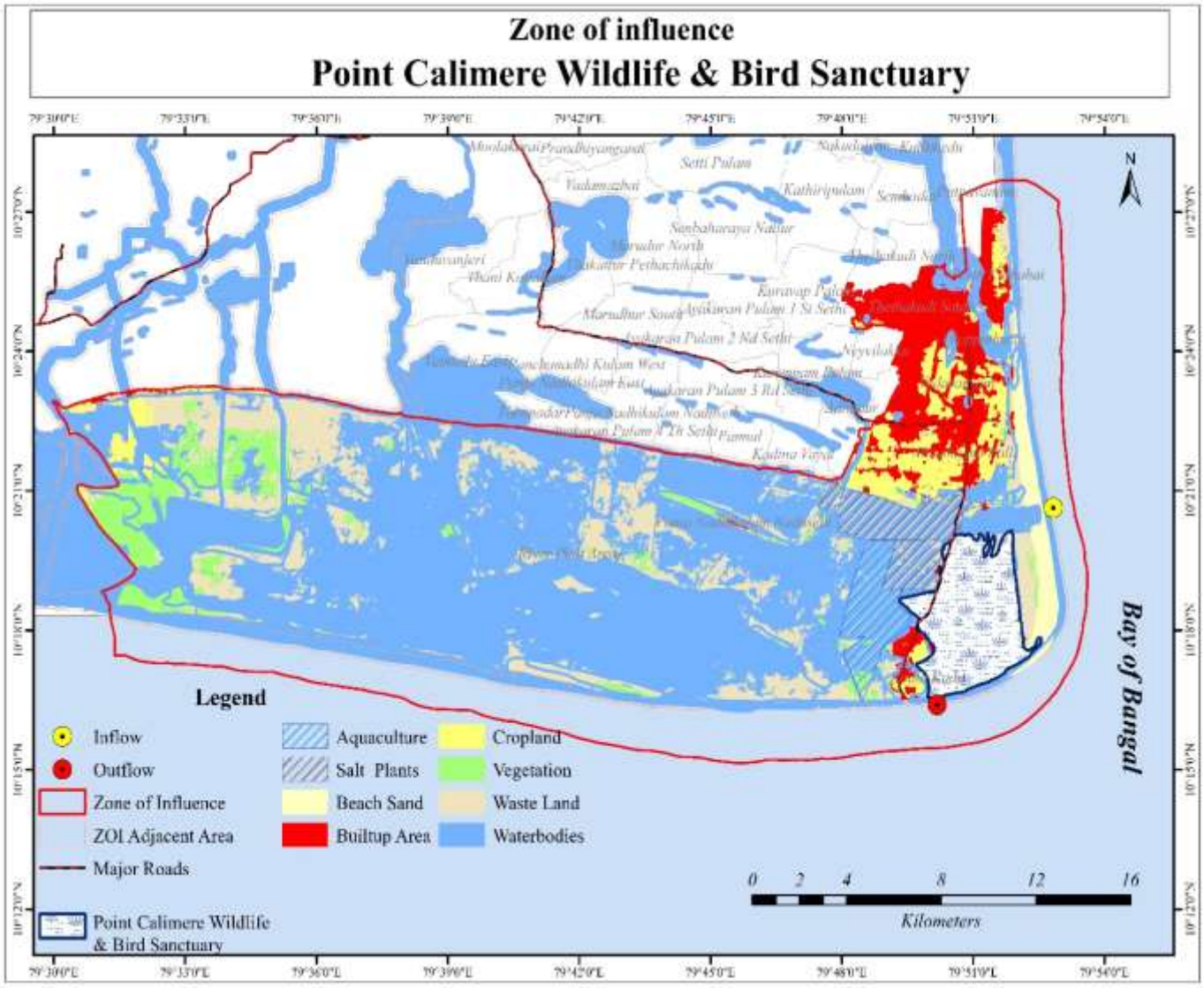


Fig 3.24.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Point Calimere Wildlife and Birds Sanctuary

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

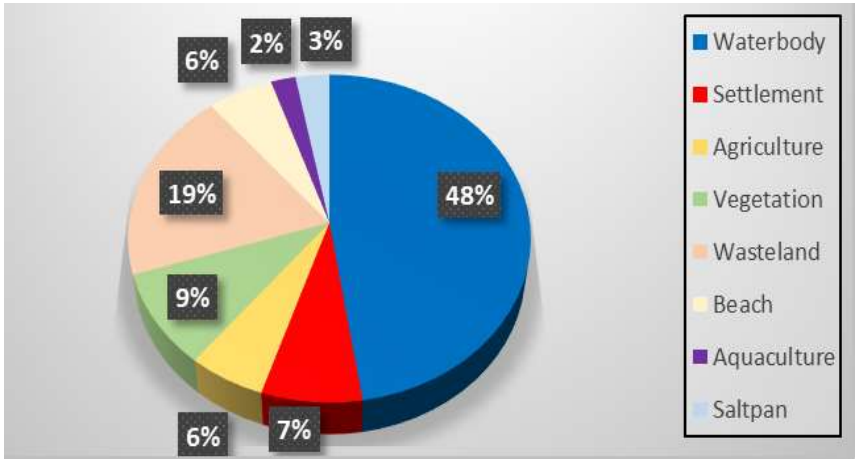


Table 3.24.1. IUCN Status of Floral Species in Point Calimere Wildlife and Birds Sanctuary

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Aeluropus lagopoides*	Poaceae	Kadal Arugampullu	Grass	NE
9.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
10.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
11.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
12.	*Brachiaria mutica*	Poaceae		Grass	NE
13.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
14.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
15.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
16.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
17.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
18.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
19.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
20.	*Cyperus squarrosus*	Cyperaceae		Sedge	NE
21.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
22.	*Digitaria ciliaris*	Poaceae		Grass	NE
23.	*Drypetes sepiaria*	Putranjivaceae	Aadumilukkan	Tree	LC
24.	*Emilia sonchifolia*	Astereceae	Muyalccevi	Herb	NE
25.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
26.	*Geniosporum tenuiflorum*	Laminaceae	Nallathulasi	Herb	NE

27.	*Gisekia pharnaceoides*	Gisekiaceae	Kolikkirai	Herb	NE
28.	*Glinus lotoides*	Molluginaceae	Cerupattai	Herb	NE
29.	*Glinus oppositifolius*	Molluginaceae	Thurapundu	Herb	NE
30.	*Heliotropium curassavicum*	Boraginaceae		Herb	LC
31.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
32.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
33.	*Ischaemum indicum*	Poaceae	-	Grass	LC
34.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
35.	*Justicia prostrata*	Acanthaceae		Herb	NE
36.	*Launaea bellidifolia*	Asteraceae		Herb	LC
37.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
38.	*Lepisanthes tetraphylla*	Sapindaceae	Neykkoddaan	Tree	LC
39.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
40.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
41.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
42.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
43.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
44.	*Pedalium murex*	Pedaliaceae		Herb	NE
45.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
46.	*Prosopis cineraria*	Fabaceae	Vani	Tree	LC
47.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
48.	*Salacia chinensis*	Celastraceae		Tree	LC
49.	*Salvadora persica*	Salvodaraceae	Peruvilla	Tree	LC
50.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
51.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
52.	*Senna siamea*	Fabaceae		Tree	LC
53.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
54.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
55.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE

56.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
57.	*Suaeda maritima*	Amaranthaceae		Herb	LC
58.	*Rhizophora mucronata*	Rhizophoraceae		Tree	LC
59.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
60.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
61.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
62.	*Trachys muricata*	Poaceae	-	Grass	LC
63.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
64.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
65.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
66.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
67.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.24.2. IUCN Status of Selected Fauna Species in Point Calimere Wildlife and Birds Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Antilope cervicapra*	Bovidae	Blackbuck	NT
2.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
3.	*Canis aureus*	Canidae	Golden Jackal	LC
4.	*Canis aureus*	Canidae	Jackal	LC
5.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC
6.	*Macaca radiata*	Cercopithecidae	Bonnet macaque	LC
7.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
8.	*Rattus rattus*	Muridae	House rat	LC
9.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC

2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
17.	*Naja naja*	Elapidae	Cobra	LC
18.	*Bungarus caeruleus*	Elapidae	Krait	LC
19.	*Vipera russelli*	Viperidae	Russell's viper	LC
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU
C. Amphibian				
1.	*Euphlyctis hexadactylus*	Dicroglossidae	Indian pond frog	LC
2.	*Euphlyctis cynophlyctis*	Dicroglossidae	Skipper	LC
3.	*Tomopterna rolandae (Sphaerotheca roladae)*	Dicroglossidae	Burrowing frog	LC
4.	*Hoplobathrachus crassus*	Dicroglossidae	Jerdon's bull frog	LC
5.	*Limnonectes limnocharis*	Dicroglossidae	Paddy Field frog	LC
6.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC
7.	*Ramanella variegata*	Microhylidae	Marbled frog	LC
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC

9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Common crow	LC
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
5.	*Papilio demoleus*	Papilionidae	Common lime	NE
6.	*Papilio polytes*	Papilionidae	Common mormon	NE
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC
13.	*Pachliopta aristolochiae*	Papilionidae	Common Rose	NE

LC – Least Concern; * - Yes

Table 3.24.3. IUCN Status of Bird Species in Point Calimere Wildlife and Birds Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Accipiter badius*	Shikra	T	LC
2.	*Acridotheres tristis*	Common Myna	T	LC
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC
5.	*Aegithina tiphia*	Common Iora	T	LC
6.	*Alauda gulgula*	Oriental Skylark	T	LC
7.	*Alcedo atthis*	Common Kingfisher	T	LC
8.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC
9.	*Anas acuta*	Northern Pintail	A	LC
10.	*Anas clypeata*	Northern Shoveller	A	LC
11.	*Anas crecca*	CommonTeal	A	LC

12.	*Anas Penelope*	EurasianWigeon	A	LC
13.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC
14.	*Anas querquedula*	Garganey	A	LC
15.	*Anastomus oscitans*	Asian Openbill	A	LC
16.	*Anous tenuirostris*	Lesser noddy	A	LC
17.	*Anhinga melanogaster*	Darter	A	LC
18.	*Anthus godlewskii*	Blyth's Pipit	T	LC
19.	*Anthus richardi*	Richard's Pipit	D	LC
20.	*Anthus rufulus*	Paddy-field Pipit	D	LC
21.	*Apus affinis*	House Swift	T	LC
22.	*Arenaria interpres*	Ruddy turn stone	A	LC
23.	*Ardea cinerea*	Grey Heron	A	LC
24.	*Ardea purpurea*	Purple Heron	A	LC
25.	*Ardeola grayii*	Indian Pond Heron	A	LC
26.	*Artamus fuscus*	Ashy Woodswallow	T	LC
27.	*Athene brama*	Spotted Owlet	T	LC
28.	*Bubulcus ibis*	Cattle Egret	D	LC
29.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC
30.	*Burhinus recurvirostris*	Great Thick-knee	A	LC
31.	*Burhinus oedicnemus*	Stone Curlew	A	LC
32.	*Butas turteesa*	White-eyed Buzzard	T	LC
33.	*Buteo buteo*	Common Buzzard	T	LC
34.	*Butorides striatus*	Little Green Heron	A	LC
35.	*Cacomantis passerinus*	Indian Plaintive Cuckoo	T	LC
36.	*Calidris acuminata*	Sharp-tailed sandpiper	A	LC
37.	*Calidris alpina*	Dunlin	A	LC
38.	*Calidris canutus*	Red knot	A	LC
39.	*Calidris ferruginea*	Curlew sandpiper	A	LC
40.	*Calidris pugnax*	Ruf	A	LC
41.	*Calidris melanotos*	Pectoral sandpiper	A	LC
42.	*Calidris minuta*	Little Stint	A	LC

43.	*Calidris tenuirostris*	Great Knot	A	LC
44.	*Calidris temminckii*	Temminck's stint	A	LC
45.	*Caprimulgus indicus*	Indian Jungle Nightjar	T	LC
46.	*Casmerodius albus*	Great Egret	A	LC
47.	*Centropus sinensis*	Greater Coucal	T	LC
48.	*Ceryle rudis*	Pied Kingfisher	D	LC
49.	*Charadrius alexandrinus*	Kentish Plover	A	LC
50.	*Charadrius dubius*	Little Ringed Plover	A	LC
51.	*Chlidonias hybridus*	Whiskered Tern	A	LC
52.	*Chlidonias leucopterus*	White-winged Tern	A	LC
53.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC
54.	*Chroicocephalus genei*	Slender-billed Gull	T	LC
55.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC
56.	*Ciconia episcopus*	Woolly-necked Stork	A	LC
57.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC
58.	*Circus macrourus*	Pallid Harrier	T	LC
59.	*Circus melanoleucos*	Pied Harrier	T	LC
60.	*Cisticola juncidis*	Zitting Cisticola	T	LC
61.	*Clamator jacobinus*	Pied Cuckoo	T	LC
62.	*Columba livia*	Rock Pigeon	T	LC
63.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
64.	*Coracias benghalensis*	Indian Roller	T	LC
65.	*Corvus macrorhynchus*	Large-billed Crow	T	LC
66.	*Corvus splendens*	House Crow	T	LC
67.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
68.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
69.	*Dendronanthus indicus*	Forest Wagtail	T	LC
70.	*Dicrurus adsimilis*	Black Drongo	T	LC
71.	*Dupetor flavicollis*	Black Bittern	A	LC
72.	*Egretta garzetta*	Little Egret	A	LC
73.	*Elanus caeruleus*	Black-shouldered Kite	T	LC

74.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC
75.	*Eudynamys scolopacea*	Asian Koel	T	LC
76.	*Falco tinnunculus*	Common Kestrel	T	LC
77.	*Francolinus pondicerianus*	Grey Francolin	T	LC
78.	*Fulica atra*	Coot	A	LC
79.	*Glareola lactea*	Small pratincole	T	LC
80.	*Gallicrex cinerea*	Watercock	A	LC
81.	*Gallinula chloropus*	Common Moorhen	A	LC
82.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
83.	*Glareola maldivarum*	Oriental Pratincole	A	LC
84.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
85.	*Haliastur indus*	Brahminy Kite	T	LC
86.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
87.	*Himantopus himantopus*	Black-winged Stilt	A	LC
88.	*Hirundo rustica*	Barn Swallow	T	LC
89.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
90.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
91.	*Icthyophaga leucogaster*	White-bellied sea eagle	T	LC
92.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC
93.	*Ixobrychus sinensis*	Yellow Bittern	A	LC
94.	*Limosa limosa*	Black-tailed Godwit	A	LC
95.	*Lonchura malacca*	Black-headed Munia	D	LC
96.	*Merops orientalis*	Green Bee-eater	T	LC
97.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
98.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
99.	*Milvus migrans*	Black Kite	T	LC
100.	*Motacilla flava*	Yellow Wagtail	D	LC
101.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC
102.	*Mycteria leucocephala*	Painted Stork	A	NT
103.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC
104.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC

105.	*Numenius minutus*	Little curlew	A	LC
106.	*Numenius phaeopus*	Whimbrel	A	LC
107.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
108.	*Orthotomus sutorius*	Common Tailorbird	T	LC
109.	*Passer domesticus*	House Sparrow	T	LC
110.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC
111.	*Phalacrocorax carbo*	Great Cormorant	A	LC
112.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC
113.	*Phalacrocorax niger*	Little Cormorant	A	LC
114.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC
115.	*Phoenicopterus ruber*	Greater Flamingo	A	LC
116.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC
117.	*Plegadis falcinellus*	Glossy Ibis	A	LC
118.	*Ploceus manyar*	Streaked Weaver	T	LC
119.	*Pluvialis squatarola*	Grey Plover	A	LC
120.	*Porphyrio porphyrio*	Purple Swamphen	A	LC
121.	*Prinia inornata*	Plain Prinia	T	LC
122.	*Prinia socialis*	Ashy Prinia	T	LC
123.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC
124.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC
125.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
126.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
127.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC
128.	*Saxicola caprata*	Pied Bush Chat	T	LC
129.	*Saxicoloides fulicata*	Indian Robin	T	LC
130.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC
131.	*Sterna albifrons*	Little Tern	A	LC
132.	*Sterna anaethetus*	Bridled Tern	A	LC
133.	*Sterna aurantia*	River Tern	A	LC
134.	*Sterna caspia*	CaspianTern	A	LC
135.	*Streptopelia chinensis*	Spotted Dove	T	LC

136.	*Sturnus pagodarum*	Brahminy Starling	T	LC
137.	*Tachybaptus ruficollis*	Little Grebe	A	LC
138.	*Tachymarptis melba*	Alpine Swift	T	LC
139.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC
140.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC
141.	*Thalasseus sandvicensis*	Sandwich Tern	A	LC
142.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC
143.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
144.	*Tringa ochropus*	Green Sandpiper	A	LC
145.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC
146.	*Turdoides affinis*	Yellow-billed Babbler	T	LC
147.	*Turnix suscitator*	Common Buttonquail	T	LC
148.	*Tyto alba*	Barn Owl	T	LC
149.	*Upupa epops*	Hoopoe	T	LC
150.	*Vanellus indicus*	Red-wattled Lapwing	D	LC
151.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC
152.	*Zoothera citrina*	Orange-headed Thrush	T	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.24.4. IUCN Status of major plant invasive alien species in Point Calimere Wildlife and Birds Sanctuary

S. No.	Species	Family	Tamil Name
1.	*Ipomoea carnea*	Convolvulaceae	
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Parthenium hysterophorus*	Compositae	Vishachedi
4.	*Prosopis julifera*	Fabaceae	Semai karuvel
5.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.24.5. IUCN Status of major animal invasive alien species in Point Calimere Wildlife and Birds Sanctuary

S. No.	Species	Family	Common name	IUCN
C. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
D. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.24.6. IUCN Status of major medicinal plant species in Point Calimere Wildlife and Birds Sanctuary

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
7.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
8.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Mukia leiosperma*	Cucurbitaceae		Climber
11.	*Pedalium murex*	Pedaliaceae		Herb
12.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
13.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
14.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
15.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb
16.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
17.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.25. AGAYAGANGAI WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Agayagangai Wetland or Peraruvi

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Puliyansolai, Ariyurnadu, Valappurnadu, Solakkadu, Selur Nadu, Thinnanur Nadu, and Gundur Nadu.

1.3 *Name of the District (s) in which Wetlands complex located:* Namakkal

1.4 *Geographical coordinates:*

► Latitude: 11˚16’00.6” N

► Longitude: 78˚23’38.2” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 21.7 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes
	❒ Seasonal/ intermittent lakes
	✓ Permanent streams/ creeks
	❒ Seasonal/ intermittent streams/ creeks
	❒ Oxbow
	❒ River floodplain
	❒ Permanent freshwater marshes
	❒ Seasonal/ intermittent freshwater marshes
	❒ Shrub-dominated Wetlands
	❒ Tree-dominated Wetlands
	❒ Geothermal Wetlands
	❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 830

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: formed by the Aiyaru river &
  Main source of water for is Vaasalore patti eri.
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ❒ Mesotrophic
- ✓ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 188.3

b) Temperature (°C) Minimum 13.7 ; Maximum 27.55

c) Humidity (%) Minimum 79.5 ; Maximum 85

2.7 *Area of zone of influence (in ha):* 4323.06 ha (with an irregular radius of 3.71 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	89%
Vegetation (Plantation)	:	0%
Agriculture	:	4%
Settlements (Rural)	:	4%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	3%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.25 (Fig. 3.25.1-3.25.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 31 species. (refer to Table 3.25.1 in Annexure 3.25).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 108 recorded species. This includes 2 mammal species, 8 reptile species, 2 amphibian species, 50 bird species, and 46 species of butterflies (refer to Table 3.25.2-3.25.3 in Annexure 3.25).

3.3 *Species of conservation significance:* Highlighted in Table 3.25.1-3.25.3

3.4 *Major plant invasive alien species:* Not Available

3.5 *Major animal invasive alien species:* Not Available

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	✓ Yes ❒ No	Primary source of water
Source of water for agriculture	✓ Yes ❒ No	Extracted from the flowing bed of the Wetland
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.25.6 in Annexure 3.25
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts since it's a water falls
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	significant runoff from the surrounding catchment area
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the Wetland.
Is a site for recreation and tourism	✓ Yes ❒ No	Receives a good population of nature enthusiasts as tourists
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	❒ Yes ✓ No	

Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for thesite	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a small Temple around the Wetland
Withdrawal of water for domestic use	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is no much alternative source of water
Withdrawal of water for agriculture or fisheries	✓Yes ❒ No	❒Yes ❒No ❒Not assessed	Extracted from the flowing bed of the Wetland

Bathing or wallowing of domestic animals	✓ Yes ❒ No	❒ Yes ❒ No ❒ Not assessed	Bathing activity is happening under the falls
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unregulated Tourism	❒ High	✓ Present	

	❒ Medium ✓ Low	❒ Potential	
Plastics carried by tourists	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Plastics carried by tourists	Prohibited	❒ Wetland/ Wetland complex ✓ Boundary Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V.M., Palot, M.J., & Ganesh, S.R. (2018). *A checklist of reptiles of India* (Version 3.0, 35 pp.). Retrieved from www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
3. Bibby, C.J., Burgess, N.D., & Hill, D.A. (1993). *Bird census techniques*. Academic Press Limited, London.
4. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of the Presidency of Madras*. Adlard and Son, London.
5. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press, New York.

6. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
7. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa*, *11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
8. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
9. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
10. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
11. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
12. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
13. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India. Series 1, Vol. 1*. Botanical Survey of India, Southern Circle, Coimbatore.
14. Ratnam, K. *Birds of Tamil Nadu*.

ANNEXURE 3.25

Fig 3.25.1. Zone of Influence of Agayagangai Wetland

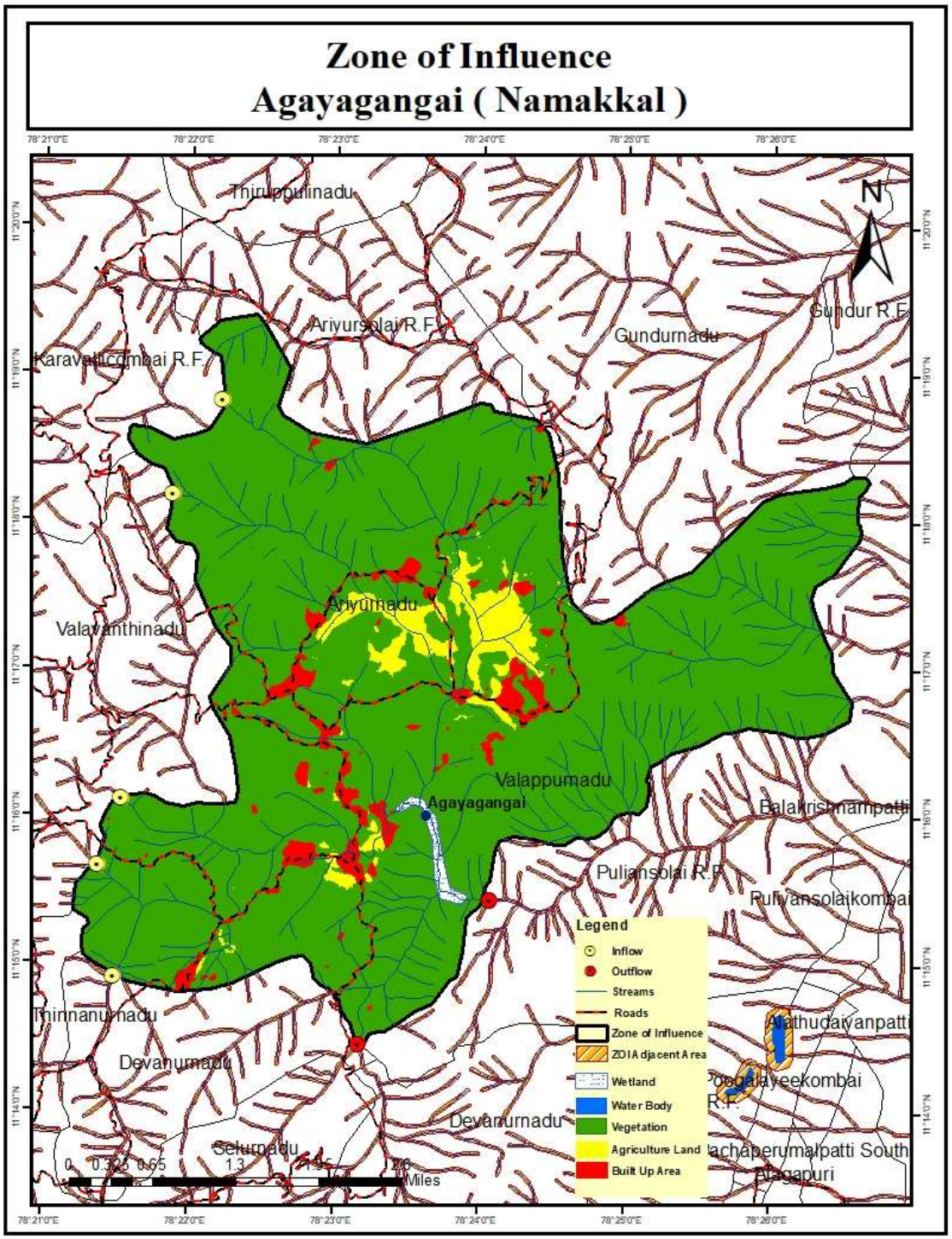


Fig 3.25.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Agayagangai Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

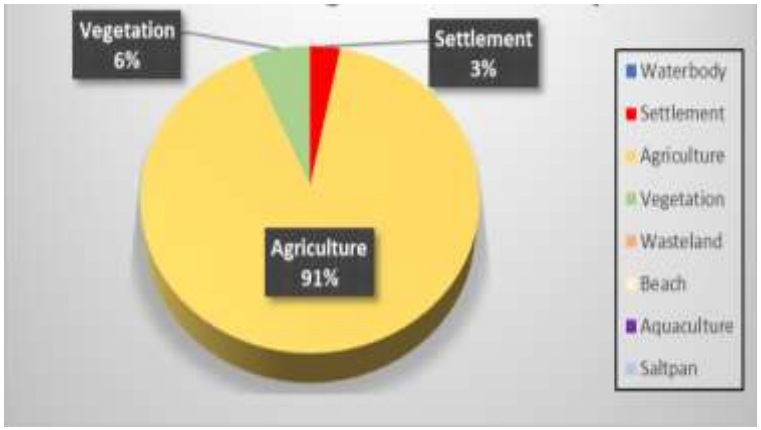


Table 3.25.1. IUCN Status of Floral Species in Agayagangai Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
2.	*Brachiaria ramosa*	Poaceae		Grass	NE
3.	*Boswellia serrata*	Burseraceae		Tree	LC
4.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
5.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC
6.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
7.	*Cordia domestica*	Cordiaceae		Tree	LC
8.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
9.	*Crateva magna*	Capparaceae		Tree	LC
10.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
11.	*Cyperus iria*	Cyperaceae		Sedge	NE
12.	*Dolichandrone atrovirens*	Bignoniaceae		Tree	LC
13.	*Diospyros montana*	Ebenaceae		Tree	LC
14.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
15.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
16.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
17.	*Erythrina suberosa*	Papilionaceae		Tree	LC
18.	*Ficus tinctoria*	Moraceae	Kallathi	Tree	LC
19.	*Isachne miliacea*	Poaceae	-	Grass	LC
20.	*Ischaemum indicum*	Poaceae	-	Grass	LC
21.	*Ludwigia adscendens*	Onagraceae		Herb	NE
22.	*Mitragyna parvifolia*	Rubiaceae		Tree	LC
23.	*Pandanus amaryllifolius*	Pandanaceae		Tree	LC

24.	*Pongamia pinnata*	Papilionaceae	Pungai	Tree	LC
25.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
26.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
27.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC
28.	*Terminalia chebula*	Combretaceae		Tree	LC
29.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
30.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
31.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE

Table 3.25.2. IUCN Status of Selected Fauna Species in Agayagangai Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A.	*Mammal*				
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
B.	*Reptile*				
1.	*Cnemaspis yercaudensis*	Gekkonidae		LC	
2.	*Cnemaspis mysoriensis*	Gekkonidae		LC	
3.	*Cyrtodactylus speciosus*	Gekkonidae	Forest spotted gecko	LC	
4.	*Hemidactylus graniticolus*	Gekkonidae		LC	
5.	*Calotes versicolor*	Agamidae	Oriental garden lizard	LC	
6.	*Eutropis allapallensis*	Scincidae		LC	
7.	*Uropeltis dindigalensis*	Uropeltidae		LC	
8.	*Trimeresurus gramineus*	Viperidae		LC	
C.	*Amphibian*				
1.	*Duttaphrynus melanostictus*	Bufonidae		LC	*

2.	*Indosylvirana sreeni*	Ranidae		LC	*
D. Butterfly					
1.	*Pachliopta aristolochiae*	Papilionidae	Common rose	LC	*
2.	*Pachliopta hector*	Papilionidae	Crimson rose	LC	*
3.	*Papilo polymnestor cramer*	Papilionidae	Common Mormon	LC	*
4.	*Hypolimnas bolina*	Papilionidae	Great Eggfly	LC	*
5.	*Graphium sarpedon*	Papilionidae	Common bluebottle	LC	*
6.	*catopsilia Pomona*	Peridae	Common emigrant	LC	*
7.	*Leptosia nina*	Peridae	Psyche	LC	*
8.	*Catopsilia pyranthe*	Peridae	Mottled emigrant	LC	*
9.	*Eurema hecabe*	Peridae	Common grass yellow	LC	*
10.	Cepora nerissa	Peridae	Common Gull	LC	*
11.	*Colotis amata*	Peridae	Small Salmon Arab	LC	*
12.	*Belenois aurota*	Peridae	Pioneer	LC	*
13.	*Eurema brigitta*	Lycaenidae	Small grass yellow	LC	*
14.	*Zizeeria karsandra*	Lycaenidae	Dark grass blue	LC	*
15.	*Zizula hylax*	Lycaenidae	Tiny grass blue	LC	*
16.	*Leptotus plinius*	Lycaenidae	Zebra blue	LC	*
17.	*Catochrysops Strabo*	Lycaenidae	Forget –me – not	LC	*
18.	*Chilades putli*	Lycaenidae	Small grass jewel	LC	*
19.	*Celastrina lavendularis*	Lycaenidae	Plain hedge blue	LC	*
20.	*Prosotas dubiosa*	Lycaenidae	Tailless line blue	LC	*
21.	*Euchrysops cnejus*	Lycaenidae	Gram blue	LC	*

22.	*Pseudozizeeria maha*	Lycaenidae	Pale grass blue	LC	
23.	*Chilades lajus*	Lycaenidae	Lime blue	LC	
24.	*Prosotas nora*	Lycaenidae	Common line blue	LC	
25.	*Spindasis schistacea*	Lycaenidae	Plumbeous silverline	LC	
26.	*Chilades pandava*	Lycaenidae	Plains cupid	LC	
27.	*Azanus ubaldus*	Lycaenidae	Bright babul blue	LC	
28.	*Zizina Otis indica*	Lycaenidae	Lesser grass blue	LC	
29.	*Castalius rosimon*	Lycaenidae	Common pierrot	LC	
30.	*Danus chrysippus*	Nymphalidae	Plain tiger	LC	
31.	*Tirumala limniace*	Nymphalidae	Blue tiger	LC	
32.	*Tirumala septentrionis*	Nymphalidae	Dark blue tiger	LC	
33.	*Danus genutia*	Nymphalidae	Striped tiger	LC	
34.	*kaniska canace*	Nymphalidae	Blue admiral	LC	
35.	*Euploea core*	Nymphalidae	Common Indian crow	LC	
36.	*Euploea core*	Nymphalidae	Common crow	LC	
37.	*Ypthima ceylonica*	Nymphalidae	White fourring	LC	
38.	*Ypthima huebneri*	Nymphalidae	Common fourring	LC	
39.	*Acraea violae*	Nymphalidae	Tawny coster	LC	
40.	*Ypthimia*	Nymphalidae	Common fivering	LC	
41.	*Junonia iphita*	Nymphalidae	Chocolate pansy	LC	
42.	*Junonia lemonias*	Nymphalidae	Lemon pansy	LC	
43.	*Hypolimnas misippus*	Nymphalidae	Danaid eggfly	LC	
44.	*Ariadne ariadne*	Nymphalidae	Angled castor	LC	
45.	*Chazara briseis*	Nymphalidae	Hermit	LC	

46.	*Orsotrioena medus*	Nymphalidae	Nigger	LC	

LC – Least Concern; * - Yes

Table 3.25.3. IUCN Status of Bird Species in Agayagangai Wetland

S.No	Scientific name	Common name	Habitat	IUCN Status	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Alcedo atthis*	Common Kingfisher	T	LC	*
3.	*Amaurornis phoenicurus*	White-breasted Waterhen	D	LC	*
4.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
5.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
6.	*Coracias benghalensis*	Indian Roller	T	LC	*
7.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC	*
8.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
9.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
10.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
11.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
12.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
13.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
14.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
15.	*Falco tinnunculus*	Common Kestrel	T	LC	
16.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
17.	*Gallinula chloropus*	Common Moorhen	A	LC	*
18.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
19.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
20.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
21.	*Haliastur indus*	Brahminy Kite	T	LC	*
22.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	

23.	*Hirundo rustica*	Barn Swallow	T	LC	
24.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
25.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
26.	*Lonchura malacca*	Black-headed Munia	D	LC	
27.	*Merops orientalis*	Green Bee-eater	T	LC	*
28.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
29.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
30.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
31.	*Milvus migrans*	Black Kite	T	LC	*
32.	*Motacilla flava*	Yellow Wagtail	D	LC	
33.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
34.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
35.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
36.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
37.	*Passer domesticus*	House Sparrow	T	LC	*
38.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
39.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
40.	*Ploceus manyar*	Streaked Weaver	T	LC	
41.	*Pluvialis squatarola*	Grey Plover	A	LC	
42.	*Prinia inornate*	Plain Prinia	T	LC	
43.	*Psittacula krameria*	Rose-ringed Parakeet	T	LC	
44.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
45.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
46.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
47.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
48.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*

49.	*Tringa glareola*	Wood Sandpiper	A	LC	*
50.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.25.5. IUCN Status of major medicinal plant species in Agayagangai Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Amorphophallus paeoniifolius*	Araceae		Herb
2.	*Boswellia serrate*	Burseraceae		Tree
3.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber
4.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb
5.	*Erythrina suberosa*	Papilionaceae		Tree
6.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub
7.	*Syzygium cumini*	Myrtaceae	Naval	Tree
8.	*Terminalia chebula*	Combretaceae		Tree
9.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
10.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
11.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.26. MANAMALKUDI TALIK GRAMA KODIYAKARAI

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Manamalkudi Talik Grama Kodiyakarai Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Avadaiyarpattinam, Manamalkudi, Kodiyakarai, Manamelkudi, Ammapattinam, Kodikulam, Thinayakudi, Kaduvettikollai, Mannankadu

1.3 *Name of the District (s) in which Wetlands complex is located:* Pudukkottai

1.4 *Geographical coordinates:*

► Latitude: 10˚2’17.034” N

► Longitude: 79˚15’58.6044” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 16.47 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 0.5; Maximum - 3

2.4 *Elevation (m above mean sea level):* 3

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Backwaters from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (<0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ✓ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 178

b) Temperature (°C) Minimum 23.4 ; Maximum 36.85

c) Humidity (%) Minimum 74.5 ; Maximum 79.4

2.7 *Area of zone of influence (in ha):* 4,906.31 ha (with an irregular radius of 3.9 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	11%
Agriculture	:	25%
Settlements (Rural)	:	30%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	33%
Waste Land	:	0.3%
Beach	:	0.7%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.26 (Fig. 3.26.1-3.26.2)

Section 3: Biodiversity

3.1 *Notable plant species present in a Wetland:* The Wetland is home to a diverse range of species, totaling 47 (refer to Table 3.26.1 in Annexure 3.26).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 125 recorded species. This includes 3 mammal species, 8 reptile species, 9 amphibian species, 91 bird species, and 14 species of butterflies (refer to Table 3.26.2-3.26.3 in Annexure 3.26).

3.3 *Species of conservation significance:* Highlighted in Table 3.26.1-3.26.3

3.4 *Major plant invasive alien species:* The Wetland supports 7 plant invasive species (refer to Table 3.26.4 in Annexure 3.26).

3.5 *Major animal invasive alien species:* The Wetland supports 1 animal invasive species (refer to Table 3.26.5 in Annexure 3.26).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.26.6 in Annexure 3.26
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	There is few temples and majorly possessed by cremation activity
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	

Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for the site	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing is observed while field visit
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is few temples and majorly possessed by cremation activity
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of domestic animals	❒Yes	❒Yes	

	✓ No	❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Boating is there for fishing
Any others	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Religious practices leads to more of cloth wastes
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.26.4-3.26.5 in Annexure 3.26
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence	Upto the Boundary is well		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Cloth Wastes	Prohibited	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			As a part of Religious part they the left the cloths inside the Wetland

Section 8: Activities Proposed to be permitted

Activity	Relevance	Within Wetlands or zoneof influence	Additional info.
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of the Presidency of Madras*. Adlard and Son, London.
3. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
4. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa*, *11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
5. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
6. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
7. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
8. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
9. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
10. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India. Series 1, Vol. 1*. Botanical Survey of India, Southern Circle, Coimbatore.
11. Ratnam, K. *Birds of Tamil Nadu*.

ANNEXURE 3.26

Fig 3.26.1. Zone of Influence of Manamalkudi Talik Grama Kodiyakarai Wetland

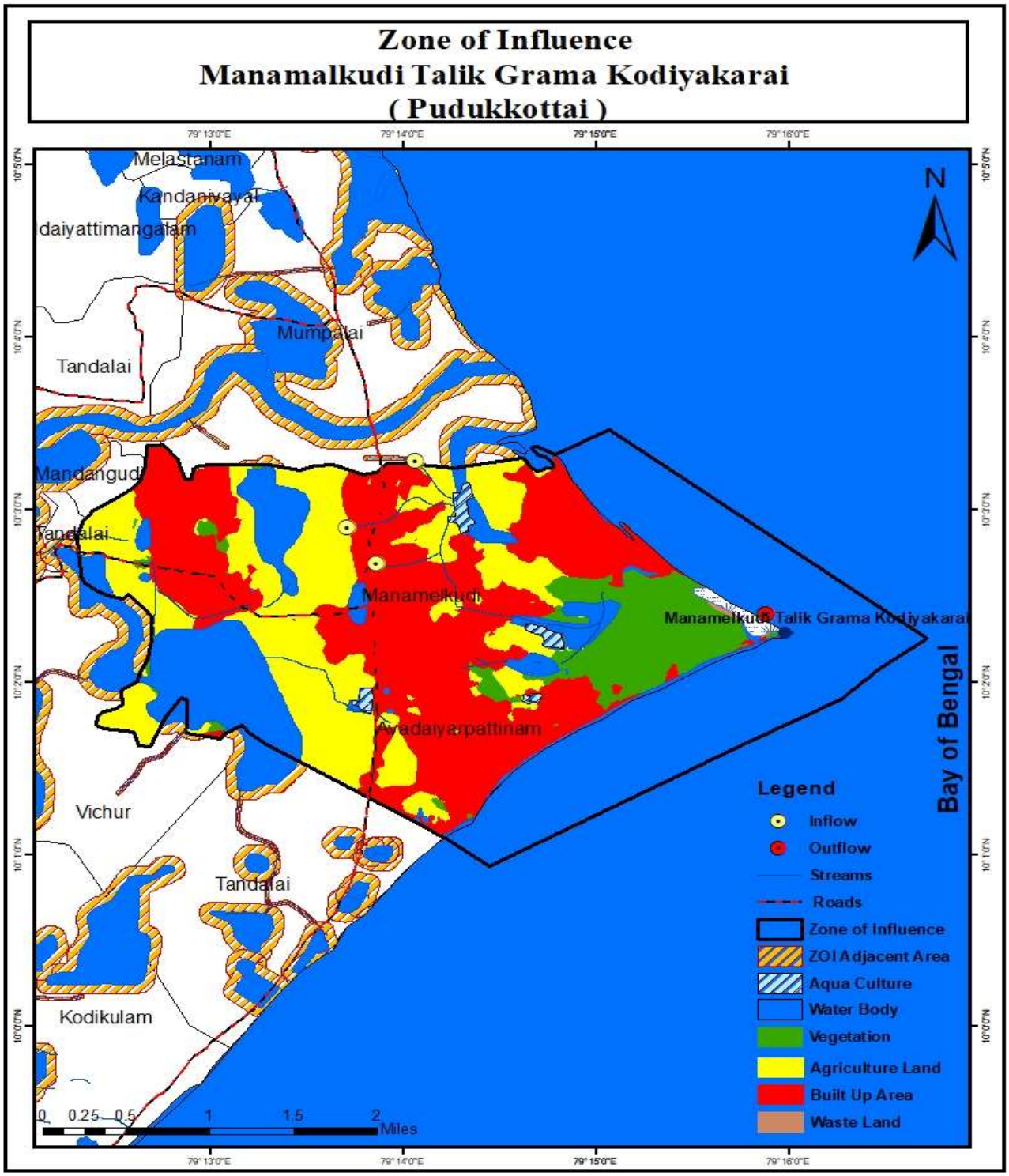


Fig 3.26.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Manamalkudi Talik Grama Kodiyakarai Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

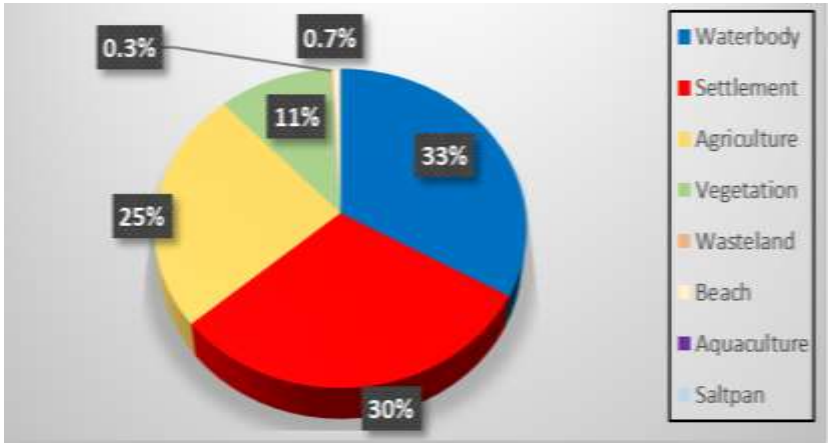


Table 3.26.1. IUCN Status of Floral Species in Manamalkudi Talik Grama Kodiyakarai Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
9.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Digitaria ciliaris*	Poaceae		Grass	NE
20.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
21.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
22.	*Ischaemum indicum*	Poaceae	-	Grass	LC
23.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
24.	*Justicia prostrata*	Acanthaceae		Herb	NE

25.	*Launaea bellidifolia*	Asteraceae		Herb	LC
26.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
27.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
28.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
29.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
30.	*Pedalium murex*	Pedaliaceae		Herb	NE
31.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
32.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
33.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
34.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
35.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
36.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
37.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
38.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
39.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
40.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
41.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
42.	*Trachys muricata*	Poaceae	-	Grass	LC
43.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
44.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
45.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
46.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
47.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.26.2. IUCN Status of Selected Fauna Species in Manamalkudi Talik Grama Kodiyakarai Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
2.	*Rattus rattus*	Muridae	House rat	LC
3.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
C. Amphibian				
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Common crow	LC
2.	*Catopsilia Pomona*	Pieridae	Common Emigrant	LC

3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
5.	*Papilio demoleus*	Papilionidae	Common lime	LC
6.	*Papilio polytes*	Papilionidae	Common mormon	LC
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	LC
8.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	LC
9.	*Junonia almanac*	Nymphalidae	Peacock pansy	LC
10.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
11.	*Acraea violae*	Nymphalidae	Tawny coster	LC
12.	*Junonia hierta*	Nymphalidae	Yellow Pansy	LC
13.	*Papilio demoleus*	Papilionidae	Lime butterfly	LC
14.	*Melanitis leda*	Nymphalidae	Common evening brown	LC

LC – Least Concern; * - Yes

Table 3.26.3. IUCN Status of Bird Species in Manamalkudi Talik Grama Kodiyakarai Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Accipiter badius*	Shikra	T	LC
2.	*Acridotheres tristis*	Common Myna	T	LC
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC
5.	*Alauda gulgula*	Oriental Skylark	T	LC
6.	*Alcedo atthis*	Common Kingfisher	T	LC
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC
8.	*Anastomus oscitans*	Asian Openbill	A	LC
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC
10.	*Apus affinis*	House Swift	T	LC
11.	*Ardea cinerea*	Grey Heron	A	LC
12.	*Ardea purpurea*	Purple Heron	A	LC
13.	*Ardeola grayii*	Indian Pond Heron	A	LC

14.	*Artamus fuscus*	Ashy Woodswallow	T	LC
15.	*Athene brama*	Spotted Owlet	T	LC
16.	*Bubulcus ibis*	Cattle Egret	D	LC
17.	*Calidris pugnax*	Ruf	A	LC
18.	*Calidris minuta*	Little Stint	A	LC
19.	*Calidris temminckii*	Temminck's stint	A	LC
20.	*Casmerodius albus*	Great Egret	A	LC
21.	*Centropus sinensis*	Greater Coucal	T	LC
22.	*Ceryle rudis*	Pied Kingfisher	D	LC
23.	*Charadrius alexandrinus*	Kentsh Plover	A	LC
24.	*Charadrius dubius*	Little Ringed Plover	A	LC
25.	*Charadrius mongolus*	Lesser Sand Plover	A	LC
26.	*Chlidonias hybridus*	Whiskered Tern	A	LC
27.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC
28.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC
29.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC
30.	*Cisticola juncidis*	Zitting Cisticola	T	LC
31.	*Clamator jacobinus*	Pied Cuckoo	T	LC
32.	*Columba livia*	Rock Pigeon	T	LC
33.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
34.	*Coracias benghalensis*	Indian Roller	T	LC
35.	*Corvus macrorhynchus*	Large-billed Crow	T	LC
36.	*Corvus splendens*	House Crow	T	LC
37.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
38.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
39.	*Dicrurus adsimilis*	Black Drongo	T	LC
40.	*Egretta garzetta*	Little Egret	A	LC
41.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
42.	*Eudynamys scolopacea*	Asian Koel	T	LC
43.	*Falco tinnunculus*	Common Kestrel	T	LC
44.	*Francolinus pondicerianus*	Grey Francolin	T	LC

45.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
46.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
47.	*Haliastur indus*	Brahminy Kite	T	LC
48.	*Hieraaetus pennatus*	Booted Eagle	T	LC
49.	*Hirundo rustica*	Barn Swallow	T	LC
50.	*Hydroprogne caspia*	Caspian Tern	A	LC
51.	*Lanius cristatus*	Brown Shrike	T	LC
52.	*Lanius vitatus*	Bay-backed Shrike	T	LC
53.	*Limosa limosa*	Black-tailed Godwit	A	LC
54.	*Merops orientalis*	Green Bee-eater	T	LC
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
57.	*Milvus migrans*	Black Kite	T	LC
58.	*Mycteria leucocephala*	Painted Stork	A	NT
59.	*Numenius phaeopus*	Eurasian whimbrel	A	LC
60.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC
61.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
62.	*Orthotomus sutorius*	Common Tailorbird	T	LC
63.	*Pandion haliaetus*	Osprey	T	LC
64.	*Passer domesticus*	House Sparrow	T	LC
65.	*Pernis ptlorhynchus*	Oriental Honey Buzzard	T	LC
66.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC
67.	*Phalacrocorax niger*	Little Cormorant	A	LC
68.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC
69.	*Plegadis falcinellus*	Glossy Ibis	A	LC
70.	*Pluvialis squatarola*	Grey Plover	A	LC
71.	*Prinia inornate*	Plain Prinia	T	LC
72.	*Prinia socialis*	Ashy Prinia	T	LC
73.	*Pseudibis papillosa*	Red-naped Ibis	T	LC
74.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC
75.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC

76.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
77.	*Saxicoloides fulicata*	Indian Robin	T	LC
78.	*Sterna albifrons*	Little Tern	A	LC
79.	*Streptopelia chinensis*	Spotted Dove	T	LC
80.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC
81.	*Spilopelia senegalensis*	Laughing Dove	T	LC
82.	*Sturnus pagodarum*	Brahminy Starling	T	LC
83.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC
84.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC
85.	*Thalasseus bergii*	Greater Crested Tern	A	LC
86.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
87.	*Tringa glareola*	Wood Sandpiper	A	LC
88.	*Turdoides affinis*	Yellow-billed Babbler	T	LC
89.	*Vanellus indicus*	Red-wattled Lapwing	D	LC
90.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC
91.	*Zoothera citrina*	Orange-headed Thrush	T	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.26.4. IUCN Status of major plant invasive alien species in Manamalkudi Talik Grama Kodiyakarai Wetland

S. No.	Species	Family	Tamil Name
1.	*Lantana camara*	Verbenaceae	Unnichedi
2.	*Martynia annua*	Martyniaceae	Thael Kodukku
3.	*Prosopis julifera*	Fabaceae	Semai karuvel
4.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
5.	*Senna tora*	Caesalpiniaceae	Oosithagarai
6.	*Typha angustifolia*	Typhaceae	Sambu
7.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.26.5. IUCN Status of major animal invasive alien species in Manamalkudi Talik Grama Kodiyakarai Wetland

S. No.	Species	Family	Common name	IUCN
1.	*Rattus rattus*	Muridae	House Rat	LC

Table 3.26.6. IUCN Status of major medicinal plant species in Manamalkudi Talik Grama Kodiyakarai Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Pedalium murex*	Pedaliaceae		Herb
11.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
12.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.27. PAMBAR ESTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Pambar Estuary

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Nattanipurasakudi, Manambadi, Killai, Pichavaram, Thandavarayan Solan Pettai, Thillaividangan, MGR Nagar

1.3 *Name of the District (s) in which Wetlands complex is located:* Pudukkottai

1.4 *Geographical coordinates:*

► Latitude: 9˚51'28.832" N

► Longitude: 78˚07'17.5692" E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 40.75 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 0.5; Maximum - 2

2.4 *Elevation (m above mean sea level):* 0

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Backwaters from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 180.2

b) Temperature (°C) Minimum 24.43 ; Maximum 37.53

c) Humidity (%) Minimum 66.3 ; Maximum 79.5

2.7 *Area of zone of influence (in ha):* 4,906.31 ha (with an irregular radius of 3.9 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	11%
Agriculture	:	32%
Settlements (Rural)	:	7%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	39%
Waste Land	:	2%
Aquaculture	:	9%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.27 (Fig. 3.27.1-3.27.2)

Section 3: Biodiversity

3.1 *Notable plant species present in a Wetland:* The Wetland is home to a diverse range of species, totaling 47 (refer to Table 3.27.1 in Annexure 3.27).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 132 recorded species. This includes 3 mammal species, 21 reptile species, 9 amphibian species, 85 bird species, and 14 species of butterflies (refer to Table 3.27.2-3.27.3 in Annexure 3.27).

3.3 *Species of conservation significance:* Highlighted in Table 3.27.1-3.27.3

3.4 *Major plant invasive alien species:* The Wetland supports 7 plant invasive species (refer to Table 3.27.4 in Annexure 3.27).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.27.5 in Annexure 3.27).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.27.6 in Annexure 3.27
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	

Aquaculture	✓ Yes ❒ No	Aquaculture plants were observed while ground-truthing
Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for the site**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing is observed while field visit
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Boating is there for fishing
Aquaculture Ponds	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Aquaculture ponds were observed while ground-truthing

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High	✓ Present	Listed in Table 3.27.4-3.27.5 in Annexure

	❒Medium ✓ Low	❒ Potential	3.27
Disruption due to Ghost nuts	❒High ❒Medium ✓ Low	✓ Present ❒ Potential	Ghost nuts are observed more in number

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence	Upto the Boundary is well		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	Relevance	Within Wetlands or zoneof influence	Additional info.
Tourism development		✓ Wetland/ Wetlands complex boundary ❒ Zone of influence	May permitted

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of the Presidency of Madras*. Adlard and Son, London.
3. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
4. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa*, *11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
5. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
6. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
7. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The

Diocesan Press, Madras, India.

8. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
9. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
10. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India. Series 1, Vol. 1*. Botanical Survey of India, Southern Circle, Coimbatore.
11. Ratnam, K. *Birds of Tamil Nadu*.

ANNEXURE 3.27

Fig 3.27.1. Zone of Influence of Pambar Estuary

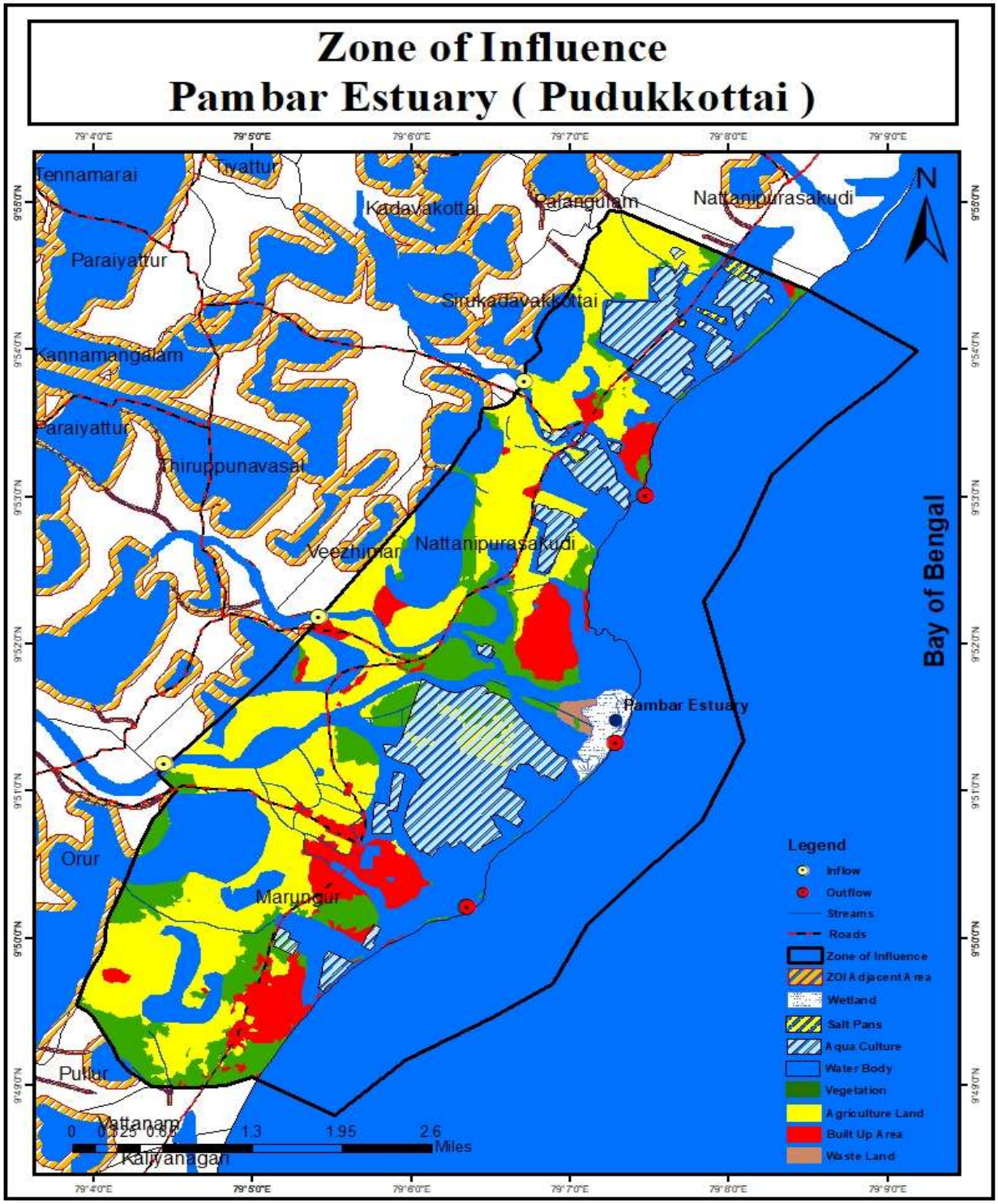


Fig 3.27.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Pambar Estuary

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

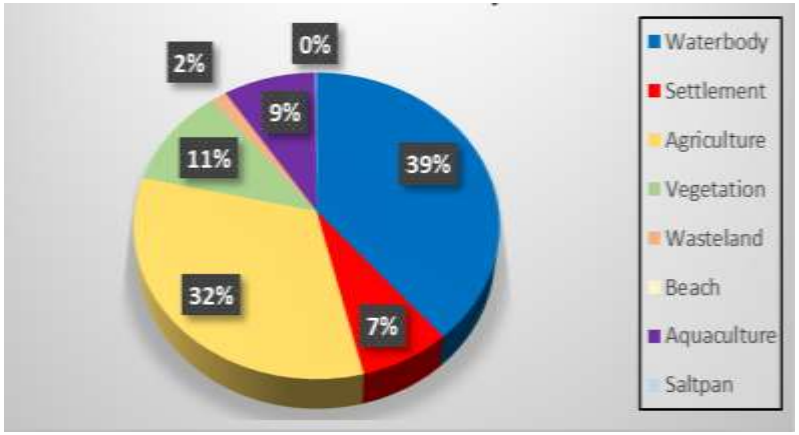


Table 3.27.1. IUCN Status of Floral Species in Pambar Estuary

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
9.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Digitaria ciliaris*	Poaceae		Grass	NE
20.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
21.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
22.	*Ischaemum indicum*	Poaceae	-	Grass	LC
23.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
24.	*Justicia prostrata*	Acanthaceae		Herb	NE
25.	*Launaea bellidifolia*	Asteraceae		Herb	LC
26.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC

27.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
28.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
29.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
30.	*Pedalium murex*	Pedaliaceae		Herb	NE
31.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
32.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
33.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
34.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
35.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
36.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
37.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
38.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
39.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
40.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
41.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
42.	*Trachys muricata*	Poaceae	-	Grass	LC
43.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
44.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
45.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
46.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
47.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.27.2. IUCN Status of Selected Fauna Species in Pambar Estuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
2.	*Rattus rattus*	Muridae	House rat	LC

3.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
17.	*Naja naja*	Elapidae	Cobra	LC
18.	*Bungarus caeruleus*	Elapidae	Krait	LC
19.	*Vipera russelli*	Viperidae	Russell's viper	LC
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU
C. Amphibian				
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC

6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Papilionidae	LC
2.	*Catopsilia Pomona*	Pieridae	Papilionidae	NE
3.	*Melanitis leda*	Nymphalidae	Papilionidae	LC
4.	*Eurema hecabe*	Pieridae	Papilionidae	LC
5.	*Papilio demoleus*	Papilionidae	Papilionidae	NE
6.	*Papilio polytes*	Papilionidae	Peridae	NE
7.	*Junonia lemonias*	Nymphalidae	Peridae	NE
8.	*Pseudozizeeria maha*	Lycaenidae	Peridae	NE
9.	*Junonia almanac*	Nymphalidae	Peridae	LC
10.	*Danaus chrysippus*	Nymphalidae	Peridae	LC
11.	*Acraea violae*	Nymphalidae	Peridae	LC
12.	*Junonia hierta*	Nymphalidae	Peridae	LC
13.	*Papilio demoleus*	Papilionidae	Lycaenidae	LC
14.	*Melanitis leda*	Nymphalidae	Lycaenidae	LC

LC – Least Concern; * - Yes

Table 3.27.3. IUCN Status of Bird Species in Pambar Estuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Accipiter badius*	Shikra	T	LC
2.	*Acridotheres tristis*	Common Myna	T	LC
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC
5.	*Alauda gulgula*	Oriental Skylark	T	LC
6.	*Alcedo atthis*	Common Kingfisher	T	LC
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC
8.	*Anastomus oscitans*	Asian Openbill	A	LC

9.	*Anthus rufulus*	Paddy-field Pipit	D	LC
10.	*Apus affinis*	House Swift	T	LC
11.	*Ardea cinerea*	Grey Heron	A	LC
12.	*Ardea purpurea*	Purple Heron	A	LC
13.	*Ardeola grayii*	Indian Pond Heron	A	LC
14.	*Artamus fuscus*	Ashy Woodswallow	T	LC
15.	*Athene brama*	Spotted Owlet	T	LC
16.	*Bubulcus ibis*	Cattle Egret	D	LC
17.	*Calidris pugnax*	Ruf	A	LC
18.	*Calidris minuta*	Little Stint	A	LC
19.	*Calidris temminckii*	Temminck's stint	A	LC
20.	*Casmerodius albus*	Great Egret	A	LC
21.	*Centropus sinensis*	Greater Coucal	T	LC
22.	*Ceryle rudis*	Pied Kingfisher	D	LC
23.	*Charadrius alexandrinus*	Kentsh Plover	A	LC
24.	*Charadrius dubius*	Little Ringed Plover	A	LC
25.	*Charadrius mongolus*	Lesser Sand Plover	A	LC
26.	*Chlidonias hybridus*	Whiskered Tern	A	LC
27.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC
28.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC
29.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC
30.	*Cisticola juncidis*	Zitting Cisticola	T	LC
31.	*Clamator jacobinus*	Pied Cuckoo	T	LC
32.	*Columba livia*	Rock Pigeon	T	LC
33.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
34.	*Coracias benghalensis*	Indian Roller	T	LC
35.	*Corvus macrorhynchus*	Large-billed Crow	T	LC
36.	*Corvus splendens*	House Crow	T	LC
37.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
38.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
39.	*Dicrurus adsimilis*	Black Drongo	T	LC

40.	*Egretta garzetta*	Little Egret	A	LC
41.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
42.	*Eudynamys scolopacea*	Asian Koel	T	LC
43.	*Falco tinnunculus*	Common Kestrel	T	LC
44.	*Francolinus pondicerianus*	Grey Francolin	T	LC
45.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
46.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
47.	*Haliastur indus*	Brahminy Kite	T	LC
48.	*Hieraaetus pennatus*	Booted Eagle	T	LC
49.	*Hirundo rustica*	Barn Swallow	T	LC
50.	*Hydroprogne caspia*	Caspian Tern	A	LC
51.	*Lanius cristatus*	Brown Shrike	T	LC
52.	*Lanius vitatus*	Bay-backed Shrike	T	LC
53.	*Limosa limosa*	Black-tailed Godwit	A	LC
54.	*Merops orientalis*	Green Bee-eater	T	LC
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
57.	*Milvus migrans*	Black Kite	T	LC
58.	*Mycteria leucocephala*	Painted Stork	A	NT
59.	*Numenius phaeopus*	Eurasian whimbrel	A	LC
60.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC
61.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
62.	*Orthotomus sutorius*	Common Tailorbird	T	LC
63.	*Pandion haliaetus*	Osprey	T	LC
64.	*Passer domesticus*	House Sparrow	T	LC
65.	*Pernis ptlorhynchus*	Oriental Honey Buzzard	T	LC
66.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC
67.	*Phalacrocorax niger*	Little Cormorant	A	LC
68.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC
69.	*Plegadis falcinellus*	Glossy Ibis	A	LC
70.	*Pluvialis squatarola*	Grey Plover	A	LC

71.	*Prinia inornate*	Plain Prinia	T	LC
72.	*Prinia socialis*	Ashy Prinia	T	LC
73.	*Pseudibis papillosa*	Red-naped Ibis	T	LC
74.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC
75.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
76.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
77.	*Saxicoloides fulicata*	Indian Robin	T	LC
78.	*Sterna albifrons*	Little Tern	A	LC
79.	*Streptopelia chinensis*	Spotted Dove	T	LC
80.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC
81.	*Spilopelia senegalensis*	Laughing Dove	T	LC
82.	*Sturnus pagodarum*	Brahminy Starling	T	LC
83.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC
84.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC
85.	*Thalasseus bergii*	Greater Crested Tern	A	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.27.4. IUCN Status of major plant invasive alien species in Pambar Estuary

S. No.	Species	Family	Tamil Name
1.	*Lantana camara*	Verbenaceae	Unnichedi
2.	*Martynia annua*	Martyniaceae	Thael Kodukku
3.	*Prosopis julifera*	Fabaceae	Semai karuvel
4.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
5.	*Senna tora*	Caesalpiniaceae	Oosithagarai
6.	*Typha angustifolia*	Typhaceae	Sambu
7.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.27.5. IUCN Status of major animal invasive alien species in Pambar Estuary

S. No.	Species	Family	Common name	IUCN
1.	*Rattus rattus*	Muridae	House Rat	LC
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.27.6. IUCN Status of major medicinal plant species in Pambar Estuary

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Pedalium murex*	Pedaliaceae		Herb
11.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
12.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.28. GANDHINAGAR WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Gandhinagar

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Thirupalakudi, Tiruvadanai, Mariyur, Kadaladi, Meenangudi, Uchinatham, Melakidaram, and Sayalgudi.

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanathapuram

1.4 *Geographical coordinates:*

► Latitude: 9˚33’42.6528” N

► Longitude: 78˚55’12.8064” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 14.84 ha

2.2 *Wetland type*:

Category	**Subcategory**
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 3; Maximum - 4.5

2.4 *Elevation (m above mean sea level):* 4

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: receives water from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 23.4 ; Maximum 36.85

c) Humidity (%) Minimum 74.5 ; Maximum 79.8

2.7 *Area of zone of influence (in ha):* 995.52 ha (with an irregular radius of 15.56 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	38%
Agriculture	:	39%
Settlements (Rural)	:	5%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	17%
Waste Land	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.28 (Fig. 3.28.1-3.28.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 18 species (refer to Table 3.28.1 in Annexure 3.28).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 67 recorded species. This includes 1 mammal species, 9 reptile species, 57 bird species (refer to Table 3.28.2-3.28.3 in Annexure 3.28).

3.3 *Species of conservation significance:* Highlighted in Table 3.28.1.1-3.28.3

3.4 *Major plant invasive alien species:* The Wetland supports 1 plant invasive species (refer to Table 3.28.4 in Annexure 3.28)

3.5 *Major animal invasive alien species:* Not available.

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	✓ Yes ❒ No	Buffalo wallowing is happening
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.28.5 in Annexure 3.28
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Ground water table raise is occurring
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple along the bank of Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the significant congregation of migratory water birds
Supports life cycle of fish or amphibians	✓ Yes ❒ No	

Mining	❒ Yes ✓ No	
Carbon Sequestration	✓ Yes ❒ No	Mangrove plantation leads to carbon sequestration

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for thesite	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing done cattle
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a temple along the bank of Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ❒ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Illegally fishing communities were staying inside island
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.28.4 in Annexure 3.28
Any others	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto Wetland boundary		Grazing done cattle
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Arunprasath, A., Sreeram, S., & Sankara Vel, V. (2023). Karankadu mangroves – an ecological asset to the Indian east coast. *Current Science, 124*(9), 1023.
3. Byju, H., Raveendran, N., Ravichandran, S., & Kishore, R. (2023). An annotated checklist of the avifauna of Karangadu mangrove forest, Ramanathapuram, Tamil Nadu, with notes on the site's importance for waterbird conservation. *Journal of Threatened Taxa, 15*(3), 22813–22822.
4. Chitra, N., & Mahendran, S. (2003). A preliminary list of butterflies of Ramanathapuram District, Tamil Nadu. *Zoos' Print Journal, 18*(4), 1090.
5. Gamble, J.S., & Fischer, C.E.C. (1915-1935). *Flora of the Presidency of Madras*. Adlard and Son, London.

6. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
7. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
8. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
9. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
10. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
11. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
12. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
13. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India. Series 1, Vol. 1*. Botanical Survey of India, Southern Circle, Coimbatore.
14. Ratnam, K. *Birds of Tamil Nadu*.

ANNEXURE 3.28

Fig 3.28.1. Zone of Influence of Gandhi nagar Wetland

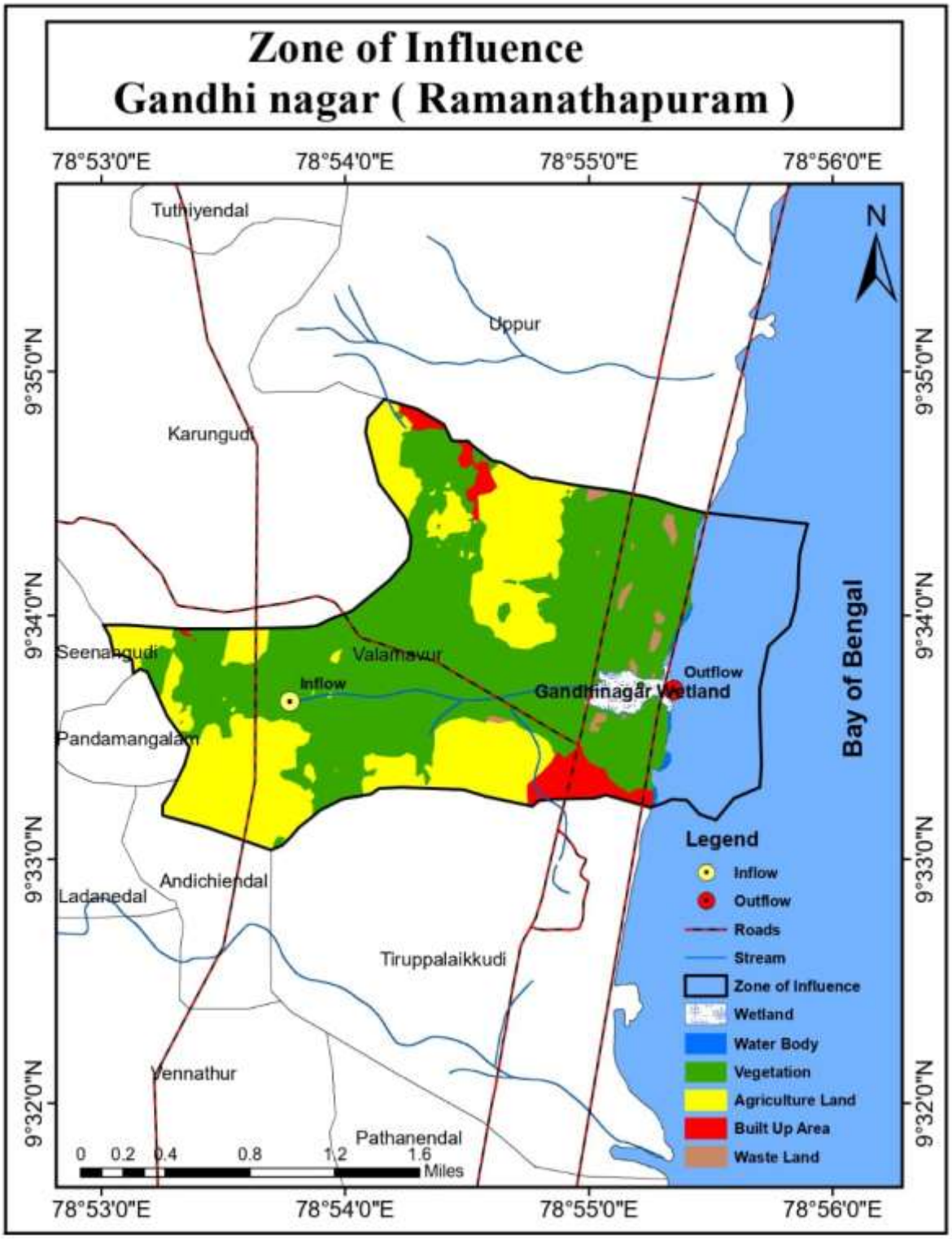


Fig 3.28.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Gandhi Nagar Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

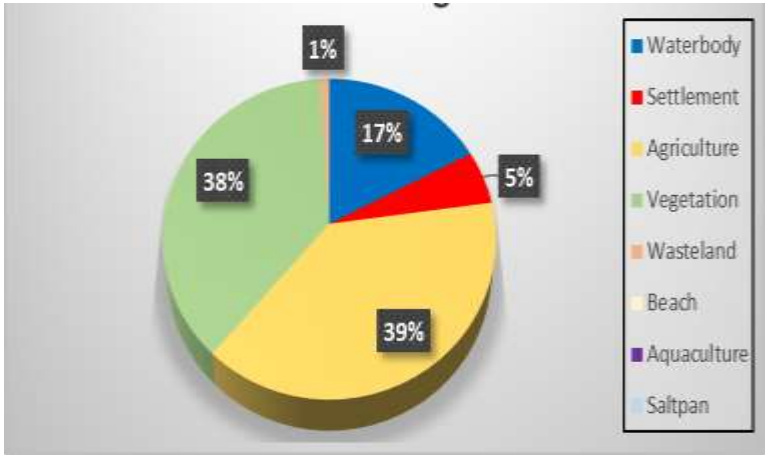


Table 3.28.1. IUCN Status of Floral Species in Gandhi Nagar Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
2.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
3.	*Brachiaria mutica*	Poaceae		Grass	NE
4.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
5.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
6.	*Digitaria ciliaris*	Poaceae		Grass	NE
7.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
8.	*Ischaemum indicum*	Poaceae	-	Grass	LC
9.	*Justicia prostrata*	Acanthaceae		Herb	NE
10.	*Launaea bellidifolia*	Asteraceae		Herb	LC
11.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
12.	*Pedalium murex*	Pedaliaceae		Herb	NE
13.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
14.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
15.	*Salicornia brachiate*	Chenopodiaceae	Kattumari	Herb	LC
16.	*Trachys muricata*	Poaceae	-	Grass	LC
17.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
18.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE

Table 3.28.2. IUCN Status of Selected Fauna Species in Gandhi Nagar Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Times New RomanFunambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*

B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
6.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
7.	*Bungarus caeruleus*	Elapidae	Krait	LC	
8.	*Vipera russelli*	Viperidae	Russell's viper	LC	
14.	*Euchrysops cnejus*	Lycaenidae	Gram Blue	LC	*
15.	*Hypolimnas bolina*	Nymphalidae	Great eggfly	LC	*
16.	*Junonia atlites*	Nymphalidae	Grey pansy	LC	*
17.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
18.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
19.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
20.	*Junonia almanac*	Nymphalidae	Peacock pansy	LC	*
21.	*Belenoisaurota*	Pieridae	Pioneer	LC	*
22.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*

LC – Least Concern; * - Yes

Table 3.28.3. IUCN Status of Bird Species in Gandhi Nagar Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	
2.	*Acridotheres tristis*	Common Myna	T	LC	
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	
5.	*Alauda gulgula*	Oriental Skylark	T	LC	
6.	*Alcedo atthis*	Common Kingfisher	T	LC	
7.	*Apus affinis*	House Swift	T	LC	
8.	*Ardea purpurea*	Purple Heron	A	LC	
9.	*Ardeola grayii*	Indian Pond Heron	A	LC	
10.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
11.	*Athene brama*	Spotted Owlet	T	LC	
12.	*Athene brama*	Spoted Owlet	T	LC	
13.	*Bubulcus ibis*	Cattle Egret	D	LC	
14.	*Calidris pugnax*	Ruf	A	LC	
15.	*Calidris minuta*	Little Stint	A	LC	
16.	*Calidris temminckii*	Temminck's stint	A	LC	
17.	*Casmerodius albus*	Great Egret	A	LC	
18.	*Centropus sinensis*	Greater Coucal	T	LC	
19.	*Ceryle rudis*	Pied Kingfisher	D	LC	
20.	*Charadrius alexandrinus*	Kentsh Plover	A	LC	
21.	*Charadrius dubius*	Little Ringed Plover	A	LC	
22.	*Charadrius mongolus*	Lesser Sand Plover	A	LC	
23.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
24.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
25.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
26.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC	
27.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
28.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
29.	*Columba livia*	Rock Pigeon	T	LC	

30.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
31.	*Coracias benghalensis*	Indian Roller	T	LC	
32.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	
33.	*Corvus splendens*	House Crow	T	LC	
34.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	
35.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	
36.	*Dicrurus adsimilis*	Black Drongo	T	LC	
37.	*Egretta garzetta*	Little Egret	A	LC	
38.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	
39.	*Eudynamys scolopacea*	Asian Koel	T	LC	
40.	*Falco tinnunculus*	Common Kestrel	T	LC	
41.	*Francolinus pondicerianus*	Grey Francolin	T	LC	
42.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
43.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	
44.	*Haliastur indus*	Brahminy Kite	T	LC	*
45.	*Merops orientalis*	Green Bee-eater	T	LC	
46.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	*
47.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
48.	*Milvus migrans*	Black Kite	T	LC	*
49.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
50.	*Passer domesticus*	House Sparrow	T	LC	
51.	*Phalacrocorax niger*	Little Cormorant	A	LC	
52.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
53.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
54.	*Streptopelia chinensis*	Spotted Dove	T	LC	
55.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
56.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	
57.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.28.5. IUCN Status of major medicinal plant species in Gandhi nagar

S. No.	Species	Family	Tamil Name	Habit
1.	*Pedalium murex*	Pedaliaceae		Herb
2.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.29. KADALOOR WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Kadaloor Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Uppur, Tiruvadanai, Kadaloor, Kottaiyur, Pudur, Thiruvadanai, Perungulam, and Alangulam

1.3 *Name of the District (s) in which the Wetlands complex located:* Rmanathapuram

1.4 *Geographical coordinates:*

► Latitude: 9˚37’19.74” N

► Longitude: 78˚56’48.6384” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 163.6 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2.5; Maximum - 4

2.4 *Elevation (m above mean sea level):* 2

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: Backwaters from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 23.4 ; Maximum 36.85

c) Humidity (%) Minimum 74.5 ; Maximum 79.8

2.7 *Area of zone of influence (in ha):* 5883.6 ha (with an irregular radius of 4.54 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	21%
Agriculture	:	29%
Settlements (Rural)	:	5%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	35%
Waste Land	:	2%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.29 (Fig. 3.29.1-3.29.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 70 species (refer to Table 3.29.1 in Annexure 3.29).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 158 recorded species. This includes 2 mammal species, 8 reptile species, 2 amphibian species, 96 bird species, and 46 species of butterflies (refer to Table 3.29.2-3.29.3 in Annexure 3.29).

3.3 *Species of conservation significance:* Highlighted in Table 3.29.1-3.29.3

3.4 *Major plant invasive alien species:* The Wetland supports 7 plant invasive species (refer to Table 3.29.4 in Annexure 3.29).

3.5 *Major animal invasive alien species:* Not available.

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.29.5 in Annexure 3.29
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving

Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing activity
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Boating is there for fishing
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium ❒Low	❒Present ❒Potential	
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High ❒Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.29.4 in Annexure 3.29
Any others	❒High	❒Present	

	❒ Medium ❒ Low	❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Arunprasath, A., Sreeram, S., & Sankara Vel, V. (2023). Karankadu mangroves – an ecological asset to the Indian east coast. *Current Science, 124*(9), 1023.
3. Byju, H., Raveendran, N., Ravichandran, S., & Kishore, R. (2023). An annotated checklist of the avifauna of Karangadu mangrove forest, Ramanathapuram, Tamil Nadu, with notes on the site's importance for waterbird conservation. *Journal of Threatened Taxa, 15*(3), 22813–22822.
4. Chitra, N., & Mahendran, S. (2003). A preliminary list of butterflies of Ramanathapuram District, Tamil Nadu. *Zoos' Print Journal, 18*(4), 1090.
5. Gamble, J.S., & Fischer, C.E.C. (1915–1935). *Flora of the Presidency of Madras*. Adlard

and Son, London.

6. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
7. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
8. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
9. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
10. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
11. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
12. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
13. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.
14. Ratnam, K. *Birds of Tamil Nadu*.

ANNEXURE 3.29

Fig 3.29.1. Zone of Influence of Kadaloor Wetland

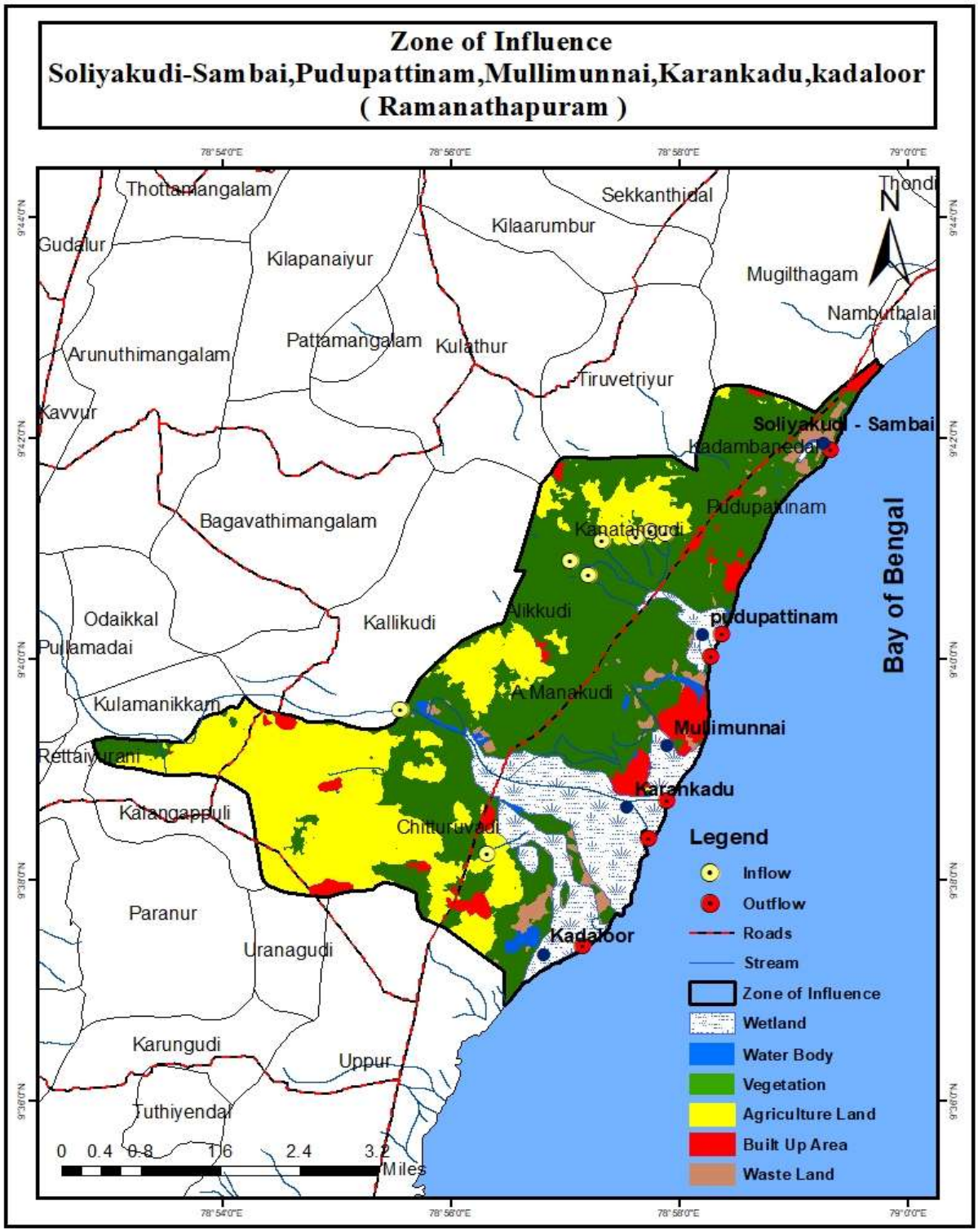


Fig 3.29.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Kadaloor Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

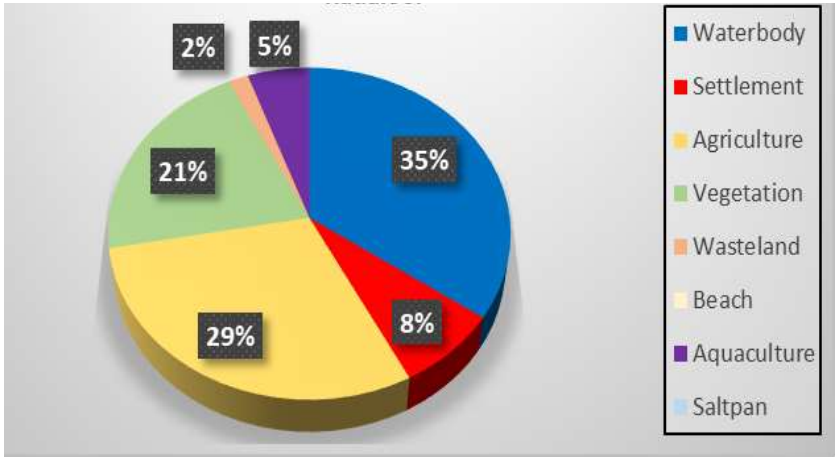


Table 3.29.1. IUCN Status of Floral Species in Kadaloor Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
2.	*Brachiaria ramosa*	Poaceae		Grass	NE
3.	*Boswellia serrata*	Burseraceae		Tree	LC
4.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
5.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC
6.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
7.	*Cordia domestica*	Cordiaceae		Tree	LC
8.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
9.	*Crateva magna*	Capparaceae		Tree	LC
10.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
11.	*Cyperus iria*	Cyperaceae		Sedge	NE
12.	*Dolichandrone atrovirens*	Bignoniaceae		Tree	LC
13.	*Diospyros montana*	Ebenaceae		Tree	LC
14.	*Diospyros malabarica*	Ebenaceae		Tree	LC
15.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
16.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
17.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
18.	*Erythrina suberosa*	Papilionaceae		Tree	LC
19.	*Ficus tinctoria*	Moraceae	Kallathi	Tree	LC
20.	*Isachne miliacea*	Poaceae	-	Grass	LC
21.	*Ischaemum indicum*	Poaceae	-	Grass	LC
22.	*Ludwigia adscendens*	Onagraceae		Herb	NE
23.	*Mallotus nudiflorus*	Euphorbiaceae		Tree	LC
24.	*Mitragyna parvifolia*	Rubiaceae		Tree	LC
25.	*Pandanus amaryllifolius*	Pandanaceae		Tree	LC
26.	*Pongamia pinnata*	Papilionaceae	Pungai	Tree	LC

27.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
28.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
29.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC
30.	*Terminalia arjuna*	Combretaceae		Tree	LC
31.	*Terminalia chebula*	Combretaceae		Tree	LC
32.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
33.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
34.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
35.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
36.	*Brachiaria ramosa*	Poaceae		Grass	NE
37.	*Boswellia serrata*	Burseraceae		Tree	LC
38.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
39.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC
40.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
41.	*Cordia domestica*	Cordiaceae		Tree	LC
42.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
43.	*Crateva magna*	Capparaceae		Tree	LC
44.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
45.	*Cyperus iria*	Cyperaceae		Sedge	NE
46.	*Dolichandrone atrovirens*	Bignoniaceae		Tree	LC
47.	*Diospyros montana*	Ebenaceae		Tree	LC
48.	*Diospyros malabarica*	Ebenaceae		Tree	LC
49.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
50.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
51.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
52.	*Erythrina suberosa*	Papilionaceae		Tree	LC
53.	*Ficus tinctoria*	Moraceae	Kallathi	Tree	LC

54.	*Isachne miliacea*	Poaceae	-	Grass	LC
55.	*Ischaemum indicum*	Poaceae	-	Grass	LC
56.	*Ludwigia adscendens*	Onagraceae		Herb	NE
57.	*Mallotus nudiflorus*	Euphorbiaceae		Tree	LC
58.	*Mitragyna parvifolia*	Rubiaceae		Tree	LC
59.	*Pandanus amaryllifolius*	Pandanaceae		Tree	LC
60.	*Pongamia pinnata*	Papilionaceae	Pungai	Tree	LC
61.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
62.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
63.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC
64.	*Terminalia arjuna*	Combretaceae		Tree	LC
65.	*Terminalia chebula*	Combretaceae		Tree	LC
66.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
67.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
68.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
69.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
70.	*Brachiaria ramosa*	Poaceae		Grass	NE

Table 3.29.2. IUCN Status of Selected Fauna Species in Kadaloor Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. Reptile				
1.	*Cnemaspis yercaudensis*	Gekkonidae		LC
2.	*Cnemaspis mysoriensis*	Gekkonidae		LC
3.	*Cyrtodactylus speciosus*	Gekkonidae	Forest spotted	LC

			gecko	
4.	*Hemidactylus graniticolus*	Gekkonidae		LC
5.	*Calotes versicolor*	Agamidae	Oriental garden lizard	LC
6.	*Eutropis allapallensis*	Scincidae		LC
7.	*Uropeltis dindigalensis*	Uropeltidae		LC
8.	*Trimeresurus gramineus*	Viperidae		LC
C. Amphibian				
1.	*Duttaphrynus melanostictus*	Bufonidae		LC
2.	*Indosylvirana sreeni*	Ranidae		LC
D. Butterfly				
1.	*Common rose*	Pachliopta aristolochiae	Papilionidae	LC
2.	*Crimson rose*	Pachliopta hector	Papilionidae	LC
3.	*Common Mormon*	Papilo polymnestor cramer	Papilionidae	LC
4.	*Great Eggfly*	Hypolimnas bolina	Papilionidae	LC
5.	*Common bluebottle*	Graphium sarpedon	Papilionidae	LC
6.	*Common emigrant*	catopsilia Pomona	Peridae	LC
7.	*Psyche*	Leptosia nina	Peridae	LC
8.	*Mottled emigrant*	Catopsilia pyranthe	Peridae	LC
9.	*Common grass yellow*	Eurema hecabe	Peridae	LC
10.	*Common Gull*	Cepora nerissa	Peridae	LC
11.	*Small Salmon Arab*	Colotis amata	Peridae	LC
12.	*Pioneer*	Belenois aurota	Peridae	LC
13.	*Small grass yellow*	Eurema brigitta	Lycaenidae	LC
14.	*Dark grass blue*	Zizeeria karsandra	Lycaenidae	LC
15.	*Tiny grass blue*	Zizula hylax	Lycaenidae	LC
16.	*Zebra blue*	Leptotus plinius	Lycaenidae	LC
17.	*Forget –me –not*	Catochrysops Strabo	Lycaenidae	LC
18.	*Small grass jewel*	Chilades putli	Lycaenidae	LC
19.	*Plain hedge blue*	Celastrina lavendularis	Lycaenidae	LC
20.	*Tailless line blue*	Prosotas dubiosa	Lycaenidae	LC
21.	*Gram blue*	Euchrysops cnejus	Lycaenidae	LC

22.	*Pale grass blue*	Pseudozizeeria maha	Lycaenidae	LC
23.	*Lime blue*	Chilades lajus	Lycaenidae	LC
24.	*Common line blue*	Prosotas nora	Lycaenidae	LC
25.	*Plumbeous silverline*	Spindasis schistacea	Lycaenidae	LC
26.	*Plains cupid*	Chilades pandava	Lycaenidae	LC
27.	*Bright babul blue*	Azanus ubaldus	Lycaenidae	LC
28.	*Lesser grass blue*	Zizina Otis indica	Lycaenidae	LC
29.	*Common pierrot*	Castalius rosimon	Lycaenidae	LC
30.	*Plain tiger*	Danus chrysippus	Nymphalidae	LC
31.	*Blue tiger*	Tirumala limniace	Nymphalidae	LC
32.	*Dark blue tiger*	Tirumala septentrionis	Nymphalidae	LC
33.	*Striped tiger*	Danus genutia	Nymphalidae	LC
34.	*Blue admiral*	kaniska canace	Nymphalidae	LC
35.	*Common Indian crow*	Euploea core	Nymphalidae	LC
36.	*Common crow*	Euploea core	Nymphalidae	LC
37.	*White fourring*	Ypthima ceylonica	Nymphalidae	LC
38.	*Common fourring*	Ypthima huebneri	Nymphalidae	LC
39.	*Tawny coster*	Acraea violae	Nymphalidae	LC
40.	*Common fivering*	Ypthimia	Nymphalidae	LC
41.	*Chocolate pansy*	Junonia iphita	Nymphalidae	LC
42.	*Lemon pansy*	Junonia lemonias	Nymphalidae	LC
43.	*Danaid eggfly*	Hypolimnas misippus	Nymphalidae	LC
44.	*Angled castor*	Ariadne ariadne	Nymphalidae	LC
45.	*Hermit*	Chazara briseis	Nymphalidae	LC
46.	*Nigger*	Orsotrioena medus	Nymphalidae	LC

LC – Least Concern; * - Yes

Table 3.29.3. IUCN Status of Bird Species in Kadaloor Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Acridotheres tristis*	Common Myna	T	LC
2.	*Alcedo atthis*	Common Kingfisher	T	LC

3.	*Amaurornis phoenicurus*	White-breasted Waterhen	D	LC
4.	*Anthus rufulus*	Paddy-field Pipit	D	LC
5.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
6.	*Coracias benghalensis*	Indian Roller	T	LC
7.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC
8.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
9.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
10.	*Dicrurus adsimilis*	Black Drongo	T	LC
11.	*Dinopium benghalense*	Black-rumped Flameback	T	LC
12.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
13.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC
14.	*Eudynamys scolopacea*	Asian Koel	T	LC
15.	*Falco tinnunculus*	Common Kestrel	T	LC
16.	*Francolinus pondicerianus*	Grey Francolin	T	LC
17.	*Gallinula chloropus*	Common Moorhen	A	LC
18.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
19.	*Glareola maldivarum*	Oriental Pratincole	A	LC
20.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
21.	*Haliastur indus*	Brahminy Kite	T	LC
22.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
23.	*Hirundo rustica*	Barn Swallow	T	LC
24.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
25.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
26.	*Lonchura malacca*	Black-headed Munia	D	LC
27.	*Merops orientalis*	Green Bee-eater	T	LC
28.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
29.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
30.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC
31.	*Milvus migrans*	Black Kite	T	LC
32.	*Motacilla flava*	Yellow Wagtail	D	LC
33.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC

34.	*Nectarinia lotenia*	Loten's Sunbird	T	LC
35.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
36.	*Orthotomus sutorius*	Common Tailorbird	T	LC
37.	*Passer domesticus*	House Sparrow	T	LC
38.	*Phalacrocorax niger*	Little Cormorant	A	LC
39.	*Plegadis falcinellus*	Glossy Ibis	A	LC
40.	*Ploceus manyar*	Streaked Weaver	T	LC
41.	*Pluvialis squatarola*	Grey Plover	A	LC
42.	*Prinia inornate*	Plain Prinia	T	LC
43.	*Psittacula krameria*	Rose-ringed Parakeet	T	LC
44.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
45.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
46.	*Saxicola caprata*	Pied Bush Chat	T	LC
47.	*Streptopelia chinensis*	Spotted Dove	T	LC
48.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
49.	*Tringa glareola*	Wood Sandpiper	A	LC
50.	*Vanellus indicus*	Red-wattled Lapwing	D	LC
51.	*Acridotheres tristis*	Common Myna	T	LC
52.	*Alcedo atthis*	Common Kingfisher	T	LC
53.	*Amaurornis phoenicurus*	White-breasted Waterhen	D	LC
54.	*Anthus rufulus*	Paddy-field Pipit	D	LC
55.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
56.	*Coracias benghalensis*	Indian Roller	T	LC
57.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC
58.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
59.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
60.	*Dicrurus adsimilis*	Black Drongo	T	LC
61.	*Dinopium benghalense*	Black-rumped Flameback	T	LC
62.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
63.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC
64.	*Eudynamys scolopacea*	Asian Koel	T	LC

65.	*Falco tinnunculus*	Common Kestrel	T	LC
66.	*Francolinus pondicerianus*	Grey Francolin	T	LC
67.	*Gallinula chloropus*	Common Moorhen	A	LC
68.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
69.	*Glareola maldivarum*	Oriental Pratincole	A	LC
70.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
71.	*Haliastur indus*	Brahminy Kite	T	LC
72.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
73.	*Hirundo rustica*	Barn Swallow	T	LC
74.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
75.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
76.	*Lonchura malacca*	Black-headed Munia	D	LC
77.	*Merops orientalis*	Green Bee-eater	T	LC
78.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
79.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
80.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC
81.	*Milvus migrans*	Black Kite	T	LC
82.	*Motacilla flava*	Yellow Wagtail	D	LC
83.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC
84.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC
85.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
86.	*Orthotomus sutorius*	Common Tailorbird	T	LC
87.	*Passer domesticus*	House Sparrow	T	LC
88.	*Phalacrocorax niger*	Little Cormorant	A	LC
89.	*Plegadis falcinellus*	Glossy Ibis	A	LC
90.	*Ploceus manyar*	Streaked Weaver	T	LC
91.	*Pluvialis squatarola*	Grey Plover	A	LC
92.	*Prinia inornate*	Plain Prinia	T	LC
93.	*Psittacula krameria*	Rose-ringed Parakeet	T	LC
94.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
95.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC

96.	*Saxicola caprata*	Pied Bush Chat	T	LC
97.	*Streptopelia chinensis*	Spotted Dove	T	LC
98.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
99.	*Tringa glareola*	Wood Sandpiper	A	LC
100.	*Vanellus indicus*	Red-wattled Lapwing	D	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.29.4. IUCN Status of major plant invasive alien species in Kadaloor Wetland

S. No.	Species	Family	Tamil Name
1.	*Lantana camara*	Verbenaceae	Unnichedi
2.	*Martynia annua*	Martyniaceae	Thael Kodukku
3.	*Prosopis julifera*	Fabaceae	Semai karuvel
4.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
5.	*Senna tora*	Caesalpiniaceae	Oosithagarai
6.	*Typha angustifolia*	Typhaceae	Sambu
7.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.29.5. IUCN Status of major medicinal plant species in Kadaloor Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Pedalium murex*	Pedaliaceae		Herb
11.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
12.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber

14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
15.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.30. KANNAMUNNAI WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Kannamunnai Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Pattanendal, Vennathur panchayat, Kannamunnai, Alangulam, Sembadikottai, Kottaiyur

1.3 *Name of the District (s) in which the Wetlands complex located:* Rmanathapuram

1.4 *Geographical coordinates:*

- Latitude: 9˚29’39.9984” N
- Longitude: 78˚54’30.3444” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 72.1 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 3; Maximum - 4.5

2.4 *Elevation (m above mean sea level):* 4

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 23.4 ; Maximum 36.85

c) Humidity (%) Minimum 74.5 ; Maximum 79.8

2.7 *Area of zone of influence (in ha):* 1979.05 ha (with an irregular radius of 1.30 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	31%
Agriculture	:	10%
Settlements (Rural)	:	7%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	39%
Waste Land	:	4%
Aquaculture	:	6%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.30 (Fig. 3.30.1-3.30.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 41 species (refer to Table 3.30.1 in Annexure 3.30).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 138 recorded species. This includes 4 mammal species, 21 reptile species, 9 amphibian species, 90 bird species, and 16 species of butterflies (refer to Table 3.30.2-3.30.3 in Annexure 3.30).

3.3 *Species of conservation significance:* Highlighted in Table 3.30.1-3.30.3

3.4 *Major plant invasive alien species:* The Wetland supports 8 plant invasive species (refer to Table 3.30.4 in Annexure 3.30).

3.5 *Major animal invasive alien species:* Not available.

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 30.6 in Annexure 30
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is few temples and ritual activities happening around the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	

Any other	✓ Yes ❒ No	Aquaculture plants were observed while ground-truthing
Saltpan	✓ Yes ❒ No	Saltpans were observed while ground-truthing
Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for the site**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is few temples and ritual activities happening around the Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Boating is there for fishing
Aquaculture and Saltpan	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Aquaculture and Saltpans were observed while ground-truthing

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium ❒Low	❒Present ❒Potential	
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High	✓ Present	Listed in Table 3.30.4 in Annexure

	❒Medium ✓ Low	❒ Potential	3.30
Disruption due to Ghost nuts	❒High ❒Medium ✓ Low	✓ Present ❒ Potential	Ghost nuts are observed more in number

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Tourism development		✓ Wetland/ Wetlands complex boundary ❒ Zone of influence	May permitted

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Arunprasath, A., Sreeram, S., & Sankara Vel, V. (2023). Karankadu mangroves – an ecological asset to the Indian east coast. *Current Science, 124*(9), 1023.
3. Byju, H., Raveendran, N., Ravichandran, S., & Kishore, R. (2023). An annotated checklist of the avifauna of Karangadu mangrove forest, Ramanathapuram, Tamil Nadu, with notes on the site's importance for waterbird conservation. *Journal of Threatened Taxa, 15*(3), 22813–22822.
4. Chitra, N., & Mahendran, S. (2003). A preliminary list of butterflies of Ramanathapuram District, Tamil Nadu. *Zoos' Print Journal, 18*(4), 1090.

5. Gamble, J.S., & Fischer, C.E.C. (1915–1935). *Flora of the Presidency of Madras*. Adlard and Son, London.
6. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
7. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
8. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
9. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
10. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
11. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
12. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
13. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.
14. Ratnam, K. *Birds of Tamil Nadu*.

ANNEXURE 3.30

Fig 3.30.1. Zone of Influence of Kannamunnai Wetland

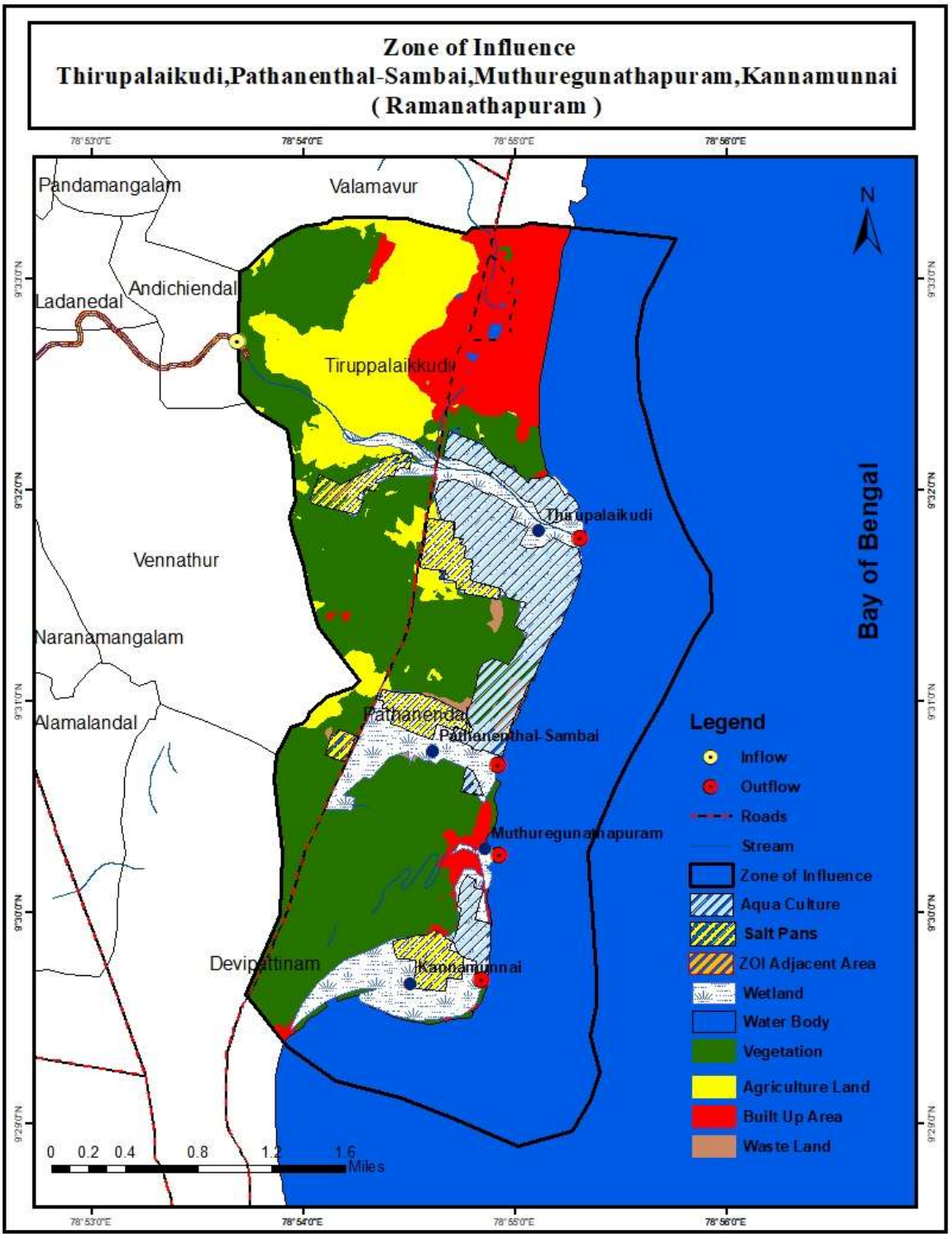


Fig 3.30.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Kannamunnai Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

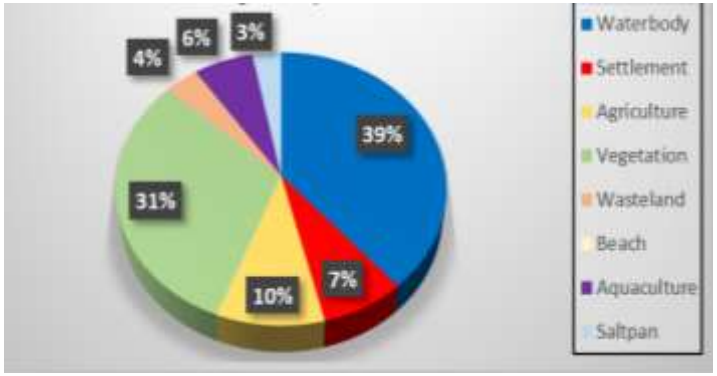


Table 3.30.1. IUCN Status of Floral Species in Kannamunnai Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
3.	*Acanthospermum hispidum*	Compositae		Herb	NE
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
6.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
7.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
8.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
9.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
10.	*Brachiaria mutica*	Poaceae		Grass	NE
11.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
12.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
13.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
14.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
15.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
16.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
17.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
18.	*Ischaemum indicum*	Poaceae	-	Grass	LC
19.	*Launaea bellidifolia*	Asteraceae		Herb	LC
20.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
21.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
22.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
23.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
24.	*Pedalium murex*	Pedaliaceae		Herb	NE
25.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
26.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC

27.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
28.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
29.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
30.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
31.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
32.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
33.	*Rhizophora mucronata*	Rhizophoraceae		Tree	LC
34.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
35.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
36.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
37.	*Trachys muricata*	Poaceae	-	Grass	LC
38.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
39.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
40.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
41.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.30.2. IUCN Status of Selected Fauna Species in Kannamunnai Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC
3.	Rattus rattus	Muridae	House rat	LC
4.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC

4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
17.	*Naja naja*	Elapidae	Cobra	LC
18.	*Bungarus caeruleus*	Elapidae	Krait	LC
19.	*Vipera russelli*	Viperidae	Russell's viper	LC
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU
C. Amphibian				
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Common crow	LC

2.	*Catopsilia Pomona*	Pieridae	Common Emigrant	NE
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
5.	*Papilio demoleus*	Papilionidae	Common lime	NE
6.	*Papilio polytes*	Papilionidae	Common mormon	NE
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE
10.	*Junonia almanac*	Nymphalidae	Peacock pansy	LC
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC
13.	*Pachliopta aristolochiae*	Papilionidae	Common Rose	NE
14.	*Junonia hierta*	Nymphalidae	Yellow Pansy	LC
15.	*Papilio demoleus*	Papilionidae	Lime butterfly	LC
16.	*Melanitis leda*	Nymphalidae	Common evening brown	LC

LC – Least Concern; * - Yes

Table 3.30.3. IUCN Status of Bird Species in Kannamunnai Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Accipiter badius*	Shikra	T	LC
2.	*Acridotheres tristis*	Common Myna	T	LC
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC
5.	*Alauda gulgula*	Oriental Skylark	T	LC
6.	*Alcedo atthis*	Common Kingfisher	T	LC
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC
8.	*Anastomus oscitans*	Asian Openbill	A	LC
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC
10.	*Apus affinis*	House Swift	T	LC
11.	*Ardea cinerea*	Grey Heron	A	LC

12.	*Ardea purpurea*	Purple Heron	A	LC
13.	*Ardeola grayii*	Indian Pond Heron	A	LC
14.	*Artamus fuscus*	Ashy Woodswallow	T	LC
15.	*Athene brama*	Spotted Owlet	T	LC
16.	*Athene brama*	Spoted Owlet	T	LC
17.	*Bubulcus ibis*	Cattle Egret	D	LC
18.	*Calidris pugnax*	Ruf	A	LC
19.	*Calidris minuta*	Little Stint	A	LC
20.	*Calidris temminckii*	Temminck's stint	A	LC
21.	*Casmerodius albus*	Great Egret	A	LC
22.	*Centropus sinensis*	Greater Coucal	T	LC
23.	*Ceryle rudis*	Pied Kingfisher	D	LC
24.	*Charadrius alexandrinus*	Kentsh Plover	A	LC
25.	*Charadrius dubius*	Little Ringed Plover	A	LC
26.	*Charadrius mongolus*	Lesser Sand Plover	A	LC
27.	*Chlidonias hybridus*	Whiskered Tern	A	LC
28.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC
29.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC
30.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC
31.	*Cisticola juncidis*	Zitting Cisticola	T	LC
32.	*Clamator jacobinus*	Pied Cuckoo	T	LC
33.	*Columba livia*	Rock Pigeon	T	LC
34.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
35.	*Coracias benghalensis*	Indian Roller	T	LC
36.	*Corvus macrorhynchus*	Large-billed Crow	T	LC
37.	*Corvus splendens*	House Crow	T	LC
38.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
39.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
40.	*Dicrurus adsimilis*	Black Drongo	T	LC
41.	*Egretta garzetta*	Little Egret	A	LC
42.	*Elanus caeruleus*	Black-shouldered Kite	T	LC

43.	*Eudynamys scolopacea*	Asian Koel	T	LC
44.	*Falco tinnunculus*	Common Kestrel	T	LC
45.	*Francolinus pondicerianus*	Grey Francolin	T	LC
46.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
47.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
48.	*Haliastur indus*	Brahminy Kite	T	LC
49.	*Hydroprogne caspia*	Caspian Tern	A	LC
50.	*Lanius cristatus*	Brown Shrike	T	LC
51.	*Lanius vitatus*	Bay-backed Shrike	T	LC
52.	*Limosa limosa*	Black-tailed Godwit	A	LC
53.	*Merops orientalis*	Green Bee-eater	T	LC
54.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
55.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
56.	*Milvus migrans*	Black Kite	T	LC
57.	*Numenius phaeopus*	Eurasian whimbrel	A	LC
58.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC
59.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
60.	*Orthotomus sutorius*	Common Tailorbird	T	LC
61.	*Passer domesticus*	House Sparrow	T	LC
62.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC
63.	*Phalacrocorax niger*	Little Cormorant	A	LC
64.	*Phoenicopterus ruber*	Greater Flamingo	A	LC
65.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC
66.	*Plegadis falcinellus*	Glossy Ibis	A	LC
67.	*Pluvialis squatarola*	Grey Plover	A	LC
68.	*Prinia inornate*	Plain Prinia	T	LC
69.	*Prinia socialis*	Ashy Prinia	T	LC
70.	*Pseudibis papillosa*	Red-naped Ibis	T	LC
71.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC
72.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
73.	*Saxicoloides fulicata*	Indian Robin	T	LC

74.	*Sterna albifrons*	Little Tern	A	LC
75.	*Streptopelia chinensis*	Spotted Dove	T	LC
76.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC
77.	*Spilopelia senegalensis*	Laughing Dove	T	LC
78.	*Sturnus pagodarum*	Brahminy Starling	T	LC
79.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC
80.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC
81.	*Thalasseus bergii*	Greater Crested Tern	A	LC
82.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
83.	*Tringa glareola*	Wood Sandpiper	A	LC
84.	*Tringa nebularia*	Common Greenshank	A	LC
85.	*Tringa tetanus*	Common Redshank	A	LC
86.	*Turdoides affinis*	Yellow-billed Babbler	T	LC
87.	*Upupa epops*	Hoopoe	T	LC
88.	*Vanellus indicus*	Red-wattled Lapwing	D	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.30.4. IUCN Status of major plant invasive alien species in Kannamunnai Wetland

S. No.	Species	Family	Tamil Name
1.	*Argemone mexicana*	Papaveraceae	Nai Kadugu
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Prosopis julifera*	Fabaceae	Semai karuvel
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Senna tora*	Caesalpiniaceae	Oosithagarai
7.	*Typha angustifolia*	Typhaceae	Sambu
8.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.30.5. IUCN Status of major medicinal plant species in Kannamunnai Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb

3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Pedalium murex*	Pedaliaceae		Herb
11.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
12.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
15.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.31. MOORPANNAI WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Moorpannai Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Uppur, Tiruvadanai, Kavanoor

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanathapuram

1.4 *Geographical coordinates:*

- Latitude: 9˚36’13.0068” N
- Longitude: 78˚55’56.5608” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 252.81 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological systems

✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3. Depth (m): Average - 2.5; Maximum - 4

2.4. Elevation (m above mean sea level): 1

2.5. Water regimes

a) Main source of water

✓ Rainfall inflow from river

❒ Groundwater

✓ Catchment runoff

❒ Direct/ indirect inflow from river

✓ Others, please specify: Backwaters from Bay of Bengal

❒ Name of River/ Canal System

b) Water performance

✓ Mostly permanent

❒ Mostly intermittent

c) Destination of water from Wetland

✓ Feeds groundwater river to sea

❒ To downstream catchment

d) Water pH

❒ Acid (< 5.5)

❒ Circumneutral (5.5-7.4)

✓ Alkaline (> 7.4)

e) Water salinity

❒ Fresh (< 0.5 g/l)

❒ Brackish (0.5-30 g/l)

❒ Euhaline (30-40 g/l)

✓ Hypersaline (> 40 g/l)

❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6. Climatic setting

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 23.4; Maximum 36.85

c) Humidity (%) Minimum 74.5; Maximum 79.8

2.7. Area of zone of influence (in ha): 2083.66 ha (with an irregular radius of 1.31 km)

2.8. Major land use within zone of influence

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	33%
Agriculture	:	30%
Settlements (Rural)	:	7%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	24%
Waste Land	:	4%
Aquaculture	:	2%

2.9. Map of Wetland complex and zone of influence: Enclosed as Annexure 3.31 (Fig. 3.31.1-3.31.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of species, totaling 51. (refer to Table 3.31.1 in Annexure 3.31).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 148 recorded species. This includes 6 mammal species, 21 reptile species, 9 amphibian species, 96 bird species, and 16 species of butterflies (refer to Table 3.31.2-3.31.3 in Annexure 3.31).

3.3 *Species of conservation significance:* Highlighted in Table 3.31.1-3.31.3

3.4 *Major plant invasive alien species:* The Wetland supports 7 plant invasive species (refer to Table 3.31.4 in Annexure 3.31)

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.31.5 in Annexure 3.31).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.31.6 in Annexure 3.31
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	
Any other	✓ Yes ❒ No	Aquaculture plants were observed while ground-truthing
Saltpans	✓ Yes ❒ No	Saltpans were observed while ground-truthing
Mangroves	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for the site**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Communal fishing is happening
Fishing under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Agriculture or horticulture within Wetland	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Grazing	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Grazing is observed while field visit

Religious practices	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Boating is there for fishing
Aquaculture and Saltpan	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Aquaculture and Saltpans were observed while ground-truthing

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium	❒ Present ❒ Potential	

	❒ Low		
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.31.4 in Annexure 3.31
Disruption due to Ghost nuts	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Ghost nuts are observed more in number

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Gamble, J. S., & Fischer, C. E. C. (1915–1935). *Flora of the Presidency of Madras*. Adlard and Son.
2. Mathew, K. M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
3. Mathew, K. M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press.
4. Mathew, K. M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press.

5. Mathew, K. M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press.
6. Nair, N. C., & Henry, A. N. (1983). *Flora of Tamil Nadu, India* (Series 1, Vol. 1). Botanical Survey of India, Southern Circle.
7. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India* (Series 1: Analysis, Vol. III). Botanical Survey of India.
8. Ali, S. (2002). *The book of Indian birds* (13th revised ed.). Oxford University Press.
9. Ratnam, K. *Birds of Tamil Nadu*.
10. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
11. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
12. Chitra, N., & Mahendran, S. (2003). A preliminary list of butterflies of Ramanathapuram District, Tamil Nadu. *Zoos Print Journal, 18*(4), 1090.
13. Arunprasath, A., Sreeram, S., & Vel, S. (2023). Karankadu mangroves – An ecological asset to the Indian east coast. *Current Science, 124*(9), 1023.
14. Byju, H., Raveendran, N., Ravichandran, S., & Kishore, R. (2023). An annotated checklist of the avifauna of Karangadu mangrove forest, Ramanathapuram, Tamil Nadu, with notes on the site's importance for waterbird conservation. *Journal of Threatened Taxa, 15*(3), 22813–22822.

ANNEXURE 3.31

Fig 3.31.1. Zone of Influence of Moorpannai Wetland

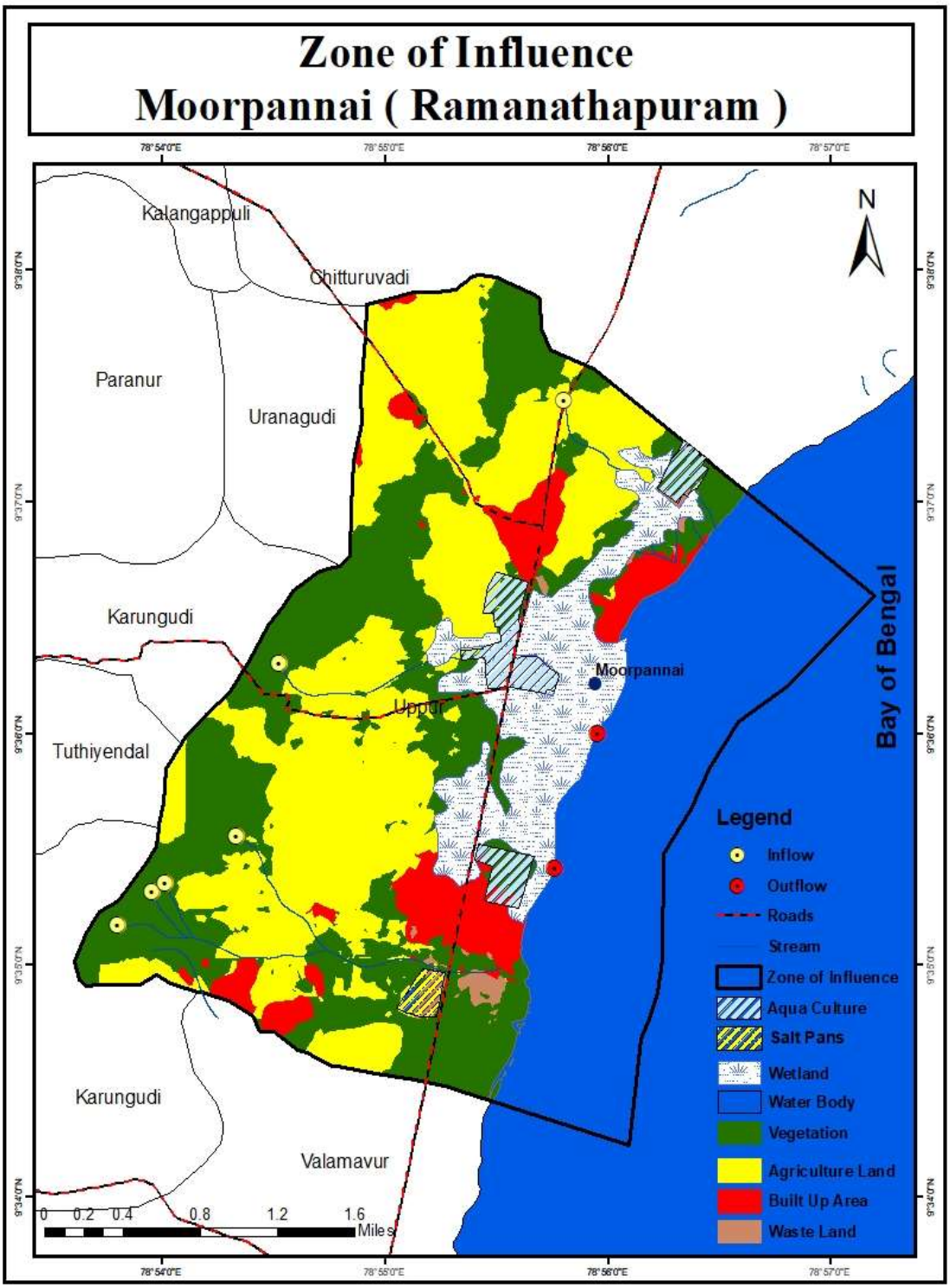


Fig 3.31.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Moorpannai Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

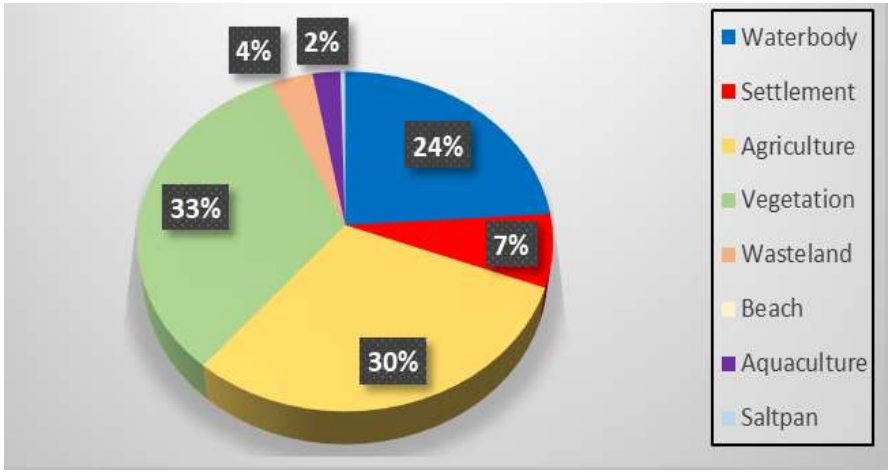


Table 3.31.1. IUCN Status of Floral Species in Moorpannai Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthus illicifolius*	Acanthaceae	Kozhimulli	Shrub	LC
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
8.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
9.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
10.	*Avicennia officinalis*	Acanthaceae	Upattha	Tree	LC
11.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Brachiaria mutica*	Poaceae		Grass	NE
14.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
15.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
16.	*Ceriops decandra*	Rhizophoraceae	Chiru kandal	Tree	LC
17.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
18.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
19.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
20.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
21.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
22.	*Digitaria ciliaris*	Poaceae		Grass	NE
23.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
24.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
25.	*Ischaemum indicum*	Poaceae	-	Grass	LC
26.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE

27.	*Justicia prostrata*	Acanthaceae		Herb	NE
28.	*Launaea bellidifolia*	Asteraceae		Herb	LC
29.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
30.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
31.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
32.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
33.	*Pedalium murex*	Pedaliaceae		Herb	NE
34.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
35.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
36.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
37.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
38.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
39.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
40.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
41.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
42.	*Rhizophora mucronata*	Rhizophoraceae		Tree	LC
43.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
44.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
45.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
46.	*Trachys muricata*	Poaceae	-	Grass	LC
47.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
48.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
49.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
50.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
51.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.31.2. IUCN Status of Selected Fauna Species in Moorpannai Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC
3.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
4.	Rattus rattus	Muridae	House rat	LC
5.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
6.	*Canis aureus*	Canidae	Jackal	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC

15.	*Ptyas mucosus*	Colubridae	Rat snake	NE
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
17.	*Naja naja*	Elapidae	Cobra	LC
18.	*Bungarus caeruleus*	Elapidae	Krait	LC
19.	*Vipera russelli*	Viperidae	Russell's viper	LC
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU
C. Amphibian				
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Pachliopta aristolochiae	Common crow	LC
2.	*Catopsilia Pomona*	Pachliopta hector	Common Emigrant	LC
3.	*Melanitis leda*	Papilo polymnestor cramer	Common evening brown	LC
4.	*Eurema hecabe*	Hypolimnas bolina	Common grass yellow	LC
5.	*Papilio demoleus*	Graphium sarpedon	Common lime	LC
6.	*Papilio polytes*	catopsilia Pomona	Common mormon	LC
7.	*Junonia lemonias*	Leptosia nina	Lemon pansy	LC

8.	*Catopsilia pyranthe*	Catopsilia pyranthe	Mottled Emigrant	LC
9.	*Pseudozizeeria maha*	Eurema hecabe	Pale Grass Blue	LC
10.	*Junonia almanac*	Cepora nerissa	Peacock pansy	LC
11.	*Danaus chrysippus*	Colotis amata	Plain tiger	LC
12.	*Acraea violae*	Belenois aurota	Tawny coster	LC
13.	*Pachliopta aristolochiae*	Eurema brigitta	Common Rose	LC
14.	*Junonia hierta*	Zizeeria karsandra	Yellow Pansy	LC
15.	*Papilio demoleus*	Zizula hylax	Lime butterfly	LC
16.	*Melanitis leda*	Leptotus plinius	Common evening brown	LC

LC – Least Concern; * - Yes

Table 3.31.3. IUCN Status of Bird Species in Moorpannai Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Acridotheres tristis*	Common Myna	T	LC
2.	*Alcedo atthis*	Common Kingfisher	T	LC
3.	*Amaurornis phoenicurus*	White-breasted Waterhen	D	LC
4.	*Anthus rufulus*	Paddy-field Pipit	D	LC
5.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
6.	*Coracias benghalensis*	Indian Roller	T	LC
7.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC
8.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
9.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
10.	*Dicrurus adsimilis*	Black Drongo	T	LC
11.	*Dinopium benghalense*	Black-rumped Flameback	T	LC
12.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
13.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC
14.	*Eudynamys scolopacea*	Asian Koel	T	LC
15.	*Falco tinnunculus*	Common Kestrel	T	LC
16.	*Francolinus pondicerianus*	Grey Francolin	T	LC
17.	*Gallinula chloropus*	Common Moorhen	A	LC

18.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
19.	*Glareola maldivarum*	Oriental Pratincole	A	LC
20.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
21.	*Haliastur indus*	Brahminy Kite	T	LC
22.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
23.	*Hirundo rustica*	Barn Swallow	T	LC
24.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
25.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
26.	*Lonchura malacca*	Black-headed Munia	D	LC
27.	*Merops orientalis*	Green Bee-eater	T	LC
28.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
29.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
30.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC
31.	*Milvus migrans*	Black Kite	T	LC
32.	*Motacilla flava*	Yellow Wagtail	D	LC
33.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC
34.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC
35.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
36.	*Orthotomus sutorius*	Common Tailorbird	T	LC
37.	*Passer domesticus*	House Sparrow	T	LC
38.	*Phalacrocorax niger*	Little Cormorant	A	LC
39.	*Plegadis falcinellus*	Glossy Ibis	A	LC
40.	*Ploceus manyar*	Streaked Weaver	T	LC
41.	*Pluvialis squatarola*	Grey Plover	A	LC
42.	*Prinia inornate*	Plain Prinia	T	LC
43.	*Psittacula krameria*	Rose-ringed Parakeet	T	LC
44.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
45.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
46.	*Saxicola caprata*	Pied Bush Chat	T	LC
47.	*Streptopelia chinensis*	Spotted Dove	T	LC
48.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT

49.	*Tringa glareola*	Wood Sandpiper	A	LC
50.	*Vanellus indicus*	Red-wattled Lapwing	D	LC
51.	*Acridotheres tristis*	Common Myna	T	LC
52.	*Alcedo atthis*	Common Kingfisher	T	LC
53.	*Amaurornis phoenicurus*	White-breasted Waterhen	D	LC
54.	*Anthus rufulus*	Paddy-field Pipit	D	LC
55.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
56.	*Coracias benghalensis*	Indian Roller	T	LC
57.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC
58.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
59.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
60.	*Dicrurus adsimilis*	Black Drongo	T	LC
61.	*Dinopium benghalense*	Black-rumped Flameback	T	LC
62.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
63.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC
64.	*Eudynamys scolopacea*	Asian Koel	T	LC
65.	*Falco tinnunculus*	Common Kestrel	T	LC
66.	*Francolinus pondicerianus*	Grey Francolin	T	LC
67.	*Gallinula chloropus*	Common Moorhen	A	LC
68.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
69.	*Glareola maldivarum*	Oriental Pratincole	A	LC
70.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
71.	*Haliastur indus*	Brahminy Kite	T	LC
72.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC
73.	*Hirundo rustica*	Barn Swallow	T	LC
74.	*Hirundo smithii*	Wire-tailed Swallow	T	LC
75.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC
76.	*Lonchura malacca*	Black-headed Munia	D	LC
77.	*Merops orientalis*	Green Bee-eater	T	LC
78.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
79.	*Mesophoyx intermedia*	Intermediate Egret	A	LC

80.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC
81.	*Milvus migrans*	Black Kite	T	LC
82.	*Motacilla flava*	Yellow Wagtail	D	LC
83.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC
84.	*Nectarinia lotenia*	Loten's Sunbird	T	LC
85.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
86.	*Orthotomus sutorius*	Common Tailorbird	T	LC
87.	*Passer domesticus*	House Sparrow	T	LC
88.	*Phalacrocorax niger*	Little Cormorant	A	LC
89.	*Plegadis falcinellus*	Glossy Ibis	A	LC
90.	*Ploceus manyar*	Streaked Weaver	T	LC
91.	*Pluvialis squatarola*	Grey Plover	A	LC
92.	*Prinia inornate*	Plain Prinia	T	LC
93.	*Psittacula krameria*	Rose-ringed Parakeet	T	LC
94.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
95.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
96.	*Saxicola caprata*	Pied Bush Chat	T	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.31.4. IUCN Status of major plant invasive alien species in Moorpannai Wetland

S. No.	Species	Family	Tamil Name
1.	*Lantana camara*	Verbenaceae	Unnichedi
2.	*Martynia annua*	Martyniaceae	Thael Kodukku
3.	*Prosopis julifera*	Fabaceae	Semai karuvel
4.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
5.	*Senna tora*	Caesalpiniaceae	Oosithagarai
6.	*Typha angustifolia*	Typhaceae	Sambu
7.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.31.5. IUCN Status of major animal invasive alien species in Moorpannai Wetland

S. No.	Species	Family	Common name	IUCN
1.	*Rattus rattus*	Muridae	House Rat	LC
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.31.6. IUCN Status of major medicinal plant species in Moorpannai Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Pedalium murex*	Pedaliaceae		Herb
11.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
12.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
15.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges

indicated to be best of available knowledge

- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.32. MULLIMUNNAI WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai - 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Mullimunnai Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Pudhupattinam, Tiruvadanai, Karankadu

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanathapuram

1.4 *Geographical coordinates:*

► Latitude: 9˚39’12.9672” N

► Longitude: 78˚57’53.5104” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 54.65 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 3.5

2.4 *Elevation (m above mean sea level):* 1

2.5 *Water regimes*

a) Main source of water

✓ Rainfall inflow from river

❒ Groundwater

✓ Catchment runoff

❒ Direct/ indirect inflow from river

✓ Others, please specify: Backwaters from Bay of Bengal

❒ Name of River/ Canal System

b) Water performance

✓ Mostly permanent

❒ Mostly intermittent

c) Destination of water from Wetland

✓ Feeds groundwater river to sea

❒ To downstream catchment

d) Water pH

❒ Acid (< 5.5)

❒ Circumneutral (5.5-7.4)

✓ Alkaline (> 7.4)

e) Water salinity

❒ Fresh (< 0.5 g/l)

❒ Brackish (0.5-30 g/l)

❒ Euhaline (30-40 g/l)

✓ Hypersaline (> 40 g/l)

❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 23.4; Maximum 36.85

c) Humidity (%) Minimum 74.5; Maximum 79.8

2.7 *Area of zone of influence (in ha):* 5883.6 ha (with an irregular radius of 4.54 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	21%
Agriculture	:	29%
Settlements (Rural)	:	5%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	35%
Waste Land	:	2%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.32 (Fig. 3.32.1-3.32.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 20 species. (refer to Table 3.32.1 in Annexure 3.32).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 116 recorded species. This includes 5 mammal species, 15 reptile species, 9 amphibian species, 81 bird species, and 16 species of butterflies (refer to Table 3.32.2-3.32.3 in Annexure 3.32).

3.3 *Species of conservation significance:* Highlighted in Table 3.32.1-3.32.3

3.4 *Major plant invasive alien species:* The Wetland supports 1 plant invasive species (refer to Table 3.32.4 in Annexure 3.32).

3.5 *Major animal invasive alien species:* The Wetland supports 1 animal invasive species (refer to Table 3.32.5 in Annexure 3.32).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.32.6 in Annexure 3.32
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	There is a temple around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	✓ Yes ❒ No	Mining activity is there as per secondary data collection
Aquaculture	✓ Yes ❒ No	Aquaculture plants were observed while ground-truthing
Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Communal fishing activity
Fishing under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Agriculture or horticulture within Wetland	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Grazing	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Grazing activity is done by cattle

Religious practices	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	There is a temple around the embankment of the Wetland
Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Boating is there for fishing
Aquaculture	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Aquaculture ponds were observed while ground-truthing

Section 6: Present and Potential Threats

Threat	Degree	Present/ Potential	Additional info.
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Mining activity is there as per secondary data collection
Siltation	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.32.4 in Annexure 3.32
Aquaculture	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Effluent discharge from Aquaculture Pond is a threat to ecosystem

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Up to the Wetland boundary is fine		

Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Effluent discharge from Aquaculture pond	Prohibited	✓ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). The book of Indian birds (13th rev. ed.). Oxford University Press.
2. Arunprasath, A., Sreeram, S., & Sankara Vel, V. (2023). Karankadu mangroves – an ecological asset to the Indian east coast. Current Science, 124(9), 1023.
3. Byju, H., Raveendran, N., Ravichandran, S., & Kishore, R. (2023). An annotated

checklist of the avifauna of Karangadu mangrove forest, Ramanathapuram, Tamil Nadu, with notes on the site's importance for waterbird conservation. Journal of Threatened Taxa, 15(3), 22813–22822.

4. Chitra, N., & Mahendran, S. (2003). A preliminary list of butterflies of Ramanathapuram District, Tamil Nadu. Zoos' Print Journal, 18(4), 1090.
5. Gamble, J. S., & Fischer, C. E. C. (1915–1935). Flora of Presidency of Madras. Adlard and Son.
6. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). Flora of Tamil Nadu, India. Series 1: Analysis (Vol. III). Botanical Survey of India.
7. Ratnam, K. (n.d.). Birds of Tamil Nadu.
8. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa, 11(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009
9. Kehimkar, I. (2008). The book of Indian butterflies. Bombay Natural History Society.
10. Matthew, K. M. (1981). The material for the flora of the Tamil Nadu Carnatic. Madras, India.
11. Matthew, K. M. (1982). Illustrations on the flora of the Tamil Nadu Carnatic (Vol. II). The Diocesan Press.
12. Matthew, K. M. (1983). The flora of Tamil Nadu Carnatic (Vol. III). The Diocesan Press.
13. Matthew, K. M. (1988). Further illustrations on the flora of the Tamil Nadu Carnatic (Vol. IV). The Diocesan Press.
14. Nair, N. C., & Henry, A. N. (1983). Flora of Tamil Nadu, India. Series 1 (Vol. 1). Botanical Survey of India.

ANNEXURE 3.32

Fig 3.32.1. Zone of Influence of Mullimunnai Wetland

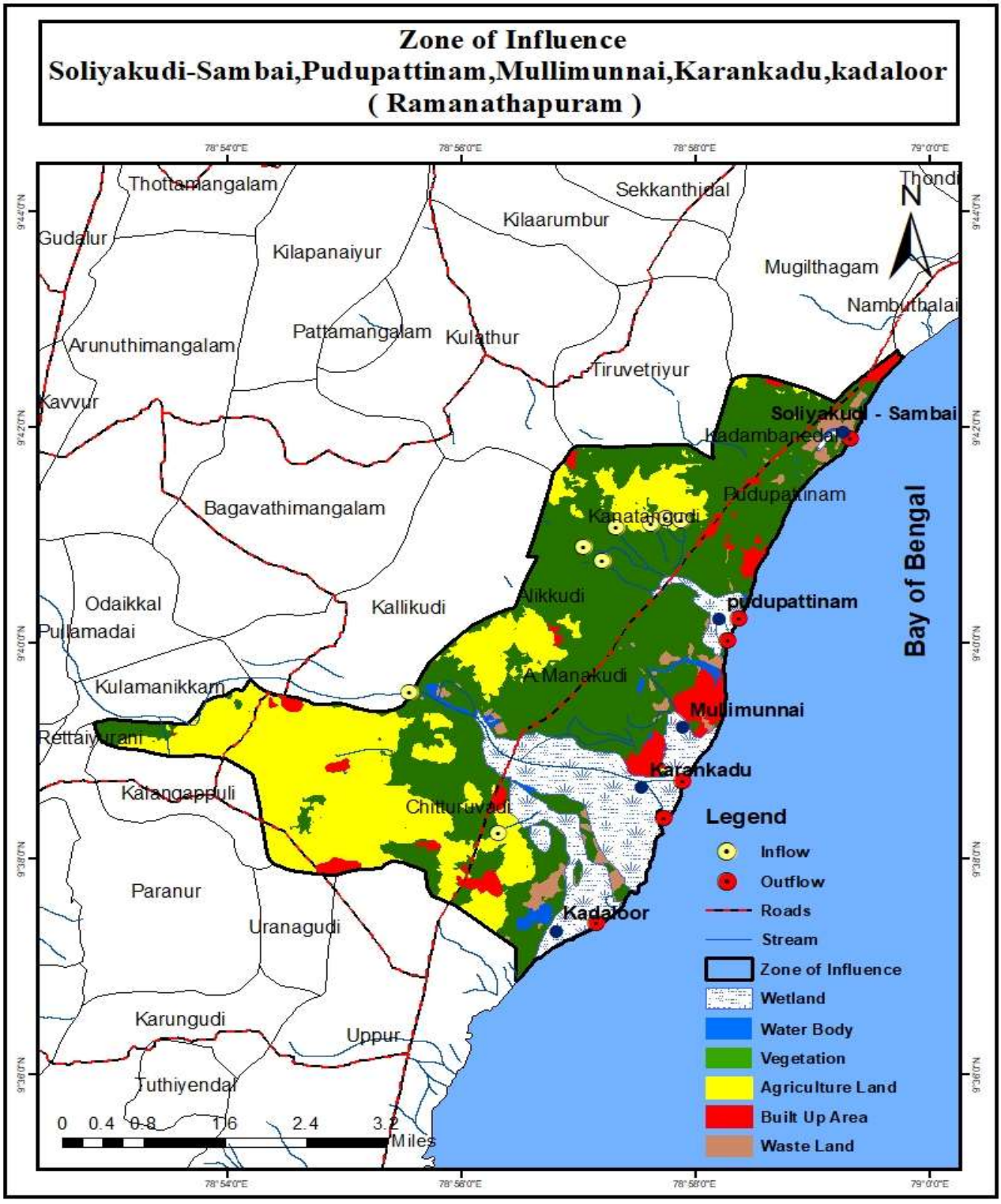


Fig 3.32.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Mullimunnai Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

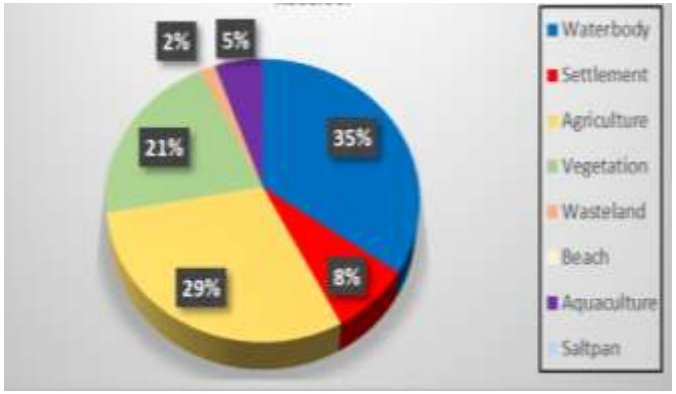


Table 3.32.1. IUCN Status of Floral Species in Mullimunnai Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
2.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
3.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
4.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
5.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
7.	*Brachiaria mutica*	Poaceae		Grass	NE
8.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
9.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
10.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
11.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
12.	*Digitaria ciliaris*	Poaceae		Grass	NE
13.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
14.	*Pedalium murex*	Pedaliaceae		Herb	NE
15.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
16.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
17.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
18.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
19.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
20.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE

Table 3.32.2. IUCN Status of Selected Fauna Species in Mullimunnai Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC

3.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
4.	*Rattus rattus*	Muridae	House rat	LC
5.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
8.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
9.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
10.	*Atretium schistosum*	Colubridae	Olive keel back	LC
11.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
12.	*Ptyas mucosus*	Colubridae	Rat snake	NE
13.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
14.	*Bungarus caeruleus*	Elapidae	Krait	LC
15.	*Vipera russelli*	Viperidae	Russell's viper	LC
C. Amphibian				
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC

8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Common crow	LC
2.	*Catopsilia Pomona*	Pieridae	Common Emigrant	LC
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
5.	*Papilio demoleus*	Papilionidae	Common lime	LC
6.	*Papilio polytes*	Papilionidae	Common mormon	LC
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	LC
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	LC
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	LC
10.	*Junonia almanac*	Nymphalidae	Peacock pansy	LC
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC
13.	*Pachliopta aristolochiae*	Papilionidae	Common Rose	LC
14.	*Junonia hierta*	Nymphalidae	Yellow Pansy	LC
15.	*Papilio demoleus*	Papilionidae	Lime butterfly	LC
16.	*Melanitis leda*	Nymphalidae	Common evening brown	LC

Table 3.32.3. IUCN Status of Bird Species in Mullimunnai Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Accipiter badius*	Shikra	T	LC
2.	*Acridotheres tristis*	Common Myna	T	LC
3.	*Actitis hypoleucos*	Common Sandpiper	A	LC
4.	*Alcedo atthis*	Common Kingfisher	T	LC
5.	*Anastomus oscitans*	Asian Openbill	A	LC
6.	*Apus affinis*	House Swift	T	LC

7.	*Ardea purpurea*	Purple Heron	A	LC
8.	*Ardeola grayii*	Indian Pond Heron	A	LC
9.	*Artamus fuscus*	Ashy Woodswallow	T	LC
10.	*Athene brama*	Spotted Owlet	T	LC
11.	*Athene brama*	Spoted Owlet	T	LC
12.	*Bubulcus ibis*	Cattle Egret	D	LC
13.	*Casmerodius albus*	Great Egret	A	LC
14.	*Centropus sinensis*	Greater Coucal	T	LC
15.	*Ceryle rudis*	Pied Kingfisher	D	LC
16.	*Charadrius alexandrinus*	Kentsh Plover	A	LC
17.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC
18.	*Cisticola juncidis*	Zitting Cisticola	T	LC
19.	*Clamator jacobinus*	Pied Cuckoo	T	LC
20.	*Columba livia*	Rock Pigeon	T	LC
21.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
22.	*Coracias benghalensis*	Indian Roller	T	LC
23.	*Corvus splendens*	House Crow	T	LC
24.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
25.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
26.	*Dicrurus adsimilis*	Black Drongo	T	LC
27.	*Egretta garzetta*	Little Egret	A	LC
28.	*Eudynamys scolopacea*	Asian Koel	T	LC
29.	*Falco tinnunculus*	Common Kestrel	T	LC
30.	*Francolinus pondicerianus*	Grey Francolin	T	LC
31.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
32.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
33.	*Haliastur indus*	Brahminy Kite	T	LC
34.	*Hieraaetus pennatus*	Booted Eagle	T	LC
35.	*Hirundo rustica*	Barn Swallow	T	LC
36.	*Hydroprogne caspia*	Caspian Tern	A	LC
37.	*Lanius cristatus*	Brown Shrike	T	LC

38.	*Lanius vitatus*	Bay-backed Shrike	T	LC
39.	*Limosa limosa*	Black-tailed Godwit	A	LC
40.	*Merops orientalis*	Green Bee-eater	T	LC
41.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
42.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
43.	*Milvus migrans*	Black Kite	T	LC
44.	*Mycteria leucocephala*	Painted Stork	A	NT
45.	*Numenius phaeopus*	Eurasian whimbrel	A	LC
46.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC
47.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
48.	*Orthotomus sutorius*	Common Tailorbird	T	LC
49.	*Pandion haliaetus*	Osprey	T	LC
50.	*Passer domesticus*	House Sparrow	T	LC
51.	*Pernis ptlorhynchus*	Oriental Honey Buzzard	T	LC
52.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC
53.	*Phalacrocorax niger*	Little Cormorant	A	LC
54.	*Phoenicopterus ruber*	Greater Flamingo	A	LC
55.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC
56.	*Plegadis falcinellus*	Glossy Ibis	A	LC
57.	*Pluvialis squatarola*	Grey Plover	A	LC
58.	*Prinia inornate*	Plain Prinia	T	LC
59.	*Prinia socialis*	Ashy Prinia	T	LC
60.	*Pseudibis papillosa*	Red-naped Ibis	T	LC
61.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC
62.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
63.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
64.	*Saxicoloides fulicata*	Indian Robin	T	LC
65.	*Sterna albifrons*	Little Tern	A	LC
66.	*Streptopelia chinensis*	Spotted Dove	T	LC
67.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC
68.	*Spilopelia senegalensis*	Laughing Dove	T	LC

69.	*Sturnus pagodarum*	Brahminy Starling	T	LC
70.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC
71.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.32.4. IUCN Status of major plant invasive alien species in Mullimunnai Wetland

S. No.	Species	Family	Tamil Name
1.	*Prosopis julifera*	Fabaceae	Semai karuvel

Table 3.32.5. IUCN Status of major animal invasive alien species in Mullimunnai Wetland

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC

Table 3.32.6. IUCN Status of major medicinal plant species in Mullimunnai Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
2.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
3.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
4.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
5.	*Cyperus alternifolius*	Cyperaceae		Sedge
6.	*Pedalium murex*	Pedaliaceae		Herb
7.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
8.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided

- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.33. PATHANENTHAL SAMBAI

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Pathanenthal Sambai

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Pattanendal, Vennathur

1.3 *Name of the District (s) in which wetlands complex located:* Rmanathapuram

1.4 *Geographical coordinates:*

► Latitude: 9˚30’45.9756” N

► Longitude: 78˚54’36.684” E

1.5 *Name of the Department/ Agency which has jurisdiction over wetland/ wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of wetland:* 71.63 ha

2.2 *Wetland type*:

Category	**Subcategory**
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated wetlands ❒ Tree-dominated wetlands ❒ Geothermal wetlands ❒ Karst and other subterranean hydrological systems

✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2.5; Maximum - 4.5

2.4 *Elevation (m above mean sea level):* 4

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: Backwaters from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/Snowfall (mm): 70.6

b) Temperature (°C): Minimum 23.4; Maximum 36.85

c) Humidity (%) Minimum 74.5; Maximum 79.8

2.7 *Area of zone of influence (in ha):* 1979.05 ha (with an irregular radius of 1.33 km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	31%
Agriculture	:	10%
Settlements (Rural)	:	7%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	39%
Waste Land	:	4%
Saltpan	:	3%
Aquaculture	:	6%

2.9 *Map of wetland complex and zone of influence:* Enclosed as Annexure 3.33 (Fig. 3.33.1-3.33.2)

Section 3: Biodiversity

3.1 *Notable plant species present in wetland:* The wetland is home to a diverse range of plant species, totaling 47 species. (refer to Table 3.33.1 in Annexure 3.33).

3.2 *Notable animal species present in wetland*: The wetland supports a variety of animal species, with a total of 137 recorded species. This includes 5 mammal species, 18 reptile species, 9 amphibian species, 89 bird species, and 16 species of butterflies (refer to Table 3.33.2-3.33.3 in Annexure 3.33).

3.3 *Species of conservation significance:* Highlighted in Table 3.33.1-3.33.3

3.4 *Major plant invasive alien species:* The wetland supports 7 plant invasive species (refer to Table 3.33.4 in Annexure 3.33).

3.5 *Major animal invasive alien species:* The wetland supports 1 animal invasive species (refer to Table 3.33.5 in Annexure 3.33).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the wetland. Which is listed in Table 3.33.6 in Annexure 3.33
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the embankment of the wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Aquaculture	✓ Yes ❒ No	Aquaculture ponds were observed while ground-truthing
Saltpan	✓ Yes ❒ No	Saltpats were observed while ground-truthing
Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for the site**	**Does this negatively impact the wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing activity
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a temple around the embankment of the wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Boating is there for fishing
Aquaculture & Saltpan	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Aquaculture ponds & Saltpan were observed while ground-truthing

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium	❒Present ❒Potential	

	❒Low		
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High ❒Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.33.4 - 3.33.5 in Annexure 3.33
Any others	❒High ❒Medium ❒Low	❒Present ❒Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent /		❒ Wetland/ Wetland			

wastewater		complex boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Effluent discharge from Aquaculture pond	Prohibited	✓ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). The book of Indian birds (13th rev. ed.). Oxford University Press.
2. Arunprasath, A., Sreeram, S., & Sankara Vel, V. (2023). Karankadu mangroves – An ecological asset to the Indian east coast. Current Science, 124(9), 1023.
3. Byju, H., Raveendran, N., Ravichandran, S., & Kishore, R. (2023). An annotated checklist of the avifauna of Karangadu mangrove forest, Ramanathapuram, Tamil Nadu, with notes on the site's importance for waterbird conservation. Journal of Threatened Taxa, 15(3), 22813–22822.

4. Chitra, N., & Mahendran, S. (2003). A preliminary list of butterflies of Ramanathapuram District, Tamil Nadu. Zoos' Print Journal, 18(4), 1090.
5. Gamble, J. S., & Fischer, C. E. C. (1915–1935). Flora of Presidency of Madras. Adlard and Son.
6. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). Flora of Tamil Nadu, India. Series 1: Analysis (Vol. III). Botanical Survey of India.
7. Ratnam, K. (n.d.). Birds of Tamil Nadu.
8. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa, 11(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009
9. Kehimkar, I. (2008). The book of Indian butterflies. Bombay Natural History Society.
10. Matthew, K. M. (1981). The material for the flora of the Tamil Nadu Carnatic. The Diocesan Press.
11. Matthew, K. M. (1982). Illustrations on the flora of the Tamil Nadu Carnatic (Vol. II). The Diocesan Press.
12. Matthew, K. M. (1983). The flora of Tamil Nadu Carnatic (Vol. III). The Diocesan Press.
13. Matthew, K. M. (1988). Further illustrations on the flora of the Tamil Nadu Carnatic (Vol. IV). The Diocesan Press.
14. Nair, N. C., & Henry, A. N. (1983). Flora of Tamil Nadu, India. Series 1 (Vol. 1). Botanical Survey of India.

ANNEXURE 3.33

Fig 3.33.1. Zone of Influence of Pathanenthal Sambai

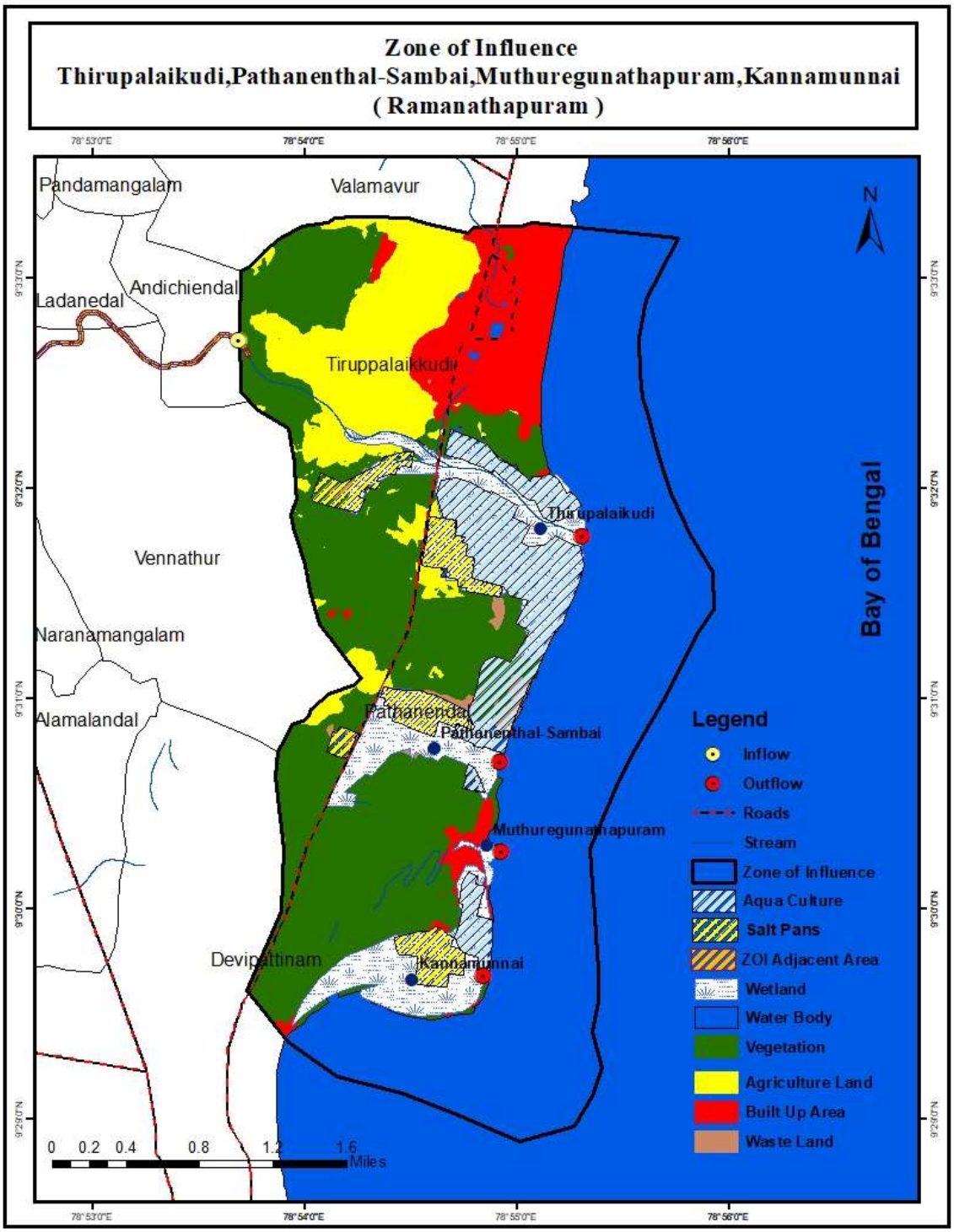


Fig 3.33.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Pathanenthal Sambai

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

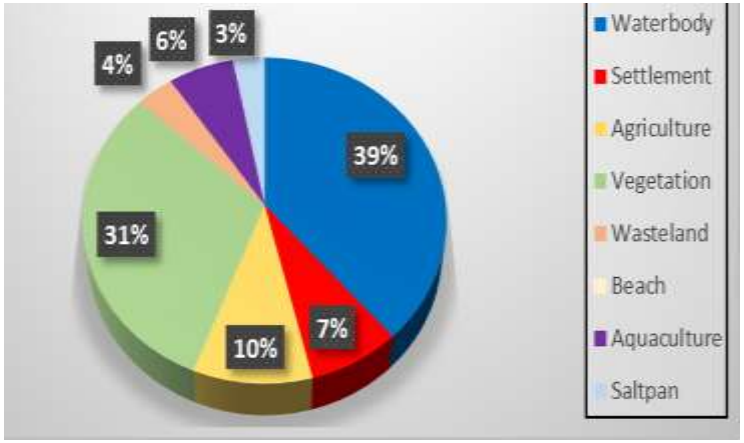


Table 3.33.1. IUCN Status of Floral Species in Pathanenthal Sambai

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
9.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Digitaria ciliaris*	Poaceae		Grass	NE
20.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
21.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
22.	*Ischaemum indicum*	Poaceae	-	Grass	LC
23.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
24.	*Justicia prostrata*	Acanthaceae		Herb	NE
25.	*Launaea bellidifolia*	Asteraceae		Herb	LC
26.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC

27.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
28.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
29.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
30.	*Pedalium murex*	Pedaliaceae		Herb	NE
31.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
32.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
33.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
34.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
35.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
36.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
37.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
38.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
39.	*Rhizophora mucronata*	Rhizophoraceae		Tree	LC
40.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
41.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
42.	*Trachys muricata*	Poaceae	-	Grass	LC
43.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
44.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
45.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
46.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
47.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.33.2. IUCN Status of Selected Fauna Species in Pathanenthal Sambai

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
2.	*Funambulus palmarum*	Sciuridae	Three-striped	LC

			palm squirrel	
3.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
4.	Rattus rattus	Muridae	House rat	LC
5.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
10.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
11.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
12.	*Atretium schistosum*	Colubridae	Olive keel back	LC
13.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
14.	*Ptyas mucosus*	Colubridae	Rat snake	NE
15.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
16.	*Naja naja*	Elapidae	Cobra	LC
17.	*Bungarus caeruleus*	Elapidae	Krait	LC
18.	*Vipera russelli*	Viperidae	Russell's viper	LC
C. Amphibian				
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC

4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	*Euploea core*	Nymphalidae	Common crow	LC
2.	*Catopsilia Pomona*	Pieridae	Common Emigrant	NE
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
5.	*Papilio demoleus*	Papilionidae	Common lime	NE
6.	*Papilio polytes*	Papilionidae	Common mormon	NE
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE
10.	*Junonia almanac*	Nymphalidae	Peacock pansy	LC
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC
13.	*Pachliopta aristolochiae*	Papilionidae	Common Rose	NE
14.	*Junonia hierta*	Nymphalidae	Yellow Pansy	LC
15.	*Papilio demoleus*	Papilionidae	Lime butterfly	LC
16.	*Melanitis leda*	Nymphalidae	Common evening brown	LC

Table 3.33.3. IUCN Status of Bird Species in Pathanenthal Sambai

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Accipiter badius*	Shikra	T	LC
2.	*Acridotheres tristis*	Common Myna	T	LC

3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC
5.	*Alauda gulgula*	Oriental Skylark	T	LC
6.	*Alcedo atthis*	Common Kingfisher	T	LC
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC
8.	*Anastomus oscitans*	Asian Openbill	A	LC
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC
10.	*Apus affinis*	House Swift	T	LC
11.	*Ardea cinerea*	Grey Heron	A	LC
12.	*Ardea purpurea*	Purple Heron	A	LC
13.	*Ardeola grayii*	Indian Pond Heron	A	LC
14.	*Artamus fuscus*	Ashy Woodswallow	T	LC
15.	*Athene brama*	Spotted Owlet	T	LC
16.	*Athene brama*	Spoted Owlet	T	LC
17.	*Bubulcus ibis*	Cattle Egret	D	LC
18.	*Calidris pugnax*	Ruf	A	LC
19.	*Calidris minuta*	Little Stint	A	LC
20.	*Calidris temminckii*	Temminck's stint	A	LC
21.	*Casmerodius albus*	Great Egret	A	LC
22.	*Centropus sinensis*	Greater Coucal	T	LC
23.	*Ceryle rudis*	Pied Kingfisher	D	LC
24.	*Charadrius alexandrinus*	Kentsh Plover	A	LC
25.	*Charadrius dubius*	Little Ringed Plover	A	LC
26.	*Charadrius mongolus*	Lesser Sand Plover	A	LC
27.	*Chlidonias hybridus*	Whiskered Tern	A	LC
28.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC
29.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC
30.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC
31.	*Cisticola juncidis*	Zitting Cisticola	T	LC
32.	*Clamator jacobinus*	Pied Cuckoo	T	LC
33.	*Columba livia*	Rock Pigeon	T	LC

34.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
35.	*Coracias benghalensis*	Indian Roller	T	LC
36.	*Corvus macrorhynchus*	Large-billed Crow	T	LC
37.	*Corvus splendens*	House Crow	T	LC
38.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
39.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
40.	*Dicrurus adsimilis*	Black Drongo	T	LC
41.	*Egretta garzetta*	Little Egret	A	LC
42.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
43.	*Eudynamys scolopacea*	Asian Koel	T	LC
44.	*Falco tinnunculus*	Common Kestrel	T	LC
45.	*Francolinus pondicerianus*	Grey Francolin	T	LC
46.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
47.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
48.	*Haliastur indus*	Brahminy Kite	T	LC
49.	*Lanius cristatus*	Brown Shrike	T	LC
50.	*Lanius vitatus*	Bay-backed Shrike	T	LC
51.	*Limosa limosa*	Black-tailed Godwit	A	LC
52.	*Merops orientalis*	Green Bee-eater	T	LC
53.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
54.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
55.	*Milvus migrans*	Black Kite	T	LC
56.	*Mycteria leucocephala*	Painted Stork	A	NT
57.	*Numenius phaeopus*	Eurasian whimbrel	A	LC
58.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
59.	*Orthotomus sutorius*	Common Tailorbird	T	LC
60.	*Pandion haliaetus*	Osprey	T	LC
61.	*Passer domesticus*	House Sparrow	T	LC
62.	*Pernis ptlorhynchus*	Oriental Honey Buzzard	T	LC
63.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC
64.	*Phalacrocorax niger*	Little Cormorant	A	LC

65.	*Plegadis falcinellus*	Glossy Ibis	A	LC
66.	*Pluvialis squatarola*	Grey Plover	A	LC
67.	*Prinia inornate*	Plain Prinia	T	LC
68.	*Prinia socialis*	Ashy Prinia	T	LC
69.	*Pseudibis papillosa*	Red-naped Ibis	T	LC
70.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC
71.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
72.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
73.	*Saxicoloides fulicata*	Indian Robin	T	LC
74.	*Sterna albifrons*	Little Tern	A	LC
75.	*Streptopelia chinensis*	Spotted Dove	T	LC
76.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC
77.	*Spilopelia senegalensis*	Laughing Dove	T	LC
78.	*Sturnus pagodarum*	Brahminy Starling	T	LC
79.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC
80.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC
81.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
82.	*Tringa glareola*	Wood Sandpiper	A	LC
83.	*Tringa nebularia*	Common Greenshank	A	LC
84.	*Tringa totanus*	Common Redshank	A	LC
85.	*Turdoides affinis*	Yellow-billed Babbler	T	LC
86.	*Upupa epops*	Hoopoe	T	LC
87.	*Vanellus indicus*	Red-wattled Lapwing	D	LC
88.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC
89.	*Zoothera citrina*	Orange-headed Thrush	T	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.33.4. IUCN Status of major plant invasive alien species in Pathanenthal Sambai

S.No	**Species**	**Family**	**Tamil Name**
1.	*Lantana camara*	Verbenaceae	Unnichedi
2.	*Martynia annua*	Martyniaceae	Thael Kodukku

3.	*Prosopis julifera*	Fabaceae	Semai karuvel
4.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
5.	*Senna tora*	Caesalpiniaceae	Oosithagarai
6.	*Typha angustifolia*	Typhaceae	Sambu
7.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.33.5. IUCN Status of major animal invasive alien species in Pathanenthal Sambai

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC

Table 3.33.6. IUCN Status of major medicinal plant species in Pathanenthal Sambai

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
6.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
7.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
8.	*Pedalium murex*	Pedaliaceae		Herb
9.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
10.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
11.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb
12.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.34. PUDHUPATTINAM WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai - 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Pudhupattinam Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Pudhupattinam, Tiruvadanai, Mullimunnai

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanathapuram

1.4 *Geographical coordinates:*

► Latitude: 9˚40’13.1772” N

► Longitude: 78˚58’34.396” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 50.43 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reef
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2.5; Maximum - 4.5

2.4 *Elevation (m above mean sea level):* 1

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: Backwater received from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ❒ Mesotrophic
- ✓ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 23.4; Maximum 36.85

c) Humidity (%) Minimum 74.5; Maximum 79.8

2.7 *Area of zone of influence (in ha):* 5883.6 ha (with an irregular radius of 4.54km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	21%
Agriculture	:	29%
Settlements (Rural)	:	8%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	35%
Waste Land	:	2%
Aquaculture	:	5%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.34 (Fig. 3.34.1-3.34.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 51 species. (refer to Table 3.34.1 in Annexure 3.34).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 148 recorded species. This includes 6 mammal species, 21 reptile species, 9 amphibian species, 96 bird species, and 16 species of butterflies (refer to Table 3.34.2-3.34.3 in Annexure 3.34).

3.3 *Species of conservation significance:* Highlighted in Table 3.34.1-3.34.3

3.4 *Major plant invasive alien species:* The Wetland supports 7 plant invasive species (refer to Table 3.34.4 in Annexure 3.34).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.34.5 in Annexure 3.34).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.34.6 (Annexure 3.34)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is few temples around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	
Aquaculture	✓ Yes ❒ No	Aquaculture plants were observed while ground-truthing
Mangroves	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for the site**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing activity is done by cattle

Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is few temples around the embankment of the Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Boating is there for fishing
Aquaculture	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Aquaculture were observed while ground-truthing

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒ Medium ✓Low	✓Present ❒Potential	Municipal solid wastes has been dumped around the bund
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium	❒Present ❒Potential	

	❒ Low		
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.34.4 - 3.34.5 in Annexure 3.34
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well		

Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). A checklist of reptiles of India (Version 3.0). Zoological Survey of India. Retrieved from www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). The book of Indian birds (13th rev. ed.). Oxford University Press.
3. Bibby, C. J., Burgess, N. D., & Hill, D. A. (1993). Bird census techniques. Academic Press.

4. Gamble, J. S., & Fischer, C. E. C. (1915–1935). Flora of Presidency of Madras. Adlard and Son.
5. Grimmett, R., Inskipp, C., & Inskipp, T. (2000). Pocket guide to the birds of the Indian subcontinent. Oxford University Press.
6. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). Flora of Tamil Nadu, India. Series 1: Analysis (Vol. III). Botanical Survey of India.
7. Ratnam, K. (n.d.). Birds of Tamil Nadu.
8. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa, 11(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009
9. Kehimkar, I. (2008). The book of Indian butterflies. Bombay Natural History Society.
10. Matthew, K. M. (1981). The material for the flora of the Tamil Nadu Carnatic. The Diocesan Press.
11. Matthew, K. M. (1982). Illustrations on the flora of the Tamil Nadu Carnatic (Vol. II). The Diocesan Press.
12. Matthew, K. M. (1983). The flora of Tamil Nadu Carnatic (Vol. III). The Diocesan Press.
13. Matthew, K. M. (1988). Further illustrations on the flora of the Tamil Nadu Carnatic (Vol. IV). The Diocesan Press.
14. Nair, N. C., & Henry, A. N. (1983). Flora of Tamil Nadu, India. Series 1 (Vol. 1). Botanical Survey of India.

ANNEXURE 3.34

Fig 3.34.1. Zone of Influence of Pudhupattinam Wetland

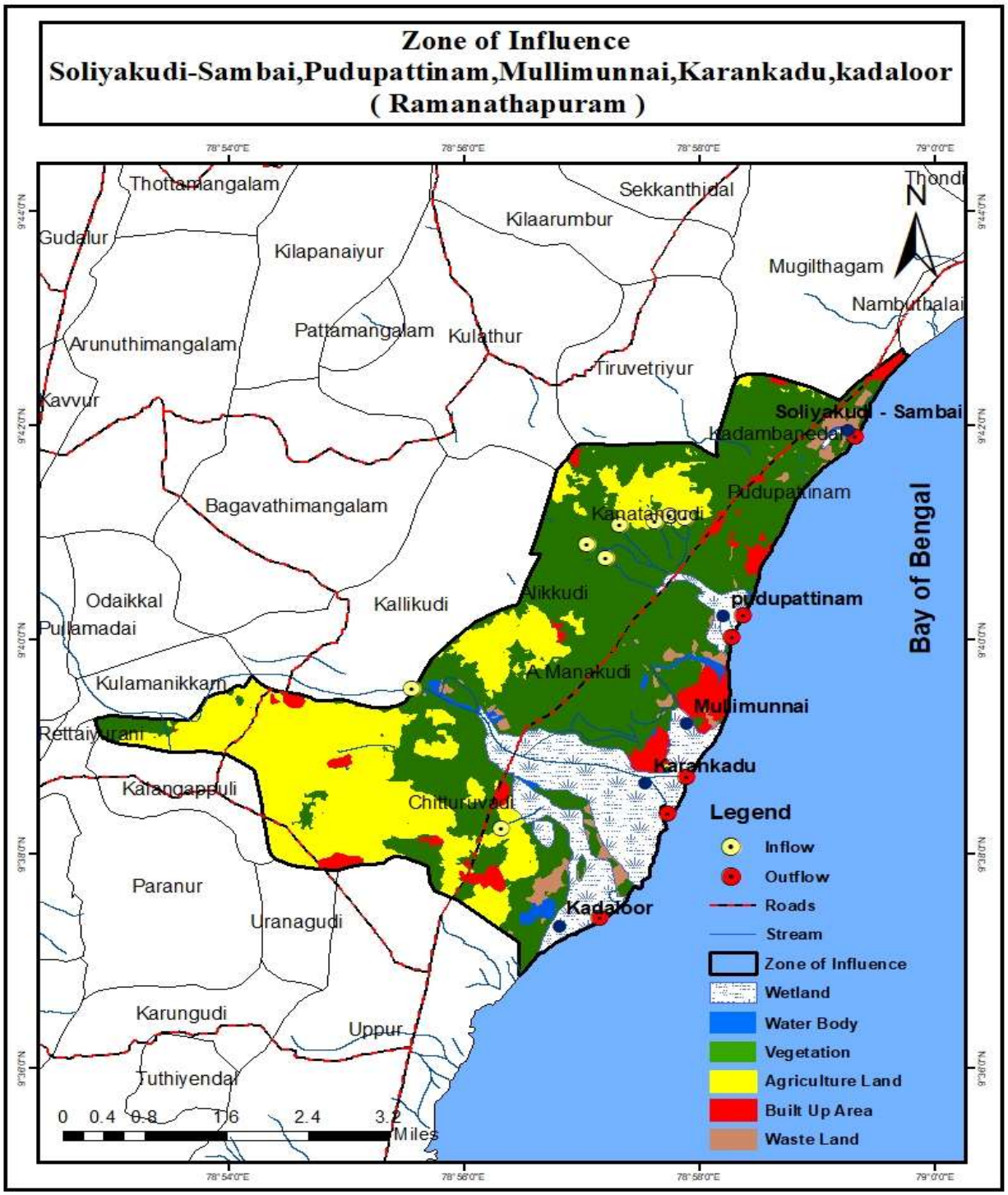


Fig 3.34.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Pudhupattinam Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

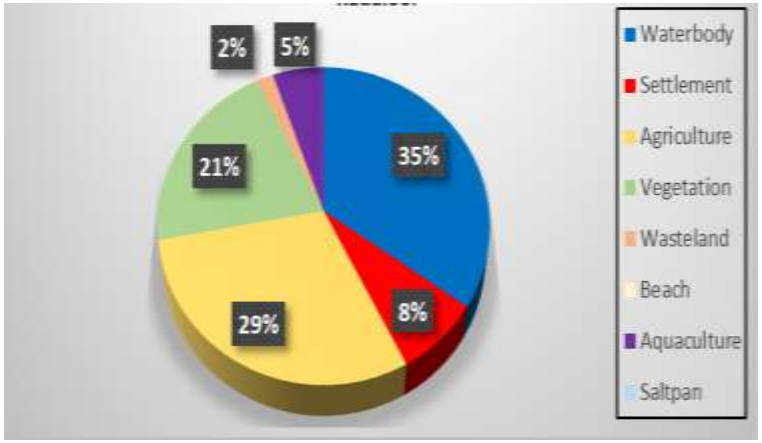


Table 3.34.1. IUCN Status of Floral Species in Pudhupattinam Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthus illicifolius*	Acanthaceae	Kozhimulli	Shrub	LC
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
8.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
9.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
10.	*Avicennia officinalis*	Acanthaceae	Upattha	Tree	LC
11.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Brachiaria mutica*	Poaceae		Grass	NE
14.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
15.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
16.	*Ceriops decandra*	Rhizophoraceae	Chiru kandal	Tree	LC
17.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
18.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
19.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
20.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
21.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
22.	*Digitaria ciliaris*	Poaceae		Grass	NE
23.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
24.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
25.	*Ischaemum indicum*	Poaceae	-	Grass	LC
26.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE

27.	*Justicia prostrata*	Acanthaceae		Herb	NE
28.	*Launaea bellidifolia*	Asteraceae		Herb	LC
29.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
30.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
31.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
32.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
33.	*Pedalium murex*	Pedaliaceae		Herb	NE
34.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
35.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
36.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
37.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
38.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
39.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
40.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
41.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
42.	*Rhizophora mucronata*	Rhizophoraceae		Tree	LC
43.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
44.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
45.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
46.	*Trachys muricata*	Poaceae	-	Grass	LC
47.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
48.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
49.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
50.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
51.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.34.2. IUCN Status of Selected Fauna Species in Pudhupattinam Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Status
A.	*Mammal*				
1.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC	
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	
3.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
4.	Rattus rattus	Muridae	House rat	LC	
5.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	
6.	*Canis aureus*	Canidae	Jackal	LC	
B.	*Reptile*				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	*
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	*
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered	LC	

			keel back		
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	
2.	*Catopsilia Pomona*	Pieridae	Common Emigrant	NE	
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	

7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	
10.	*Junonia almanac*	Nymphalidae	Peacock pansy	LC	
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC	
13.	*Pachliopta aristolochiae*	Papilionidae	Common Rose	NE	
14.	*Junonia hierta*	Nymphalidae	Yellow Pansy	LC	
15.	*Papilio demoleus*	Papilionidae	Lime butterfly	LC	
16.	*Melanitis leda*	Leptotus plinius	Lycaenidae	LC	

LC – Least Concern; * - Yes

Table 3.34.3. IUCN Status of Bird Species in Pudhupattinam Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	Status
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Alauda gulgula*	Oriental Skylark	T	LC	*
6.	*Alcedo atthis*	Common Kingfisher	T	LC	*
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
8.	*Anastomus oscitans*	Asian Openbill	A	LC	*
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Apus affinis*	House Swift	T	LC	
11.	*Ardea cinerea*	Grey Heron	A	LC	*
12.	*Ardea purpurea*	Purple Heron	A	LC	
13.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
14.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
15.	*Athene brama*	Spotted Owlet	T	LC	

16.	*Athene brama*	Spoted Owlet	T	LC	
17.	*Bubulcus ibis*	Cattle Egret	D	LC	*
18.	*Calidris pugnax*	Ruf	A	LC	
19.	*Calidris minuta*	Little Stint	A	LC	*
20.	*Calidris temminckii*	Temminck's stint	A	LC	
21.	*Casmerodius albus*	Great Egret	A	LC	
22.	*Centropus sinensis*	Greater Coucal	T	LC	
23.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
24.	*Charadrius alexandrinus*	Kentsh Plover	A	LC	
25.	*Charadrius dubius*	Little Ringed Plover	A	LC	
26.	*Charadrius mongolus*	Lesser Sand Plover	A	LC	
27.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
28.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
29.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
30.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC	*
31.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
32.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
33.	*Columba livia*	Rock Pigeon	T	LC	
34.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
35.	*Coracias benghalensis*	Indian Roller	T	LC	*
36.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
37.	*Corvus splendens*	House Crow	T	LC	*
38.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
39.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
40.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
41.	*Egretta garzetta*	Little Egret	A	LC	*
42.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
43.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
44.	*Falco tinnunculus*	Common Kestrel	T	LC	
45.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*

46.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
47.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
48.	*Haliastur indus*	Brahminy Kite	T	LC	*
49.	*Hieraaetus pennatus*	Booted Eagle	T	LC	*
50.	*Hirundo rustica*	Barn Swallow	T	LC	
51.	*Hydroprogne caspia*	Caspian Tern	A	LC	
52.	*Lanius cristatus*	Brown Shrike	T	LC	
53.	*Lanius vitatus*	Bay-backed Shrike	T	LC	
54.	*Limosa limosa*	Black-tailed Godwit	A	LC	
55.	*Merops orientalis*	Green Bee-eater	T	LC	*
56.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
57.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Mycteria leucocephala*	Painted Stork	A	NT	*
60.	*Numenius phaeopus*	Eurasian whimbrel	A	LC	
61.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
62.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
63.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
64.	*Pandion haliaetus*	Osprey	T	LC	*
65.	*Passer domesticus*	House Sparrow	T	LC	*
66.	*Pernis ptlorhynchus*	Oriental Honey Buzzard	T	LC	*
67.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
68.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
69.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
70.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
71.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
72.	*Pluvialis squatarola*	Grey Plover	A	LC	
73.	*Prinia inornate*	Plain Prinia	T	LC	*
74.	*Prinia socialis*	Ashy Prinia	T	LC	*
75.	*Pseudibis papillosa*	Red-naped Ibis	T	LC	*

76.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
77.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
78.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
79.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
80.	*Sterna albifrons*	Little Tern	A	LC	*
81.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
82.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC	*
83.	*Spilopelia senegalensis*	Laughing Dove	T	LC	*
84.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
85.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
86.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC	
87.	*Thalasseus bergii*	Greater Crested Tern	A	LC	
88.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
89.	*Tringa glareola*	Wood Sandpiper	A	LC	*
90.	*Tringa nebularia*	Common Greenshank	A	LC	*
91.	*Tringa totanus*	Common Redshank	A	LC	*
92.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
93.	*Upupa epops*	Hoopoe	T	LC	
94.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
95.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
96.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.34.4. IUCN Status of major plant invasive alien species in Pudhupattinam Wetland

S. No.	Species	Family	Tamil Name
1.	*Lantana camara*	Verbenaceae	Unnichedi
2.	*Martynia annua*	Martyniaceae	Thael Kodukku
3.	*Prosopis julifera*	Fabaceae	Semai karuvel
4.	*Salicornia brachiata*	Chenopodiaceae	Kattumari
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai

6.	*Typha angustifolia*	Typhaceae	Sambu
7.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.34.5. IUCN Status of major animal invasive alien species in Pudhupattinam Wetland

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.34.6. IUCN Status of major medicinal plant species in Pudhupattinam Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Pedalium murex*	Pedaliaceae		Herb
11.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
12.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.35. SOLIYAKUDI - SAMABI WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Soliyakudi-Sambai

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Kanattangudi, Mugilthangam, Tiruvadanai

1.3 *Name of the District (s) in which Wetlands complex located:* Rmanathapuram

1.4 *Geographical coordinates:*

- Latitude: 9˚41’57.5808” N
- Longitude: 78˚59’16.1124” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 7.5 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 3; Maximum - 5

2.4 *Elevation (m above mean sea level):* 1

2.5 *Water regimes*

a) Main source of water

✓ Rainfall inflow from river

❒ Groundwater

✓ Catchment runoff

❒ Direct/ indirect inflow from river

✓ Others, please specify: Backwaters from Bay of Bengal

❒ Name of River/ Canal System

b) Water performance

✓ Mostly permanent

❒ Mostly intermittent

c) Destination of water from Wetland

✓ Feeds groundwater river to sea

❒ To downstream catchment

d) Water pH

❒ Acid (< 5.5)

✓ Circumneutral (5.5-7.4)

❒ Alkaline (> 7.4)

e) Water salinity

❒ Fresh (< 0.5 g/l)

❒ Brackish (0.5-30 g/l)

✓ Euhaline (30-40 g/l)

❒ Hypersaline (> 40 g/l)

❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 23.4; Maximum 36.85

c) Humidity (%) Minimum 74.5; Maximum 79.8

2.7 *Area of zone of influence (in ha):* 5883.6 ha (with an irregular radius of 1.35 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	21%
Agriculture	:	29%
Settlements (Rural)	:	8%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	35%
Waste Land	:	2%
Aquaculture	:	5%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.35 (Fig. 3.35.1-3.35.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 50 species. (refer to Table 3.35.1 in Annexure 3.35).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 144 recorded species. This includes 5 mammal species, 19 reptile species, 9 amphibian species, 96 bird species, and 15 species of butterflies (refer to Table 3.35.2-3.35.3 in Annexure 3.35).

3.3 *Species of conservation significance:* Highlighted in Table 3.35.1-3.35.3

3.4 *Major plant invasive alien species:* The Wetland supports 8 plant invasive species (refer to Table 3.35.4 in Annexure 3.35).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.35.5 in Annexure 3.35).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.35.6 in Annexure 3.35
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing activity
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing activity is observed
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a temple around the embankment of the Wetland

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Boating is there for fishing
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Solid wastes has been dumped around the vicinity
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium	❒ Present ❒ Potential	

	❒ Low		
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.35.4 – 3.35.5 in Annexure 3.35
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the Wetland boundary is fine		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary			

		❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlandscomplex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). The book of Indian birds (13th rev. ed.). Oxford University Press.
2. Arunprasath, A., Sreeram, S., & Sankara Vel, V. (2023). Karankadu mangroves – An ecological asset to the Indian east coast. Current Science, 124(9), 1023.
3. Byju, H., Raveendran, N., Ravichandran, S., & Kishore, R. (2023). An annotated checklist of the avifauna of Karangadu mangrove forest, Ramanathapuram, Tamil Nadu, with notes on the site's importance for waterbird conservation. Journal of Threatened Taxa, 15(3), 22813–22822.
4. Chitra, N., & Mahendran, S. (2003). A preliminary list of butterflies of Ramanathapuram District, Tamil Nadu. Zoos' Print Journal, 18(4), 1090.
5. Gamble, J. S., & Fischer, C. E. C. (1915–1935). Flora of Presidency of Madras. Adlard and Son.
6. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). Flora of Tamil Nadu, India.

Series 1: Analysis (Vol. III). Botanical Survey of India.

7. Ratnam, K. (n.d.). Birds of Tamil Nadu.
8. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa, 11(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009
9. Kehimkar, I. (2008). The book of Indian butterflies. Bombay Natural History Society.
10. Matthew, K. M. (1981). The material for the flora of the Tamil Nadu Carnatic. The Diocesan Press.
11. Matthew, K. M. (1982). Illustrations on the flora of the Tamil Nadu Carnatic (Vol. II). The Diocesan Press.
12. Matthew, K. M. (1983). The flora of Tamil Nadu Carnatic (Vol. III). The Diocesan Press.
13. Matthew, K. M. (1988). Further illustrations on the flora of the Tamil Nadu Carnatic (Vol. IV). The Diocesan Press.
14. Nair, N. C., & Henry, A. N. (1983). Flora of Tamil Nadu, India. Series 1 (Vol. 1). Botanical Survey of India.

ANNEXURE 3.35

Fig 3.35.1. Zone of Influence of Soliyakudi- Samabi Wetland

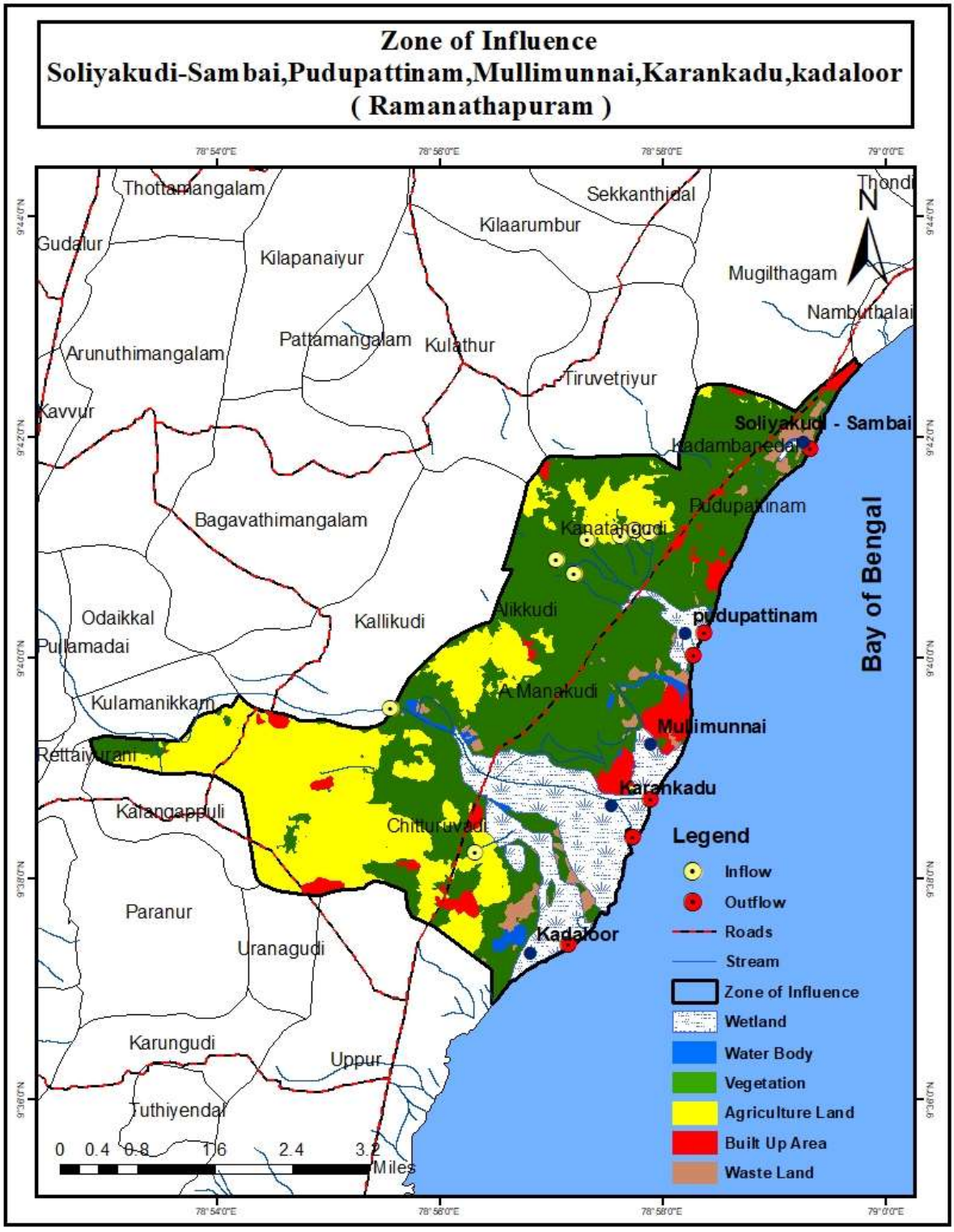


Fig 3.35.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Soliyakudi- Samabi Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

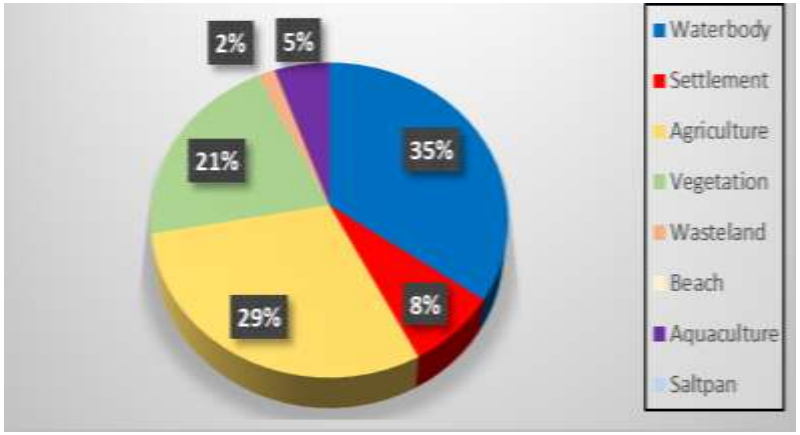


Table 3.35.1. IUCN Status of Floral Species in Soliyakudi- Samabi Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthus illicifolius*	Acanthaceae	Kozhimulli	Shrub	LC
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
8.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
9.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
10.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
11.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
12.	*Brachiaria mutica*	Poaceae		Grass	NE
13.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
14.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
15.	*Ceriops decandra*	Rhizophoraceae	Chiru kandal	Tree	LC
16.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
17.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
18.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
19.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
20.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
21.	*Digitaria ciliaris*	Poaceae		Grass	NE
22.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
23.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
24.	*Ischaemum indicum*	Poaceae	-	Grass	LC
25.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
26.	*Justicia prostrata*	Acanthaceae		Herb	NE

27.	*Launaea bellidifolia*	Asteraceae		Herb	LC
28.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
29.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
30.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
31.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
32.	*Pedalium murex*	Pedaliaceae		Herb	NE
33.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
34.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
35.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
36.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
37.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
38.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
39.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
40.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
41.	*Rhizophora mucronata*	Rhizophoraceae		Tree	LC
42.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
43.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
44.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
45.	*Trachys muricata*	Poaceae	-	Grass	LC
46.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
47.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
48.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
49.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
50.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.35.2. IUCN Status of Selected Fauna Species in Soliyakudi- Samabi Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC
3.	*Bandicota bengalensis*	Muridae	Bandicoot	LC
4.	Rattus rattus	Muridae	House rat	LC
5.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
B. Reptile				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC
3.	*Mabuya carinata*	Scincidae	Common skink	LC
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC
17.	*Naja naja*	Elapidae	Cobra	LC

18.	*Bungarus caeruleus*	Elapidae	Krait	LC
19.	*Vipera russelli*	Viperidae	Russell's viper	LC
C. Amphibian				
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
D. Butterfly				
1.	Common crow	*Euploea core*	Nymphalidae	LC
2.	Common Emigrant	*Catopsilia Pomona*	Pieridae	NE
3.	Common grass yellow	*Eurema hecabe*	Pieridae	LC
4.	Common lime	*Papilio demoleus*	Papilionidae	NE
5.	Common mormon	*Papilio polytes*	Papilionidae	NE
6.	Lemon pansy	*Junonia lemonias*	Nymphalidae	NE
7.	Mottled Emigrant	*Catopsilia pyranthe*	Pieridae	NE
8.	Pale Grass Blue	*Pseudozizeeria maha*	Lycaenidae	NE
9.	Peacock pansy	*Junonia almanac*	Nymphalidae	LC
10.	Plain tiger	*Danaus chrysippus*	Nymphalidae	LC
11.	Tawny coster	*Acraea violae*	Nymphalidae	LC
12.	Common Rose	*Pachliopta aristolochiae*	Papilionidae	NE
13.	Yellow Pansy	*Junonia hierta*	Nymphalidae	LC
14.	Lime butterfly	*Papilio demoleus*	Papilionidae	LC
15.	Common evening brown	*Melanitis leda*	Nymphalidae	LC

Table 3.35.3. IUCN Status of Bird Species in Soliyakudi- Samabi Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN
1.	*Accipiter badius*	Shikra	T	LC
2.	*Acridotheres tristis*	Common Myna	T	LC
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC
5.	*Alauda gulgula*	Oriental Skylark	T	LC
6.	*Alcedo atthis*	Common Kingfisher	T	LC
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC
8.	*Anastomus oscitans*	Asian Openbill	A	LC
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC
10.	*Apus affinis*	House Swift	T	LC
11.	*Ardea cinerea*	Grey Heron	A	LC
12.	*Ardea purpurea*	Purple Heron	A	LC
13.	*Ardeola grayii*	Indian Pond Heron	A	LC
14.	*Artamus fuscus*	Ashy Woodswallow	T	LC
15.	*Athene brama*	Spotted Owlet	T	LC
16.	*Athene brama*	Spoted Owlet	T	LC
17.	*Bubulcus ibis*	Cattle Egret	D	LC
18.	*Calidris pugnax*	Ruf	A	LC
19.	*Calidris minuta*	Little Stint	A	LC
20.	*Calidris temminckii*	Temminck's stint	A	LC
21.	*Casmerodius albus*	Great Egret	A	LC
22.	*Centropus sinensis*	Greater Coucal	T	LC
23.	*Ceryle rudis*	Pied Kingfisher	D	LC
24.	*Charadrius alexandrinus*	Kentsh Plover	A	LC
25.	*Charadrius dubius*	Little Ringed Plover	A	LC
26.	*Charadrius mongolus*	Lesser Sand Plover	A	LC
27.	*Chlidonias hybridus*	Whiskered Tern	A	LC
28.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC
29.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC

30.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC
31.	*Cisticola juncidis*	Zitting Cisticola	T	LC
32.	*Clamator jacobinus*	Pied Cuckoo	T	LC
33.	*Columba livia*	Rock Pigeon	T	LC
34.	*Copsychus saularis*	Oriental Magpie Robin	T	LC
35.	*Coracias benghalensis*	Indian Roller	T	LC
36.	*Corvus macrorhynchus*	Large-billed Crow	T	LC
37.	*Corvus splendens*	House Crow	T	LC
38.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC
39.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC
40.	*Dicrurus adsimilis*	Black Drongo	T	LC
41.	*Egretta garzetta*	Little Egret	A	LC
42.	*Elanus caeruleus*	Black-shouldered Kite	T	LC
43.	*Eudynamys scolopacea*	Asian Koel	T	LC
44.	*Falco tinnunculus*	Common Kestrel	T	LC
45.	*Francolinus pondicerianus*	Grey Francolin	T	LC
46.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC
47.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC
48.	*Haliastur indus*	Brahminy Kite	T	LC
49.	*Hieraaetus pennatus*	Booted Eagle	T	LC
50.	*Hirundo rustica*	Barn Swallow	T	LC
51.	*Hydroprogne caspia*	Caspian Tern	A	LC
52.	*Lanius cristatus*	Brown Shrike	T	LC
53.	*Lanius vitatus*	Bay-backed Shrike	T	LC
54.	*Limosa limosa*	Black-tailed Godwit	A	LC
55.	*Merops orientalis*	Green Bee-eater	T	LC
56.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC
57.	*Mesophoyx intermedia*	Intermediate Egret	A	LC
58.	*Milvus migrans*	Black Kite	T	LC
59.	*Mycteria leucocephala*	Painted Stork	A	NT
60.	*Numenius phaeopus*	Eurasian whimbrel	A	LC

61.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC
62.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC
63.	*Orthotomus sutorius*	Common Tailorbird	T	LC
64.	*Pandion haliaetus*	Osprey	T	LC
65.	*Passer domesticus*	House Sparrow	T	LC
66.	*Pernis ptlorhynchus*	Oriental Honey Buzzard	T	LC
67.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC
68.	*Phalacrocorax niger*	Little Cormorant	A	LC
69.	*Phoenicopterus ruber*	Greater Flamingo	A	LC
70.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC
71.	*Plegadis falcinellus*	Glossy Ibis	A	LC
72.	*Pluvialis squatarola*	Grey Plover	A	LC
73.	*Prinia inornate*	Plain Prinia	T	LC
74.	*Prinia socialis*	Ashy Prinia	T	LC
75.	*Pseudibis papillosa*	Red-naped Ibis	T	LC
76.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC
77.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC
78.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC
79.	*Saxicoloides fulicata*	Indian Robin	T	LC
80.	*Sterna albifrons*	Little Tern	A	LC
81.	*Streptopelia chinensis*	Spotted Dove	T	LC
82.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC
83.	*Spilopelia senegalensis*	Laughing Dove	T	LC
84.	*Sturnus pagodarum*	Brahminy Starling	T	LC
85.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC
86.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC
87.	*Thalasseus bergii*	Greater Crested Tern	A	LC
88.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT
89.	*Tringa glareola*	Wood Sandpiper	A	LC
90.	*Tringa nebularia*	Common Greenshank	A	LC
91.	*Tringa totanus*	Common Redshank	A	LC

92.	*Turdoides affinis*	Yellow-billed Babbler	T	LC
93.	*Upupa epops*	Hoopoe	T	LC
94.	*Vanellus indicus*	Red-wattled Lapwing	D	LC
95.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC
96.	*Zoothera citrina*	Orange-headed Thrush	T	LC

Table 3.35.4. IUCN Status of major plant invasive alien species in Soliyakudi- Samabi Wetland

S. No.	Species	Family	Tamil Name
1.	*Argemone mexicana*	Papaveraceae	Nai Kadugu
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Prosopis julifera*	Fabaceae	Semai karuvel
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Senna tora*	Caesalpiniaceae	Oosithagarai
7.	*Typha angustifolia*	Typhaceae	Sambu
8.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.35.5. IUCN Status of major animal invasive alien species in Soliyakudi- Samabi Wetland

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.35.6. IUCN Status of major medicinal plant species in Soliyakudi- Samabi Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb

5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Pedalium murex*	Pedaliaceae		Herb
11.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
12.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.36. THIRUPPALAKUDI WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Thiruppalakudi Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Thiruppalakudi Pattannenthal, Vennathur

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanathapuram

1.4 *Geographical coordinates:*

► Latitude: 9˚31’48.5256” N

► Longitude: 78˚55’6.5244” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 230.6 ha

2.2 *Wetland type*:

Category	**Subcategory**
❒ Natural (Inland)	❒ Permanent lakes ❒Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flat ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 3.5; Maximum - 5.5

2.4 *Elevation (m above mean sea level):* 1

2.5 *Water regimes*

a) Main source of water

✓ Rainfall inflow from river

❒ Groundwater

✓ Catchment runoff

❒ Direct/ indirect inflow from river

✓ Others, please specify: Backwaters from Bay of Bengal

❒ Name of River/ Canal System

b) Water performance

✓ Mostly permanent

❒ Mostly intermittent

c) Destination of water from Wetland

✓ Feeds groundwater river to sea

❒ To downstream catchment

d) Water pH

❒ Acid (< 5.5)

✓ Circumneutral (5.5-7.4)

❒ Alkaline (> 7.4)

e) Water salinity

❒ Fresh (< 0.5 g/l)

❒ Brackish (0.5-30 g/l)

✓ Euhaline (30-40 g/l)

❒ Hypersaline (> 40 g/l)

❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C): Minimum 23.4; Maximum 36.85

c) Humidity (%) Minimum 74.5; Maximum 79.8

2.7 *Area of zone of influence (in ha):* 1979.05 ha (with an irregular radius of 2.74 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	31%
Agriculture	:	10%
Settlements (Rural)	:	7%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	39%
Waste Land	:	6%
Saltpan	:	3%
Aquaculture	:	6%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.36 (Fig. 3.36.1-3.36.2).

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 41 species. (refer to Table 3.36.1 in Annexure 3.36).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 140 recorded species. This includes 4 mammal species, 21 reptile species, 9 amphibian species, 90 bird species, and 16 species of butterflies (refer to Table 3.36.2-3.36.3 in Annexure 3.36).

3.3 *Species of conservation significance:* Highlighted in Table 3.36.1-3.36.3

3.4 *Major plant invasive alien species:* The Wetland supports 6 plant invasive species (refer to Table 3.36.4 in Annexure 3.36).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.36.5 in Annexure 3.36).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.36.6 in Annexure 3.36
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	✓ Yes ❒ No	Mining activity is there as per secondary data collection
Aquaculture	✓ Yes ❒ No	Aquaculture plants were observed while ground-truthing
Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing activity
Fishing under lease from government department	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	

Religious practices	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Aquaculture	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Aquaculture ponds were observed while ground-truthing

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium	✓ Present ❒ Potential	

	✓ Low		
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.36.4 - 3.36.5 in Annexure 3.36
Aquaculture	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Effluent discharge from Aquaculture Pond is a threat to ecosystem

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundar ❒ Zone of influence			
Effluent discharge from Aquaculture pond	Prohibited	✓ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). The book of Indian birds (13th rev. ed.). Oxford University Press.
2. Gamble, J. S., & Fischer, C. E. C. (1915–1935). Flora of Presidency of Madras. Adlard and Son.
3. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). Flora of Tamil Nadu, India. Series 1: Analysis (Vol. III). Botanical Survey of India.

4. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa, 11(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009
5. Kehimkar, I. (2008). The book of Indian butterflies. Bombay Natural History Society.
6. Matthew, K. M. (1981). The material for the flora of the Tamil Nadu Carnatic. The Diocesan Press.
7. Matthew, K. M. (1982). Illustrations on the flora of the Tamil Nadu Carnatic (Vol. II). The Diocesan Press.
8. Matthew, K. M. (1983). The flora of Tamil Nadu Carnatic (Vol. III). The Diocesan Press.
9. Matthew, K. M. (1988). Further illustrations on the flora of the Tamil Nadu Carnatic (Vol. IV). The Diocesan Press.
10. Nair, N. C., & Henry, A. N. (1983). Flora of Tamil Nadu, India. Series 1 (Vol. 1). Botanical Survey of India.

ANNEXURE 3.36

Fig 3.36.1 Zone of Influence of Thiruppalakudi Wetland

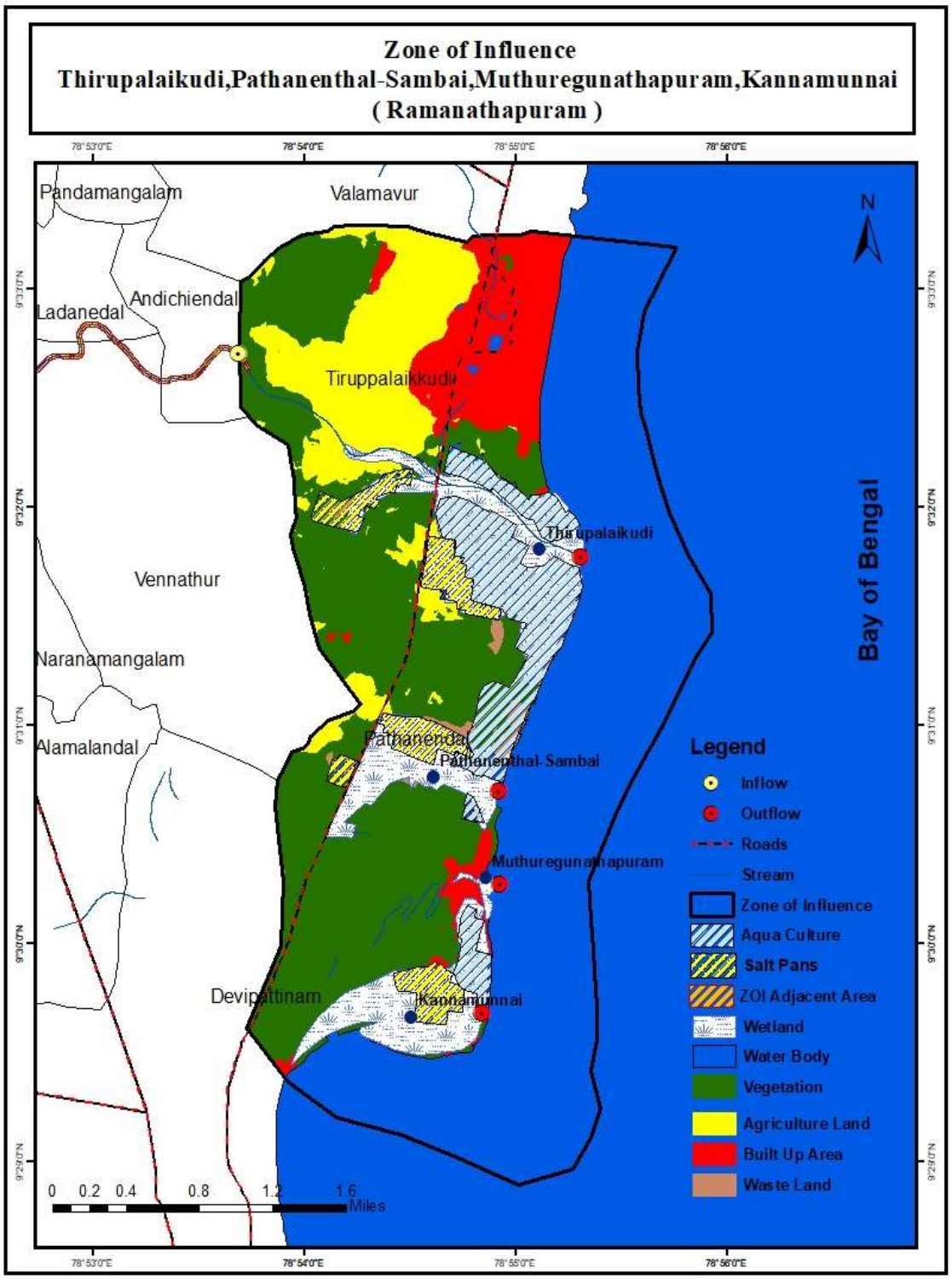


Fig 3.36.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Thiruppalakudi Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

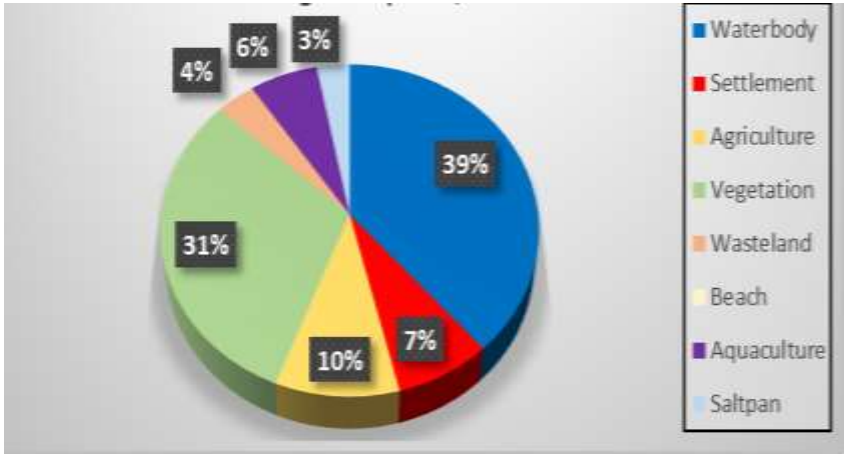


Table 3.36.1. IUCN Status of Floral Species in Thiruppalakudi Wetland

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
3.	*Acanthospermum hispidum*	Compositae		Herb	NE
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
6.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
7.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
8.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
9.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
10.	*Brachiaria mutica*	Poaceae		Grass	NE
11.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
12.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
13.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
14.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
15.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
16.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
17.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
18.	*Ischaemum indicum*	Poaceae	-	Grass	LC
19.	*Launaea bellidifolia*	Asteraceae		Herb	LC
20.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
21.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
22.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
23.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
24.	*Pedalium murex*	Pedaliaceae		Herb	NE
25.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
26.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
27.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
28.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
29.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE

30.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
31.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
32.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
33.	*Rhizophora mucronata*	Rhizophoraceae		Tree	LC
34.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
35.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
36.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
37.	*Trachys muricata*	Poaceae	-	Grass	LC
38.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
39.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
40.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
41.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.36.2. IUCN Status of Selected Fauna Species in Thiruppalakudi Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC	
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
3.	Rattus rattus	Muridae	House rat	LC	*
4.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	

6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	*
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	*
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*

7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	*
2.	*Catopsilia Pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
10.	*Junonia almanac*	Nymphalidae	Peacock pansy	LC	*
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger		
12.	*Acraea violae*	Nymphalidae	Tawny coster		
13.	*Pachliopta aristolochiae*	Papilionidae	Common Rose		
14.	*Junonia hierta*	Nymphalidae	Yellow Pansy		
15.	*Papilio demoleus*	Papilionidae	Lime butterfly	LC	*
16.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*

LC – Least Concern; * - Yes

Table 3.36.3. IUCN Status of Bird Species in Thiruppalakudi Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Alauda gulgula*	Oriental Skylark	T	LC	*
6.	*Alcedo atthis*	Common Kingfisher	T	LC	*
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
8.	*Anastomus oscitans*	Asian Openbill	A	LC	*
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Apus affinis*	House Swift	T	LC	
11.	*Ardea cinerea*	Grey Heron	A	LC	*
12.	*Ardea purpurea*	Purple Heron	A	LC	
13.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
14.	*Artamus fuscus*	Ashy Wood swallow	T	LC	
15.	*Athene brama*	Spotted Owlet	T	LC	
16.	*Athene brama*	Spoted Owlet	T	LC	
17.	*Bubulcus ibis*	Cattle Egret	D	LC	*
18.	*Calidris pugnax*	Ruf	A	LC	
19.	*Calidris minuta*	Little Stint	A	LC	*
20.	*Calidris temminckii*	Temminck's stint	A	LC	
21.	*Casmerodius albus*	Great Egret	A	LC	
22.	*Centropus sinensis*	Greater Coucal	T	LC	
23.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
24.	*Charadrius alexandrinus*	Kentsh Plover	A	LC	
25.	*Charadrius dubius*	Little Ringed Plover	A	LC	
26.	*Charadrius mongolus*	Lesser Sand Plover	A	LC	
27.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
28.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	

29.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
30.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC	*
31.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
32.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
33.	*Columba livia*	Rock Pigeon	T	LC	
34.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
35.	*Coracias benghalensis*	Indian Roller	T	LC	*
36.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
37.	*Corvus splendens*	House Crow	T	LC	*
38.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
39.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
40.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
41.	*Egretta garzetta*	Little Egret	A	LC	*
42.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
43.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
44.	*Falco tinnunculus*	Common Kestrel	T	LC	
45.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
46.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
47.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
48.	*Haliastur indus*	Brahminy Kite	T	LC	*
49.	*Hydroprogne caspia*	Caspian Tern	A	LC	
50.	*Lanius cristatus*	Brown Shrike	T	LC	
51.	*Lanius vitatus*	Bay-backed Shrike	T	LC	
52.	*Limosa limosa*	Black-tailed Godwit	A	LC	
53.	*Merops orientalis*	Green Bee-eater	T	LC	*
54.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
55.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
56.	*Milvus migrans*	Black Kite	T	LC	*
57.	*Numenius phaeopus*	Eurasian whimbrel	A	LC	
58.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
59.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	

60.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
61.	*Passer domesticus*	House Sparrow	T	LC	*
62.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
63.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
64.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
65.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
66.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
67.	*Pluvialis squatarola*	Grey Plover	A	LC	
68.	*Prinia inornate*	Plain Prinia	T	LC	*
69.	*Prinia socialis*	Ashy Prinia	T	LC	*
70.	*Pseudibis papillosa*	Red-naped Ibis	T	LC	*
71.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
72.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
73.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
74.	*Sterna albifrons*	Little Tern	A	LC	*
75.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
76.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC	*
77.	*Spilopelia senegalensis*	Laughing Dove	T	LC	*
78.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
79.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
80.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC	
81.	*Thalasseus bergii*	Greater Crested Tern	A	LC	
82.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
83.	*Tringa glareola*	Wood Sandpiper	A	LC	*
84.	*Tringa nebularia*	Common Greenshank	A	LC	*
85.	*Tringa totanus*	Common Redshank	A	LC	*
86.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
87.	*Upupa epops*	Hoopoe	T	LC	
88.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
89.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.36.4. IUCN Status of major plant invasive alien species in Thiruppalakudi Wetland

S. No.	Species	Family	Tamil Name
1.	*Lantana camara*	Verbenaceae	Unnichedi
2.	*Martynia annua*	Martyniaceae	Thael Kodukku
3.	*Prosopis julifera*	Fabaceae	Semai karuvel
4.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
5.	*Typha angustifolia*	Typhaceae	Sambu
6.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.36.5. IUCN Status of major animal invasive alien species in Thiruppalakudi Wetland

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.36.6. IUCN Status of major medicinal plant species in Thiruppalakudi Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
7.	*Leucas aspera*	Labiatae	Thumbai	Herb
8.	*Mukia leiosperma*	Cucurbitaceae		Climber
9.	*Pontederia vaginalis*	Pontederiaceae	Karung kuvalai	Tree
10.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
11.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb

12.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
13.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.37. MUTHURENGUNATHAPURAM WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Muthurengunathapuram Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Muthurengunathapuram, Pattanendal, Vennathur

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanathapuram

1.4 *Geographical coordinates:*

► Latitude: 9˚30’18.2196” N

► Longitude: 78˚54’51.3648” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 23.06 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2.5; Maximum - 5

2.4 *Elevation (m above mean sea level):* 0

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river:
- ✓ Others, please specify: Backwaters from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ✓ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 23.4; Maximum 36.85

c) Humidity (%) Minimum 74.5; Maximum 79.8

2.7 *Area of zone of influence (in ha):* 1979.05 ha (with an irregular radius of 2.74 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	31%
Agriculture	:	10%
Settlements (Rural)	:	7%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	39%
Waste Land	:	6%
Saltpan	:	3%
Aquaculture	:	6%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.37 (Fig. 3.37.1-3.37.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 47 species. (refer to Table 3.37.1 in Annexure 3.37).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 135 recorded species. This includes 5 mammal species, 18 reptile species, 9 amphibian species, 87 bird species, and 16 species of butterflies (refer to Table 3.37.2-3.37.3 in Annexure 3.37).

3.3 *Species of conservation significance:* Highlighted in Table 3.37.1-3.37.3

3.4 *Major plant invasive alien species:* The Wetland supports 8 plant invasive species (refer to Table 3.37.4 in Annexure 3.37).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.37.5 in Annexure 3.37)

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.37.6 (Annexure 3.37)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the embankment of the Wetland and cremation yards were present
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes	

	✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Aquaculture activities	✓ Yes ❒ No	Aquaculture ponds has identified while field visit
Saltpan	✓ Yes ❒ No	Saltpan has identified while field visit

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒No	❒Yes ❒No ✓Not assessed	Communal fishing activity
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Religious practices	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	For fishing activity
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Plastic and waste have been dumped
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium	❒ Present ❒ Potential	

	❒ Low		
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.37.4 – 3.37.5 in Annexure 3.37
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated		❒ Wetland/			

sewage/ effluent / wastewater		Wetland complex boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Pollution	Prohibited	✓ Wetland/ Wetland complex boundary ❒ Zone of influence			Waste fishing nets, Plastic and waste has been dumped

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). A checklist of reptiles of India (Version 3.0). Zoological Survey of India. Retrieved from www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). The book of Indian birds (13th rev. ed.). Oxford University Press.
3. Gamble, J. S., & Fischer, C. E. C. (1915–1935). Flora of Presidency of Madras. Adlard and Son.
4. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). Flora of Tamil Nadu, India.

Series 1: Analysis (Vol. III). Botanical Survey of India.

5. Ratnam, K. (n.d.). Birds of Tamil Nadu.
6. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa, 11(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009
7. Kehimkar, I. (2008). The book of Indian butterflies. Bombay Natural History Society.
8. Matthew, K. M. (1981). The material for the flora of the Tamil Nadu Carnatic. The Diocesan Press.
9. Matthew, K. M. (1982). Illustrations on the flora of the Tamil Nadu Carnatic (Vol. II). The Diocesan Press.
10. Matthew, K. M. (1983). The flora of Tamil Nadu Carnatic (Vol. III). The Diocesan Press.
11. Matthew, K. M. (1988). Further illustrations on the flora of the Tamil Nadu Carnatic (Vol. IV). The Diocesan Press.
12. Mayuranathan, P. V. (1929). The flowering plants of Madras city and its immediate neighbourhood. Bulletin of the Madras Government Museum, New Series, Natural History Section, 2, 1–337.
13. Nair, N. C., & Henry, A. N. (1983). Flora of Tamil Nadu, India. Series 1 (Vol. 1). Botanical Survey of India.

ANNEXURE 3.37

Fig 3.37.1 Zone of Influence of Muthurengunathapuram Wetland

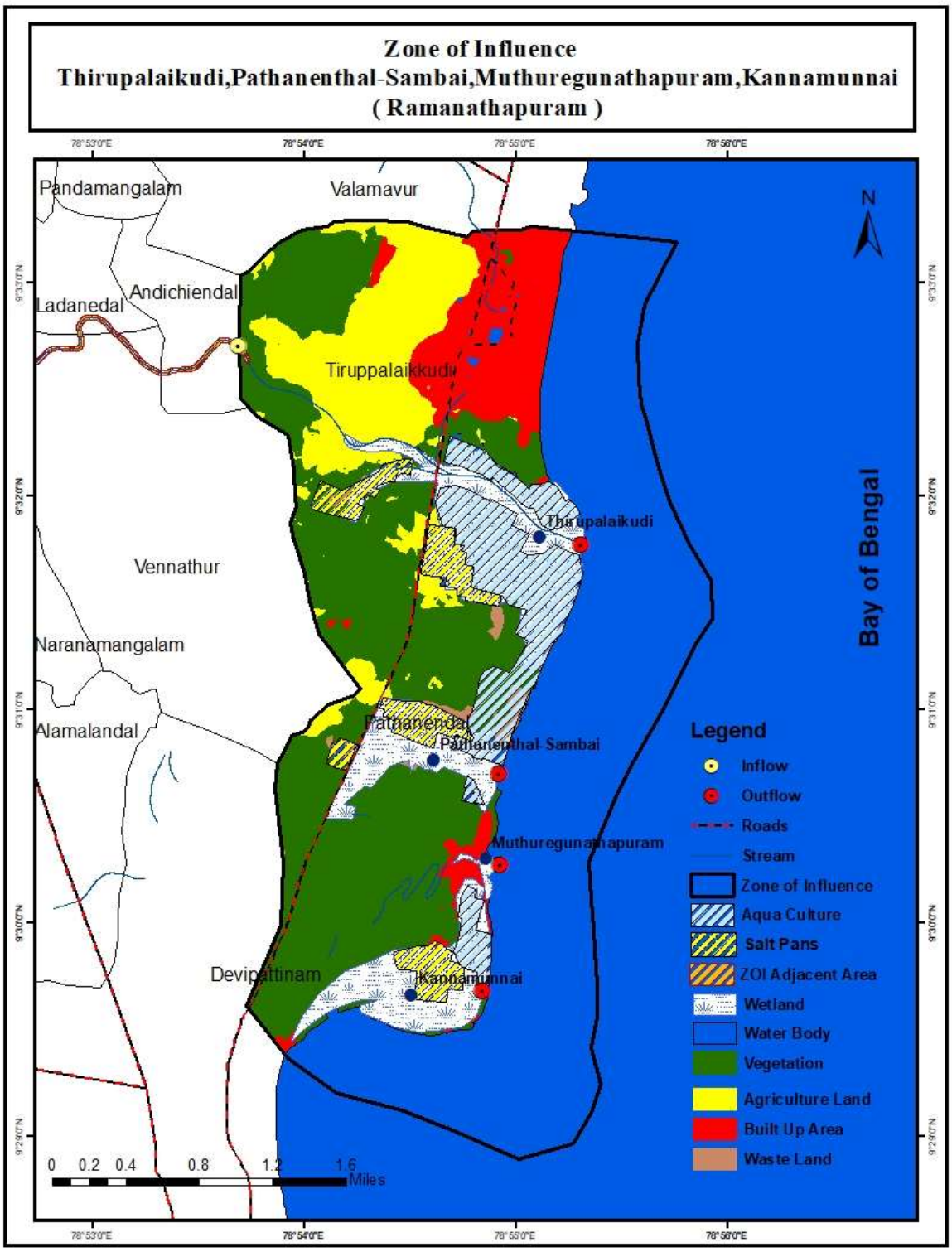


Fig 3.37.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Muthurengunathapuram Wetland

Map of the Wetland2014



Map of the Wetland 2024



Land Use/ Land Cover of the Wetland

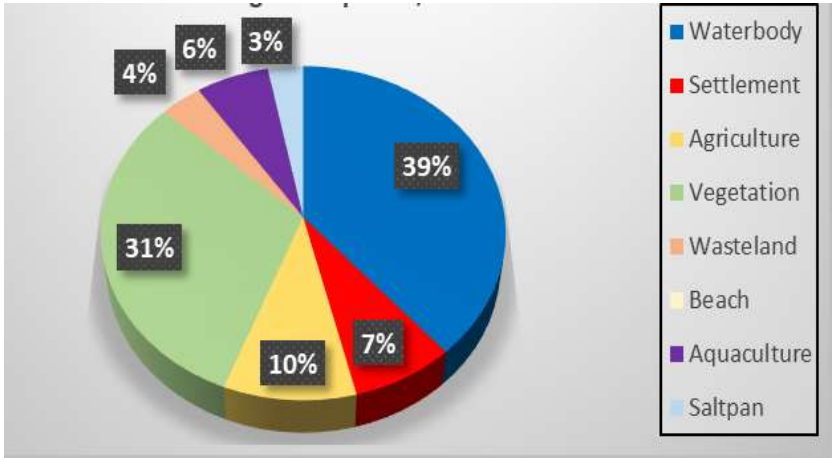


Table 3.37.1. IUCN Status of Floral Species in Muthurengunathapuram Wetland

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
9.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Digitaria ciliaris*	Poaceae		Grass	NE
20.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
21.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
22.	*Ischaemum indicum*	Poaceae	-	Grass	LC
23.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
24.	*Justicia prostrata*	Acanthaceae		Herb	NE
25.	*Launaea bellidifolia*	Asteraceae		Herb	LC
26.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
27.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
28.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
29.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE

30.	*Pedalium murex*	Pedaliaceae		Herb	NE
31.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
32.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
33.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
34.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
35.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
36.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
37.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
38.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
39.	*Rhizophora mucronata*	Rhizophoraceae		Tree	LC
40.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
41.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
42.	*Trachys muricata*	Poaceae	-	Grass	LC
43.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
44.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
45.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
46.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
47.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.37.2. IUCN Status of Selected Fauna Species in Muthurengunathapuram Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC	
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
3.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
4.	Rattus rattus	Muridae	House rat	LC	*
5.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*

B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	*
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
10.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
11.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
12.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
13.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
14.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
15.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
16.	*Naja naja*	Elapidae	Cobra	LC	
17.	*Bungarus caeruleus*	Elapidae	Krait	LC	
18.	*Vipera russelli*	Viperidae	Russell's viper	LC	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull	LC	

			frog		
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	*
2.	*Catopsilia Pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common Mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
10.	*Junonia almanac*	Nymphalidae	Peacock pansy		
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger		
12.	*Acraea violae*	Nymphalidae	Tawny coster		
13.	*Pachliopta aristolochiae*	Papilionidae	Common Rose		
14.	*Junonia hierta*	Nymphalidae	Yellow Pansy	LC	*
15.	*Papilio demoleus*	Papilionidae	Lime butterfly	LC	*
16.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*

LC – Least Concern; * - Yes

Table 3.37.3. IUCN Status of Bird Species in Muthurengunathapuram Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Alauda gulgula*	Oriental Skylark	T	LC	*
6.	*Alcedo atthis*	Common Kingfisher	T	LC	*
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
8.	*Anastomus oscitans*	Asian Openbill	A	LC	*
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Apus affinis*	House Swift	T	LC	
11.	*Ardea cinerea*	Grey Heron	A	LC	*
12.	*Ardea purpurea*	Purple Heron	A	LC	
13.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
14.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
15.	*Athene brama*	Spotted Owlet	T	LC	
16.	*Athene brama*	Spoted Owlet	T	LC	
17.	*Bubulcus ibis*	Cattle Egret	D	LC	*
18.	*Calidris pugnax*	Ruf	A	LC	
19.	*Calidris minuta*	Little Stint	A	LC	*
20.	*Calidris temminckii*	Temminck's stint	A	LC	
21.	*Casmerodius albus*	Great Egret	A	LC	
22.	*Centropus sinensis*	Greater Coucal	T	LC	
23.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
24.	*Charadrius alexandrinus*	Kentsh Plover	A	LC	
25.	*Charadrius dubius*	Little Ringed Plover	A	LC	
26.	*Charadrius mongolus*	Lesser Sand Plover	A	LC	
27.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
28.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
29.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	

30.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC	*
31.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
32.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
33.	*Columba livia*	Rock Pigeon	T	LC	
34.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
35.	*Coracias benghalensis*	Indian Roller	T	LC	*
36.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
37.	*Corvus splendens*	House Crow	T	LC	*
38.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
39.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
40.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
41.	*Egretta garzetta*	Little Egret	A	LC	*
42.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
43.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
44.	*Falco tinnunculus*	Common Kestrel	T	LC	
45.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
46.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
47.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
48.	*Haliastur indus*	Brahminy Kite	T	LC	*
49.	*Lanius cristatus*	Brown Shrike	T	LC	
50.	*Lanius vitatus*	Bay-backed Shrike	T	LC	
51.	*Limosa limosa*	Black-tailed Godwit	A	LC	
52.	*Merops orientalis*	Green Bee-eater	T	LC	*
53.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
54.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
55.	*Milvus migrans*	Black Kite	T	LC	*
56.	*Mycteria leucocephala*	Painted Stork	A	NT	*
57.	*Numenius phaeopus*	Eurasian whimbrel	A	LC	
58.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
59.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
60.	*Pandion haliaetus*	Osprey	T	LC	*

61.	*Passer domesticus*	House Sparrow	T	LC	*
62.	*Pernis ptlorhynchus*	Oriental Honey Buzzard	T	LC	*
63.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
64.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
65.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
66.	*Pluvialis squatarola*	Grey Plover	A	LC	
67.	*Prinia inornate*	Plain Prinia	T	LC	*
68.	*Prinia socialis*	Ashy Prinia	T	LC	*
69.	*Pseudibis papillosa*	Red-naped Ibis	T	LC	*
70.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
71.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
72.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
73.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
74.	*Sterna albifrons*	Little Tern	A	LC	*
75.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
76.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC	*
77.	*Spilopelia senegalensis*	Laughing Dove	T	LC	*
78.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
79.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
80.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC	
81.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
82.	*Tringa glareola*	Wood Sandpiper	A	LC	*
83.	*Tringa nebularia*	Common Greenshank	A	LC	*
84.	*Tringa totanus*	Common Redshank	A	LC	*
85.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
86.	*Upupa epops*	Hoopoe	T	LC	
87.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.37.4. IUCN Status of major plant invasive alien species in Muthurengunathapuram Wetland

S. No.	Species	Family	Tamil Name
1.	*Argemone mexicana*	Papaveraceae	Nai Kadugu
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Prosopis julifera*	Fabaceae	Semai karuvel
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Senna tora*	Caesalpiniaceae	Oosithagarai
7.	*Typha angustifolia*	Typhaceae	Sambu
8.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.37.5. IUCN Status of major animal invasive alien species in Muthurengunathapuram Wetland

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.37.6. IUCN Status of major medicinal plant species in Muthurengunathapuram Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Borassus flabellifer*	Arecaceae	Panai Maram	Tree
7.	*Brachiaria ramosa*	Poaceae		Grass
8.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub

9.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
10.	*Leucas aspera*	Labiatae	Thumbai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Pontederia vaginalis*	Pontederiaceae	Karung kuvalai	Tree
13.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
14.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
15.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
16.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
17.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.38. MELASELVANUR-KILASELVANUR BIRD SANCTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**
- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Melaselvanur-Kilaselvanur Bird Sanctuary

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Melaselvanur, Kilaselvanur, Karuthanendal, Keelakulam, Ramanathapuram

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanathapuram

1.4 *Geographical coordinates:*

- Latitude: 9˚21'55.58472" N
- Longitude: 78˚33'10.58515" E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 462.08 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 2

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ❒ Others, please specify:
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ✓ Eutrophic
- ❒ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 26.65; Maximum 34.45

c) Humidity (%) Minimum 75.3; Maximum 80.8

2.7 *Area of zone of influence (in ha):* 4264.28 ha (with an irregular radius of 3.87 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	51%
Agriculture	:	33%
Settlements (Rural)	:	3%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	13%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.38 (Fig. 3.38.1-3.38.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 64 species. (refer to Table 38.1 in Annexure 38).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 159 recorded species. This includes 3 mammal species, 7 reptile species, 7 amphibian species, 94 bird species, and 48 species of butterflies (refer to Table 38.2-38.3 in Annexure 38).

3.1 *Species of conservation significance:* Highlighted in Table 38.1-38.3

3.2 *Major plant invasive alien species:* The Wetland supports 8 plant invasive species (refer to Table 38.4 in Annexure 38).

3.3 *Major animal invasive alien species:* The Wetland supports 1 animal invasive species (refer to Table 38.5 in Annexure 38)

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water has been drawn from outflow for agricultural activities
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.38.6 (Annexure 3.38)
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Any others	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Fishing under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Agriculture or horticulture within Wetland	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Grazing	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Religious practices	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	There is a temple around the embankment of the Wetland

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Water has been drawn from outflow for agricultural activities
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Substantial water flow from the surrounding watershed
Encroachment	❒ High ❒ Medium	❒ Present ❒ Potential	

	❒ Low		
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.38.4 - 3.38.5 in Annexure 3.38
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of			

		influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundar ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	Relevance	Within Wetlands or zoneof influence	Additional info.
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1 Abhisheka, K., David, J. P., Prashanth, M. B., Seshadri, K. S., & Ganesh, T. (2013). First detailed survey of waterbirds in Tirunelveli and Tuticorin districts, Tamil Nadu, India. Journal of Threatened Taxa, 5(12), 4641–4652. http://dx.doi.org/10.11609/JoTT.o3125.4641-52

2 Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). A checklist of reptiles of India (Version 3.0). Zoological Survey of India. Retrieved from www.zsi.gov.in (Last update: May 2018).

3 Ali, S. (2002). The book of Indian birds (13th rev. ed.). Oxford University Press.

4 Bibby, C. J., Burgess, N. D., & Hill, D. A. (1993). Bird census techniques. Academic Press.

5 Gamble, J. S., & Fischer, C. E. C. (1915–1935). Flora of Presidency of Madras. Adlard and

Son.

6 Grimmett, R., Inskipp, C., & Inskipp, T. (2000). Pocket guide to the birds of the Indian subcontinent. Oxford University Press.

7 Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). Flora of Tamil Nadu, India. Series 1: Analysis (Vol. III). Botanical Survey of India.

8 Ratnam, K. (n.d.). Birds of Tamil Nadu.

9 Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa, 11(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009

10 Kehimkar, I. (2008). The book of Indian butterflies. Bombay Natural History Society.

11 Matthew, K. M. (1981). The material for the flora of the Tamil Nadu Carnatic. The Diocesan Press.

12 Matthew, K. M. (1982). Illustrations on the flora of the Tamil Nadu Carnatic (Vol. II). The Diocesan Press.

13 Matthew, K. M. (1983). The flora of Tamil Nadu Carnatic (Vol. III). The Diocesan Press.

14 Matthew, K. M. (1988). Further illustrations on the flora of the Tamil Nadu Carnatic (Vol. IV). The Diocesan Press.

15 Nair, N. C., & Henry, A. N. (1983). Flora of Tamil Nadu, India. Series 1 (Vol. 1). Botanical Survey of India.

ANNEXURE 3.38

Fig. 3.38.1 Zone of Influence of Melaselvanur-Kilaselvanur Bird Sanctuary

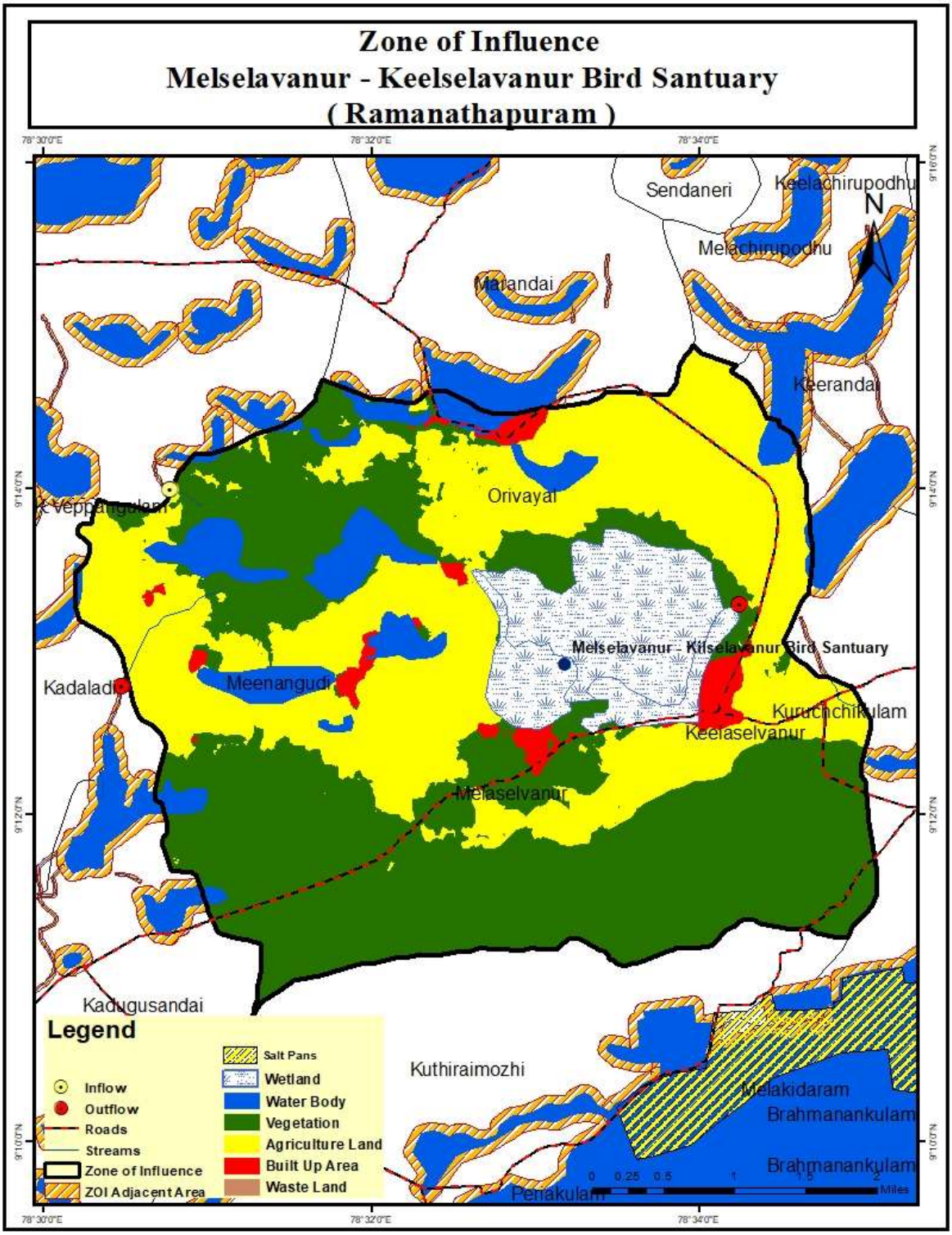


Fig. 3.38.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Melaselvanur-Kilaselvanur Bird Sanctuary

Map of the Wetland2014



Map of the Wetland 2024



Land Use/ Land Cover of the Wetland

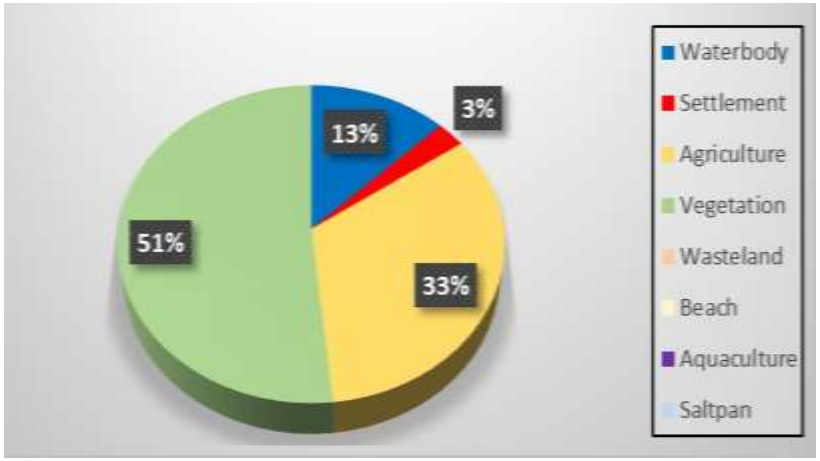


Table 3.38.1. IUCN Status of Floral Species in Melaselvanur-Kilaselvanur Bird Sanctuary

S. No	Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
9.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
10.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
11.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Borassus flabellifer*	Arecaceae	Panai Maram	Tree	LC
14.	*Brachiaria ramosa*	Poaceae		Grass	NE
15.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
16.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
17.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
18.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
19.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
20.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
21.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
22.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
23.	*Cyperus iria*	Cyperaceae		Sedge	NE
24.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
25.	*Digitaria abludens*	Poaceae		Grass	NE
26.	*Digitaria ciliaris*	Poaceae		Grass	NE
27.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
28.	*Ficus benghalensis*	Moraceae	Allamaram	Tree	LC
29.	*Hyptis suaveolens*	Labiatae		Shrub	NE

30.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
31.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
32.	*Isachne miliacea*	Poaceae	-	Grass	LC
33.	*Ischaemum indicum*	Poaceae	-	Grass	LC
34.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
35.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
36.	*Justicia prostrata*	Acanthaceae		Herb	NE
37.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
38.	*Leptochloa fusca*	Poaceae	Mandaipul	Grass	LC
39.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
40.	*Ludwigia adscendens*	Onagraceae		Herb	NE
41.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
42.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
43.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
44.	*Nymphaea pubescens*	Nymphaeaceae		Herb	LC
45.	*Ottelia alismoides*	Hydrocharitaceae		Herb	LC
46.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
47.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
48.	*Pontederia vaginalis*	Pontederiaceae	Karung kuvalai	Tree	LC
49.	*Prosopis juliflora*	Fabaceae	Karuvel	Tree	NE
50.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
51.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
52.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
53.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
54.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
55.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
56.	*Terminalia arjuna*	Combretaceae	Marutham	Tree	LC
57.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
58.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
59.	*Trachys muricata*	Poaceae	-	Grass	LC
60.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE

61.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
62.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
63.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
64.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.38.2. IUCN Status of Selected Fauna Species in Melaselvanur-Kilaselvanur Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Macaca radiata*	Cercopithecidae	Bonnet macaque		*
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
3.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	*
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing	LC	

			frog		
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	
D. Butterfly					
1.	*Acraea terpsicore*	Nymphalidae	Nymphalidae	LC	*
2.	*Ariadne ariadne*	Nymphalidae	Tawny Caster	NE	*
3.	*Ariadne merione*	Nymphalidae	Angled Castor	LC	*
4.	*Danaus chrysippus*	Nymphalidae	Common Caster	LC	*
5.	*Danaus genutia*	Nymphalidae	Plain Tiger		
6.	*Euploea core*	Nymphalidae	Striped Tiger		
7.	*Euthalia nais*	Nymphalidae	Common Indian Crow		
8.	*Hypolimnas bolina*	Nymphalidae	Baronet		
9.	*Junonia almana*	Nymphalidae	Great Egg Fly		
10.	*Junonia hierta*	Nymphalidae	Peacock Pansy		
11.	*Junonia iphita*	Nymphalidae	Yellow Pansy		
12.	*Junonia lemonias*	Nymphalidae	Chocolate Pansy		
13.	*Junonia orithya*	Nymphalidae	Lemon Pansy		
14.	*Melanitis leda*	Nymphalidae	Blue Pansy	NE	*
15.	*Neptis hylas*	Nymphalidae	Common Evening Brown		
16.	*Phalanta phalantha*	Nymphalidae	Common Sailor		

17.	*Tirumala limniace*	Nymphalidae	Common Leopard		
18.	*Appias albino*	Pieridae	Blue Tiger		
19.	*Belenois aurota*	Pieridae	Common Albatross		
20.	*Ixias marianne*	Pieridae	Pioneer		
21.	*Catopsilia pomona*	Pieridae	White Orange Tip		
22.	*Catopsilia pyranthe*	Pieridae	Common Emigrant		
23.	*Cepora nerissa*	Pieridae	Mottled Emigrant		
24.	*Colisa croceus*	Pieridae	Common Gull		
25.	*Colotis danae*	Pieridae	Dark Clouded Yellow		
26.	*Colotis etrida*	Pieridae	Crimson Tip		
27.	*Eurema hecabe*	Pieridae	Small Orange Tip		
28.	*Delias eucharis*	Pieridae	Common Grass Yellow		
29.	*Leptosia nina*	Pieridae	Common Jezebel		
30.	*Castalius rosimon*	Lycaenidae	Psyche		
31.	*Chilades parrhasius*	Lycaenidae	Common Pierrot		
32.	*Euchrysops cnejus*	Lycaenidae	Indian Cupid		
33.	*Freyeria trochylus*	Lycaenidae	Gram Blue		
34.	*Jamides celeno*	Lycaenidae	Grass Jewel		
35.	*Zizeeria knysna*	Lycaenidae	Common Cerulin		
36.	*Zizina otis*	Lycaenidae	Tiny Grass Blue		
37.	*Atrophaneura aristolochiae*	Papilionidae	Lesser Grass		

			Blue		
38.	*Atrophaneura hector*	Papilionidae	Common Rose		
39.	*Graphium agamemnon*	Papilionidae	Crimson Rose		
40.	*Graphium sarpedon*	Papilionidae	Tailed Jay	NE	*
41.	*Papilio demoleus*	Papilionidae	Common Bluebottle	NE	*
42.	*Papilio polytes*	Papilionidae	Lime Butterflies		
43.	*Papilio polymnestor*	Papilionidae	Common Mormon		
44.	*Troides minos*	Papilionidae	Blue Mormon	NE	*
45.	*Borbo cinnara*	Hesperiidae	Southern Bird Wing	NE	*
46.	*Sarangesa purendra*	Hesperiidae	Rice Swift	LC	*
47.	*Spialia galba*	Hesperiidae	Spotted Small Flat	LC	*
48.	*Suastus gremius*	Hesperiidae	Indian Skipper	LC	*

LC – Least Concern; * - Yes

Table 3.38.3. IUCN Status of Bird Species in Melaselvanur-Kilaselvanur Bird Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	D	LC	*
3.	*Alauda gulgula*	Oriental Skylark	T	LC	
4.	*Alcedo atthis*	Common Kingfisher	T	LC	*
5.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
6.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	*
7.	*Anastomus oscitans*	Asian Openbill	A	LC	
8.	*Anhinga melanogaster*	Darter	A	LC	
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Ardea cinerea*	Grey Heron	A	LC	*

11.	*Ardea purpurea*	Purple Heron	A	LC	
12.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
13.	*Bubulcus ibis*	Cattle Egret	D	LC	*
14.	*Casmerodius albus*	Great Egret	A	LC	
15.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
16.	*Charadrius dubius*	Little Ringed Plover	A	LC	
17.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
18.	*Circus macrourus*	Pallid Harrier	T	LC	
19.	*Circus melanoleucos*	Pied Harrier	T	LC	
20.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
21.	*Clamator jacobinus*	Pied Cuckoo	T	LC	*
22.	*Columba livia*	Rock Pigeon	T	LC	*
23.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	*
24.	*Coracias benghalensis*	Indian Roller	T	LC	*
25.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
26.	*Corvus splendens*	House Crow	T	LC	*
27.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
28.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
29.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
30.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
31.	*Dupetor flavicollis*	Black Bittern	A	LC	
32.	*Egretta garzetta*	Little Egret	A	LC	*
33.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
34.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
35.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
36.	*Falco tinnunculus*	Common Kestrel	T	LC	
37.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
38.	*Fulica atra*	Coot	A	LC	
39.	*Gallicrex cinerea*	Watercock	A	LC	
40.	*Gallinula chloropus*	Common Moorhen	A	LC	*

41.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
42.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
43.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
44.	*Haliastur indus*	Brahminy Kite	T	LC	*
45.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
46.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
47.	*Hirundo rustica*	Barn Swallow	T	LC	
48.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
49.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
50.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
51.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
52.	*Limosa limosa*	Black-tailed Godwit	A	LC	
53.	*Lonchura malacca*	Black-headed Munia	D	LC	
54.	*Merops orientalis*	Green Bee-eater	T	LC	*
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
57.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Motacilla flava*	Yellow Wagtail	D	LC	
60.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
61.	*Mycteria leucocophala*	Painted stork	A	NT	
62.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
63.	*Nettapus coromandelianus*	Cotton Pygmy Goose	A	LC	
64.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
65.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
66.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
67.	*Passer domesticus*	House Sparrow	T	LC	*
68.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
69.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
70.	*Phalacrocorax niger*	Little Cormorant	A	LC	*

71.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
72.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
73.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
74.	*Ploceus manyar*	Streaked Weaver	T	LC	
75.	*Pluvialis squatarola*	Grey Plover	A	LC	
76.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
77.	*Prinia inornata*	Plain Prinia	T	LC	
78.	*Prinia socialis*	Ashy Prinia	T	LC	*
79.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
80.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
81.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
82.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
83.	*Sarkidiornis melanotos*	Comb Duck			
84.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
85.	*Sterna aurantia*	River Tern	A	LC	
86.	*Sternula albifrons*	Little Tern	A	LC	*
87.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
88.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
89.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
90.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
91.	*Tringa glareola*	Wood Sandpiper	A	LC	*
92.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
93.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
94.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.38.4. IUCN Status of major plant invasive alien species in Melaselvanur-Kilaselvanur Bird Sanctuary

S. No.	Species	Family	Tamil Name
1.	*Albizia saman*	Fabaceae	Rain tree
2.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni

3.	*Ipomoea carnea*	Convolvulaceae	
4.	*Lantana camara*	Verbenaceae	Unnichedi
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Senna tora*	Caesalpiniaceae	Oosithagarai
7.	*Typha angustifolia*	Typhaceae	Sambu
8.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.38.5. IUCN Status of major animal invasive alien species in Melaselvanur-Kilaselvanur Bird Sanctuary

S. No.	Species	Family	Common name	IUCN
Fish				
1.	*Clarias gariepinus*	Clariidae	African Catfish	LC

Table 3.38.6. IUCN Status of major medicinal plant species in Melaselvanur-Kilaselvanur Bird Sanctuary

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Aerva lanata*	Amaranthaceae	Peelai	Herb
7.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Leucas aspera*	Labiatae	Thumbai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Nymphaea pubescens*	Nymphaeaceae		Herb
13.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb

14.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
15.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
16.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
17.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.39. KARANKADU MANGRVE FOREST

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Karankadu Mangrove Forest

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Karankadu, Thirivadanai, Chitturvadi, Karuthanendal, Keelakulam

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanathapuram

1.4 *Geographical coordinates:*

- ► Latitude: 9˚38’39.7” N
- ► Longitude: 78˚57’32.4” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 340.05 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 3.5; Maximum - 6

2.4 *Elevation (m above mean sea level):* 1

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river:
- ✓ Others, please specify: Backwaters from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C): 28-33

c) Humidity (%) 75

2.7 *Area of zone of influence (in ha):* 5883.6 ha (with an irregular radius of 4.54 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	21%
Agriculture	:	29%
Settlements (Rural)	:	8%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	35%
Waste Land	:	2%
Aquaculture	:	5%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.39 (Fig. 3.39.1-3.39.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 49 species. (refer to Table 3.39.1 in Annexure 3.39).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 150 recorded species. This includes 5 mammal species, 21 reptile species, 9 amphibian species, 96 bird species, and 16 species of butterflies (refer to Table 3.39.2-3.39.3 in Annexure 3.39).

3.3 *Species of conservation significance:* Highlighted in Table 3.39.1-3.39.3

3.4 *Major plant invasive alien species:* The Wetland supports 6 plant invasive species (refer to Table 3.39.4 in Annexure 3.39).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.39.5 in Annexure 3.39).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.39.6 (Annexure 3.39)
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts & Especially for Boating
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	✓ Yes ❒ No	Receives a good population of nature enthusiasts & Especially for Boating
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing activity
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No	

		❒ Not assessed	
Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Boating is there for tourism
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.39.4 – 3.39.5 in Annexure 3.39
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		✓ Wetland/ Wetland complex boundary ❒ Zone of influence			There is presence boat jetties for tourism
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

3 Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). A checklist of reptiles of India (Version 3.0). Zoological Survey of India. Retrieved from www.zsi.gov.in (Last update: May 2018).

4 Ali, S. (2002). The book of Indian birds (13th rev. ed.). Oxford University Press.

5 Gamble, J. S., & Fischer, C. E. C. (1915–1935). Flora of Presidency of Madras. Adlard and Son.

6 Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). Flora of Tamil Nadu, India. Series 1: Analysis (Vol. III). Botanical Survey of India.

7 Ratnam, K. (n.d.). Birds of Tamil Nadu.

8 Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa, 11(8), 13992–14009.

https://doi.org/10.11609/jott.4705.11.8.13992-14009
9 Kehimkar, I. (2008). The book of Indian butterflies. Bombay Natural History Society.
10 Matthew, K. M. (1981). The material for the flora of the Tamil Nadu Carnatic. The Diocesan Press.
11 Matthew, K. M. (1982). Illustrations on the flora of the Tamil Nadu Carnatic (Vol. II). The Diocesan Press.
12 Matthew, K. M. (1983). The flora of Tamil Nadu Carnatic (Vol. III). The Diocesan Press.
13 Matthew, K. M. (1988). Further illustrations on the flora of the Tamil Nadu Carnatic (Vol. IV). The Diocesan Press.
14 Mayuranathan, P. V. (1929). The flowering plants of Madras city and its immediate neighbourhood. Bulletin of the Madras Government Museum. New Series. Natural History Section, 2, 1–339.
15 Nair, N. C., & Henry, A. N. (1983). Flora of Tamil Nadu, India. Series 1 (Vol. 1). Botanical Survey of India.

ANNEXURE 3.39

Fig. 3.39.1 Zone of Influence of Karankadu Wetland

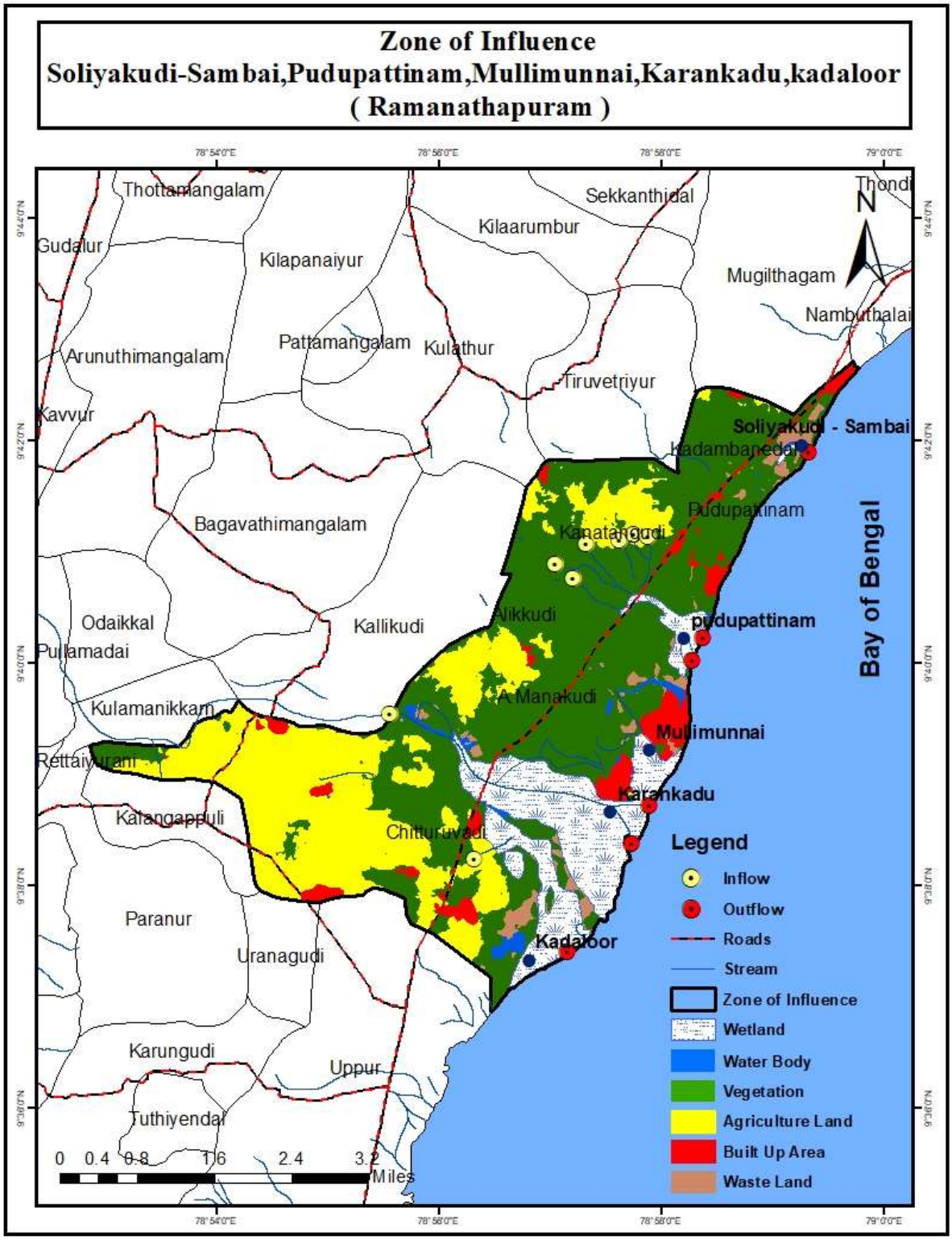


Fig. 3.39.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Karankadu Forest

Map of the Wetland2014



Map of the Wetland 2024



Land Use/ Land Cover of the Wetland

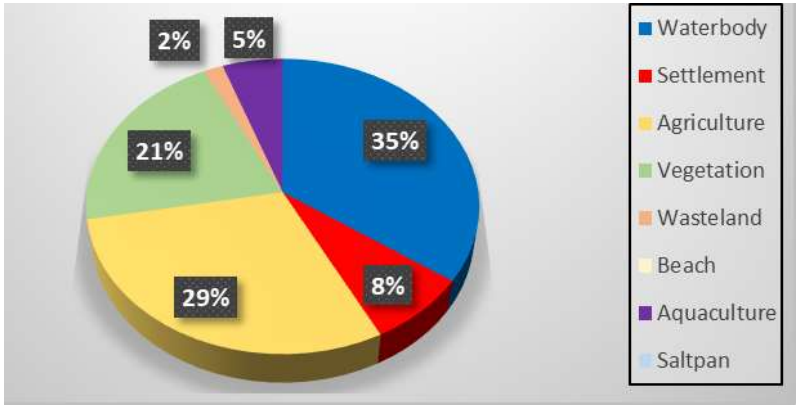


Table 3.39.1. IUCN Status of Floral Species in Karankadu Wetland

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
9.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Digitaria ciliaris*	Poaceae		Grass	NE
20.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
21.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
22.	*Ischaemum indicum*	Poaceae	-	Grass	LC
23.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
24.	*Justicia prostrata*	Acanthaceae		Herb	NE
25.	*Launaea bellidifolia*	Asteraceae		Herb	LC
26.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
27.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
28.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
29.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE

30.	*Pedalium murex*	Pedaliaceae		Herb	NE
31.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
32.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
33.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
34.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
35.	*Senna siamea*	Fabaceae		Tree	LC
36.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
37.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
38.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
39.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
40.	*Rhizophora mucronata*	Rhizophoraceae		Tree	LC
41.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
42.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
43.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
44.	*Trachys muricata*	Poaceae	-	Grass	LC
45.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
46.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
47.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
48.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
49.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.39.2. IUCN Status of Selected Fauna Species in Karankadu Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC	
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
3.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
4.	Rattus rattus	Muridae	House rat	LC	*
5.	*Urva edwardsii*	Herpestidae	Indian grey	LC	*

			mongoose		
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	*
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	*
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*

2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	*
2.	*Catopsilia Pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
10.	*Junonia almanac*	Nymphalidae	Peacock pansy	LC	*
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC	*
13.	*Pachliopta aristolochiae*	Papilionidae	Common Rose	NE	*
14.	*Junonia hierta*	Nymphalidae	Yellow Pansy	LC	*
15.	*Papilio demoleus*	Papilionidae	Lime butterfly	LC	*

16.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*

LC – Least Concern; * - Yes

Table 3.39.3. IUCN Status of Bird Species in Karankadu Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Alauda gulgula*	Oriental Skylark	T	LC	*
6.	*Alcedo atthis*	Common Kingfisher	T	LC	*
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
8.	*Anastomus oscitans*	Asian Openbill	A	LC	*
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Apus affinis*	House Swift	T	LC	
11.	*Ardea cinerea*	Grey Heron	A	LC	*
12.	*Ardea purpurea*	Purple Heron	A	LC	
13.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
14.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
15.	*Athene brama*	Spotted Owlet	T	LC	
16.	*Athene brama*	Spoted Owlet	T	LC	
17.	*Bubulcus ibis*	Cattle Egret	D	LC	*
18.	*Calidris pugnax*	Ruf	A	LC	
19.	*Calidris minuta*	Little Stint	A	LC	*
20.	*Calidris temminckii*	Temminck's stint	A	LC	
21.	*Casmerodius albus*	Great Egret	A	LC	
22.	*Centropus sinensis*	Greater Coucal	T	LC	
23.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
24.	*Charadrius alexandrinus*	Kentsh Plover	A	LC	
25.	*Charadrius dubius*	Little Ringed Plover	A	LC	
26.	*Charadrius mongolus*	Lesser Sand Plover	A	LC	

27.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
28.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
29.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
30.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC	*
31.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
32.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
33.	*Columba livia*	Rock Pigeon	T	LC	
34.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
35.	*Coracias benghalensis*	Indian Roller	T	LC	*
36.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
37.	*Corvus splendens*	House Crow	T	LC	*
38.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
39.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
40.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
41.	*Egretta garzetta*	Little Egret	A	LC	*
42.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
43.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
44.	*Falco tinnunculus*	Common Kestrel	T	LC	
45.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
46.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
47.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
48.	*Haliastur indus*	Brahminy Kite	T	LC	*
49.	*Hieraaetus pennatus*	Booted Eagle	T	LC	*
50.	*Hirundo rustica*	Barn Swallow	T	LC	
51.	*Hydroprogne caspia*	Caspian Tern	A	LC	
52.	*Lanius cristatus*	Brown Shrike	T	LC	
53.	*Lanius vitatus*	Bay-backed Shrike	T	LC	
54.	*Limosa limosa*	Black-tailed Godwit	A	LC	
55.	*Merops orientalis*	Green Bee-eater	T	LC	*
56.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	

57.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Mycteria leucocephala*	Painted Stork	A	NT	*
60.	*Accipiter badius*	Shikra	T	LC	*
61.	*Acridotheres tristis*	Common Myna	T	LC	*
62.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
63.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
64.	*Alauda gulgula*	Oriental Skylark	T	LC	*
65.	*Alcedo atthis*	Common Kingfisher	T	LC	*
66.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
67.	*Anastomus oscitans*	Asian Openbill	A	LC	*
68.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
69.	*Apus affinis*	House Swift	T	LC	
70.	*Ardea cinerea*	Grey Heron	A	LC	*
71.	*Ardea purpurea*	Purple Heron	A	LC	
72.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
73.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
74.	*Athene brama*	Spotted Owlet	T	LC	
75.	*Athene brama*	Spoted Owlet	T	LC	
76.	*Bubulcus ibis*	Cattle Egret	D	LC	*
77.	*Calidris pugnax*	Ruf	A	LC	
78.	*Calidris minuta*	Little Stint	A	LC	*
79.	*Calidris temminckii*	Temminck's stint	A	LC	
80.	*Casmerodius albus*	Great Egret	A	LC	
81.	*Centropus sinensis*	Greater Coucal	T	LC	
82.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
83.	*Charadrius alexandrinus*	Kentsh Plover	A	LC	
84.	*Charadrius dubius*	Little Ringed Plover	A	LC	
85.	*Charadrius mongolus*	Lesser Sand Plover	A	LC	
86.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
87.	*Chroicocephalus*	Brown-headed Gull	A	LC	

	brunnicephalus				
88.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
89.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC	*
90.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
91.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
92.	*Columba livia*	Rock Pigeon	T	LC	
93.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
94.	*Coracias benghalensis*	Indian Roller	T	LC	*
95.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
96.	*Corvus splendens*	House Crow	T	LC	*
97.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
98.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
99.	*Dicrurus adsimilis*	Black Drongo	T	LC	*

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.39.4. IUCN Status of major plant invasive alien species in Karankadu Wetland

S. No.	Species	Family	Tamil Name
1.	*Lantana camara*	Verbenaceae	Unnichedi
2.	*Martynia annua*	Martyniaceae	Thael Kodukku
3.	*Prosopis julifera*	Fabaceae	Semai karuvel
4.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
5.	*Typha angustifolia*	Typhaceae	Sambu
6.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.39.5. IUCN Status of major animal invasive alien species in Karankadu Wetland

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.39.6. IUCN Status of major medicinal plant species in Karankadu Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Pedalium murex*	Pedaliaceae		Herb
11.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
12.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
15.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.40. KOTHANDARAMAR LAGOON

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Kothandaramar Lagoon

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Rameshwaram, Kothandaramar Kovil, Pamban, Mandapam, Vembar

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanatapuram

1.4 *Geographical coordinates:*

- Latitude: 12˚35’56” N
- Longitude: 79˚50’32” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 1668.52 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	✓ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2; Maximum - 4.5

2.4 *Elevation (m above mean sea level):* 0

2.5 *Water regimes*

a) Main source of water

✓ Rainfall inflow from river

✓ Groundwater

✓ Catchment runoff

❒ Direct/ indirect inflow from the river: *Vaigai River*

✓ Others, please specify: Backwaters from Bay of Bengal

❒ Name of River/ Canal System

b) Water performance

❒ Mostly permanent

✓ Mostly intermittent

c) Destination of water from Wetland

✓ Feeds groundwater river to sea

❒ To downstream catchment

d) Water pH

❒ Acid (< 5.5)

❒ Circumneutral (5.5-7.4)

✓ Alkaline (> 7.4)

e) Water salinity

❒ Fresh (< 0.5 g/l)

❒ Brackish (0.5-30 g/l)

❒ Euhaline (30-40 g/l)

✓ Hypersaline (> 40 g/l)

❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 26.65; Maximum 34.45

c) Humidity (%) Minimum 75.3; Maximum 80.8

2.7 *Area of zone of influence (in ha):* 12214.43 ha (with an irregular radius of 6.64 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	30%
Agriculture	:	0%
Settlements (Rural)	:	16%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	44%
Waste Land	:	9%
Aquaculture	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.40 (Fig. 3.40.1-3.40.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 20 species (refer to Table 3.40.1 in Annexure 3.40).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 123 recorded species. This includes 2 mammal species, 19 reptile species, 9 amphibian species, 77 bird species, and 16 species of butterflies (refer to Table 3.40.2-3.40.3 in Annexure 3.40).

3.3 *Species of conservation significance:* Highlighted in Table 3.40.1-3.40.3

3.4 *Major plant invasive alien species:* The Wetland supports 1 plant invasive species (refer to Table 3.40.4 in Annexure 3.40).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.40.5 in Annexure 3.40).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.40.6 (Annexure 3.40)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There are few temples within the Zone of Influence
Is a site for recreation and tourism	✓ Yes ❒ No	Especially for Boating activities
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Any others	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing activity
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Dumping of Plastic Waste
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.40.4 in Annexure 3.40
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). The Book of Indian Birds (13th Revised Edition). Oxford University Press, New Delhi, 326pp.
2. Chitra N., and Mahendran S, A preliminary list of butterflies of Ramanathapuram District, Tamil Nadu March (2003), Zoos Print Journal 18(4):1090-1090.
3. Gamble, J.S. and C.E.C. Fischer. 1915-1935. Flora of Presidency of Madras, Adlard and Son, London. pp. 1-3.
4. Henry, A.N., Chithra, V.N. and Balakrishnan, P. (1989) Flora of Tamil Nadu India. Series 1: Analysis. Vol. III. Botanical Survey of India, Coimbatore.
5. *K. Ratnam* Bird of Tamil Nadu
6. Kamalakannan, M.& P.O.Nameer (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa 11(8): 13992–14009; https://doi.org/10.11609/jott.4705.11.8.13992–14009.
7. Kehimkar I. The Book of Indian Butterflies. Bombay Natural History Society, 2008, 497.
8. Mathew, K. M. 1981. The Material for the Flora of the Tamilnadu Carnatic, Madras, India.

9. Matthew, K. M. 1982. Illustrations on the Flora of the Tamilnadu Carnatic. Vol. II. The Diocesan press, Madras, India.
10. Matthew, K. M. 1983. The Flora of Tamilnadu Carnatic. Vol. III. The Diocesan press, Madras, India.
11. Matthew, K. M. 1988. Further Illustrations on the Flora of the Tamilnadu Carnatic. Vol. IV. The Diocesan press, Madras, India.
12. Nair, N.C. and A.N. Henry. 1983. Flora of Tamil Nadu, India.Series 1, Vol. 1, Botanical Survey of India, Southern Circle, Coimbatore. 1-184.

ANNEXURE 3.40

Fig. 3.40.1 Zone of Influence of Kothandaramar Lagoon

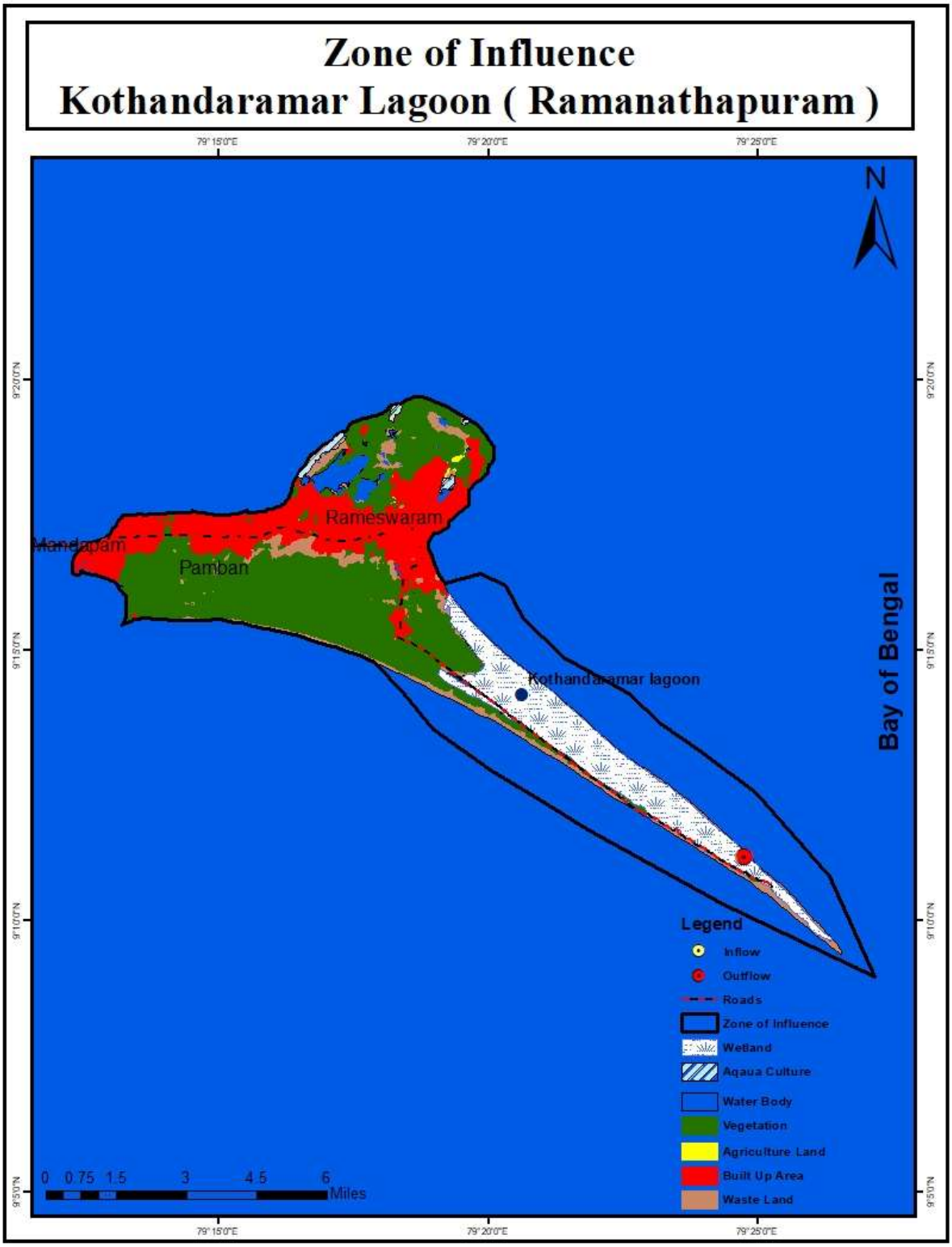


Fig. 3.40.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Kothandaramar Lagoon

Map of the Wetland 2014



Map of the Wetland 2024



Land Use/ Land Cover of the Wetland

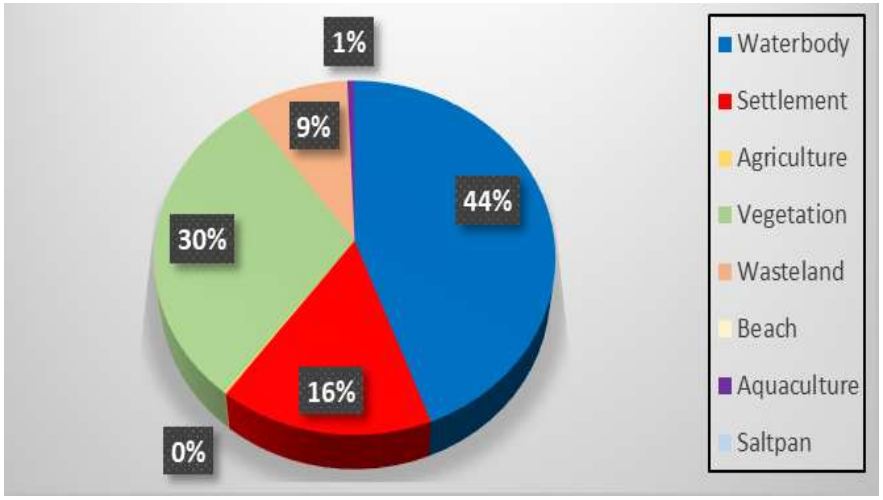


Table 3.40.1. IUCN Status of Floral Species in Kothandaramar Lagoon

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Acanthospermum hispidum*	Compositae		Herb	NE
2.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
3.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
4.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
5.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
6.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
7.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
8.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
9.	*Digitaria ciliaris*	Poaceae		Grass	NE
10.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
11.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
12.	*Launaea bellidifolia*	Asteraceae		Herb	LC
13.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
14.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
15.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
16.	*Pedalium murex*	Pedaliaceae		Herb	NE
17.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
18.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
19.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
20.	*Trachys muricata*	Poaceae	-	Grass	LC

Table 3.40.2. IUCN Status of Selected Fauna Species in Kothandaramar Lagoon

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
2.	Rattus rattus	Muridae	House rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	

2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	*
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	

5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*		Common tree frog	LC	
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	*
2.	*Catopsilia Pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
10.	*Junonia almanac*	Nymphalidae	Peacock pansy	LC	*
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC	*
13.	*Pachliopta aristolochiae*	Papilionidae	Common Rose	NE	*
14.	*Junonia hierta*	Nymphalidae	Yellow Pansy	LC	*
15.	*Papilio demoleus*	Papilionidae	Lime butterfly	LC	*
16.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*

LC – Least Concern; * - Yes

Table 3.40.3. IUCN Status of Bird Species in Kothandaramar Lagoon

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
4.	*Alauda gulgula*	Oriental Skylark	T	LC	*
5.	*Alcedo atthis*	Common Kingfisher	T	LC	*
6.	*Apus affinis*	House Swift	T	LC	
7.	*Ardea cinerea*	Grey Heron	A	LC	*
8.	*Ardea purpurea*	Purple Heron	A	LC	
9.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
10.	*Athene brama*	Spoted Owlet	T	LC	
11.	*Bubulcus ibis*	Cattle Egret	D	LC	*
12.	*Calidris minuta*	Little Stint	A	LC	*
13.	*Casmerodius albus*	Great Egret	A	LC	
14.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
15.	*Charadrius dubius*	Little Ringed Plover	A	LC	
16.	*Charadrius mongolus*	Lesser Sand Plover	A	LC	
17.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
18.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
19.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
20.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC	*
21.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
22.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
23.	*Columba livia*	Rock Pigeon	T	LC	
24.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
25.	*Coracias benghalensis*	Indian Roller	T	LC	*
26.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
27.	*Corvus splendens*	House Crow	T	LC	*
28.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
29.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*

30.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
31.	*Egretta garzetta*	Little Egret	A	LC	*
32.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
33.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
34.	*Haliastur indus*	Brahminy Kite	T	LC	*
35.	*Hieraaetus pennatus*	Booted Eagle	T	LC	*
36.	*Hirundo rustica*	Barn Swallow	T	LC	
37.	*Hydroprogne caspia*	Caspian Tern	A	LC	
38.	*Lanius cristatus*	Brown Shrike	T	LC	
39.	*Lanius vitatus*	Bay-backed Shrike	T	LC	
40.	*Limosa limosa*	Black-tailed Godwit	A	LC	
41.	*Merops orientalis*	Green Bee-eater	T	LC	*
42.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
43.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
44.	*Milvus migrans*	Black Kite	T	LC	*
45.	*Mycteria leucocephala*	Painted Stork	A	NT	*
46.	*Numenius phaeopus*	Eurasian whimbrel	A	LC	
47.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
48.	*Passer domesticus*	House Sparrow	T	LC	*
49.	*Pernis ptlorhynchus*	Oriental Honey Buzzard	T	LC	*
50.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
51.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
52.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
53.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
54.	*Pluvialis squatarola*	Grey Plover	A	LC	
55.	*Prinia inornate*	Plain Prinia	T	LC	*
56.	*Prinia socialis*	Ashy Prinia	T	LC	*
57.	*Pseudibis papillosa*	Red-naped Ibis	T	LC	*
58.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
59.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*

60.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
61.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
62.	*Sterna albifrons*	Little Tern	A	LC	*
63.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
64.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC	*
65.	*Spilopelia senegalensis*	Laughing Dove	T	LC	*
66.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
67.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
68.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC	
69.	*Thalasseus bergii*	Greater Crested Tern	A	LC	
70.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
71.	*Tringa glareola*	Wood Sandpiper	A	LC	*
72.	*Tringa nebularia*	Common Greenshank	A	LC	*
73.	*Tringa totanus*	Common Redshank	A	LC	*
74.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
75.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
76.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
77.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.40.4. IUCN Status of major plant invasive alien species in Kothandaramar Lagoon

S. No.	Species	Family	Tamil Name
1.	*Martynia annua*	Martyniaceae	Thael Kodukku

Table 3.40.5. IUCN Status of major animal invasive alien species in Kothandaramar Lagoon

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.40.6. IUCN Status of major medicinal plant species in Kothandaramar Lagoon

S. No.	Species	Family	Tamil Name	Habit
1.	*Pedalium murex*	Pedaliaceae		Herb
2.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.41. GULF OF MANNAR MARINE BIOSPHERE RESERVE

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Gulf of Mannar Biosphere Reserve or Gulf of Mannar Marine National Park

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Rameswaram, Mandapam, Pamban, Kothandaramar Kovil, Vembar, Kilakarai

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanathapuram

1.4 *Geographical coordinates:*

- ► Latitude: 9˚6’57” N
- ► Longitude: 78˚47’12” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 43.78 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ✓ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.1 *Depth (m):* Average - 5; Maximum - 7

2.2 *Elevation (m above mean sea level):* 0

2.3 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: receives water from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.4 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 26.65 ; Maximum 34.45

c) Humidity (%) Minimum 75.3 ; Maximum 80.8

2.5 *Area of zone of influence (in ha):* 728.37 ha (with an irregular radius of 1.57 km)

2.6 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	15%
Agriculture	:	0%
Settlements (Rural)	:	0%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	85%

2.7 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.41 (Fig.3. 41.1-3.41.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 64 species. (refer to Table 3.41.1 in Annexure 3.41).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 205 recorded species. This includes 9 mammal species, 21 reptile species, 9 amphibian species, 153 bird species, and 13 species of butterflies (refer to Table 3.41.2-3.41.3 in Annexure 3.41).

3.3 *Species of conservation significance:* Highlighted in Table 3.41.1-3.41.3

3.4 *Major plant invasive alien species:* The Wetland supports 8 plant invasive species (refer to Table 3.41.4 in Annexure 3.41).

3.5 *Major animal invasive alien species:* The Wetland supports 3 animal invasive species (refer to Table 3.41.5 in Annexure 3.41).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	❒ Yes ✓ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.41.6 in Annexure 3.41
Is a recreational site	✓ Yes ❒ No	By the mode of boating and tourism
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	
Has significant cultural and religious values	✓ Yes ❒ No	
Is a site for recreation and tourism	✓ Yes ❒ No	Significant amount of population is exploring the tourism
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds
Supports life cycle of fish or amphibians	✓ Yes ❒ No	
Mining	❒ Yes ✓ No	
Carbon Sequestration	✓ Yes ❒ No	Mangrove plantation leads to carbon sequestration

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒No	❒Yes ❒No ✓Not assessed	Communal fishing activity is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Recreation purpose
Any other	❒ Yes ❒ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium	✓ Present ❒ Potential	Illegally fishing communities were staying inside island

	✓ Low		
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.41.4-3.41.5 in Annexure 3.41
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		✓ Wetland/ Wetland complex boundary ❒ Zone of influence			Wood boat jetties is present
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Gamble, J.S., & Fischer, C.E.C. (1915–1935). *Flora of the Presidency of Madras*. Adlard and Son, London.
3. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
4. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
5. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
6. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.

7. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
8. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
9. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
10. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.
11. Ratnam, K. *Birds of Tamil Nadu*.

ANNEXURE 3.41

Fig 3.41.1. Zone of Influence of Gulf of Mannar Wetland

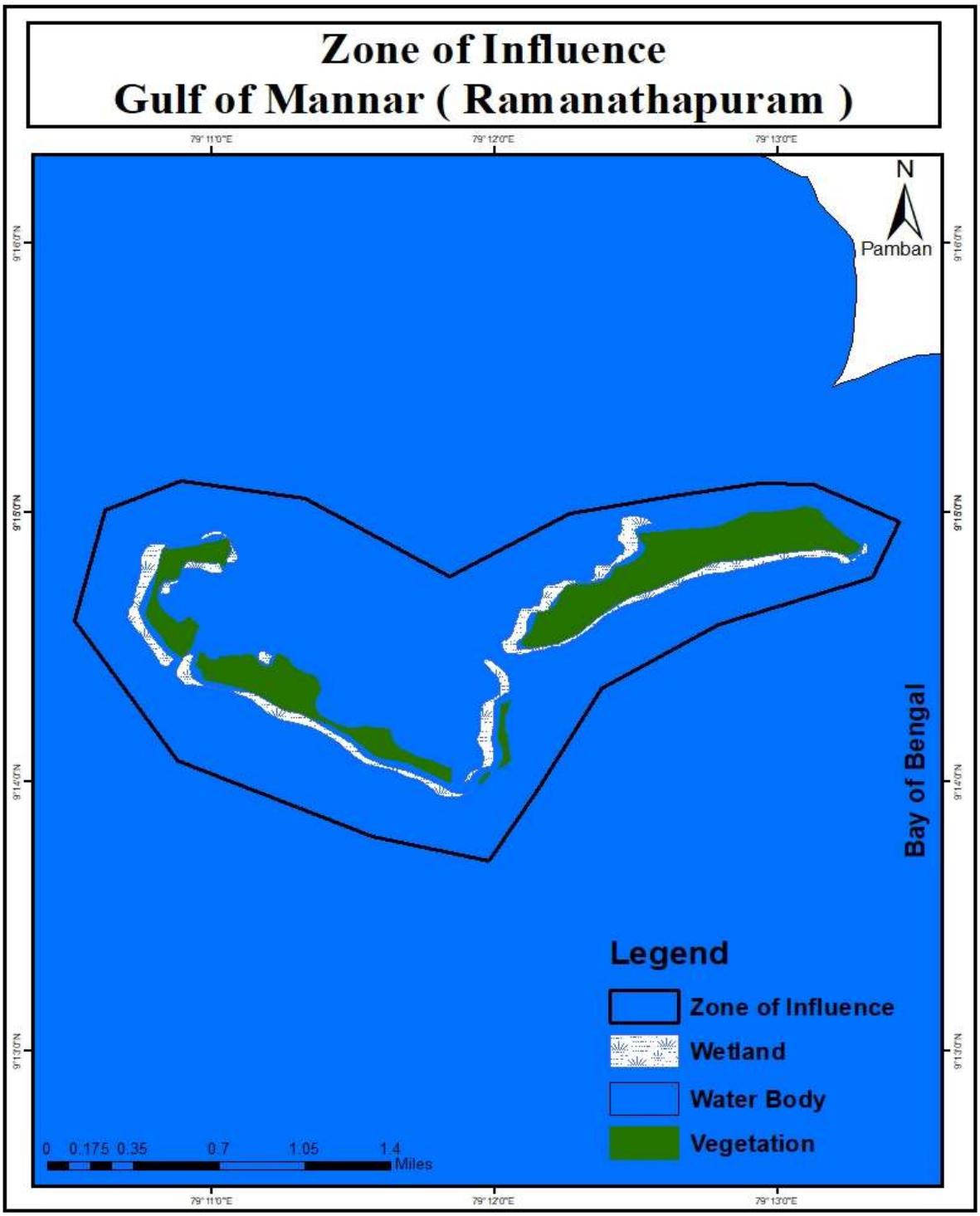


Fig. 3.41.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Gulf of Mannar Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

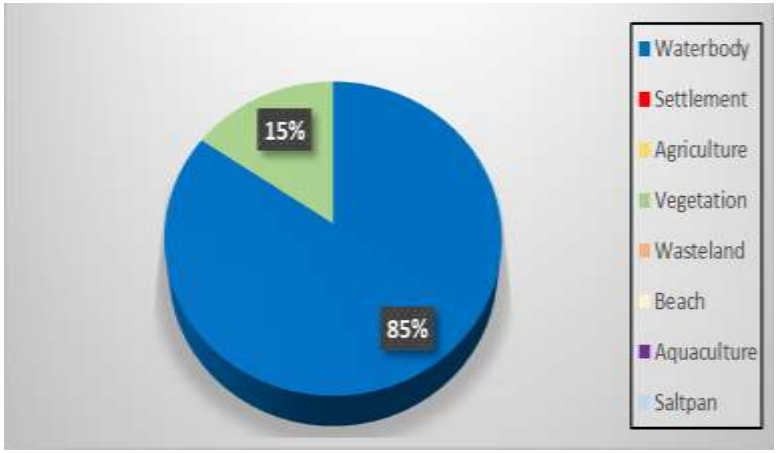


Table 3.41.1. IUCN Status of Floral Species in Gulf of Mannar Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Aeluropus lagopoides*	Poaceae	Kadal Arugampullu	Grass	NE
9.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Cyperus squarrosus*	Cyperaceae		Sedge	NE
20.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
21.	*Digitaria ciliaris*	Poaceae		Grass	NE
22.	*Emilia sonchifolia*	Astereceae	Muyalccevi	Herb	NE
23.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
24.	*Geniosporum tenuiflorum*	Laminaceae	Nallathulasi	Herb	NE
25.	*Gisekia pharnaceoides*	Gisekiaceae	Kolikkirai	Herb	NE

26.	*Glinus lotoides*	Molluginaceae	Cerupattai	Herb	NE
27.	*Glinus oppositifolius*	Molluginaceae	Thurapundu	Herb	NE
28.	*Heliotropium curassavicum*	Boraginaceae		Herb	LC
29.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
30.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
31.	*Ischaemum indicum*	Poaceae	-	Grass	LC
32.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
33.	*Justicia prostrata*	Acanthaceae		Herb	NE
34.	*Launaea bellidifolia*	Asteraceae		Herb	LC
35.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
36.	*Lepisanthes tetraphylla*	Sapindaceae	Neykkoddaan	Tree	LC
37.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
38.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
39.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
40.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
41.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
42.	*Pedalium murex*	Pedaliaceae		Herb	NE
43.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
44.	*Prosopis cineraria*	Fabaceae	Vani	Tree	LC
45.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
46.	*Salacia chinensis*	Celastraceae		Tree	LC
47.	*Salvadora persica*	Salvodaraceae	Peruvilla	Tree	LC
48.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
49.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
50.	*Senna siamea*	Fabaceae		Tree	LC
51.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
52.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE

53.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
54.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
55.	*Suaeda maritima*	Amaranthaceae		Herb	LC
56.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
57.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
58.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
59.	*Trachys muricata*	Poaceae	-	Grass	LC
60.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
61.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
62.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
63.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
64.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.41.2. IUCN Status of Selected Fauna Species in Gulf of Mannar Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Antilope cervicapra*	Bovidae	Blackbuck	NT	*
2.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
3.	*Canis aureus*	Canidae	Golden Jackal	LC	
4.	*Canis aureus*	Canidae	Jackal	LC	
5.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
6.	*Macaca radiate*	Cercopithecidae	Bonnet macaque	LC	*
7.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC	
8.	*Rattus rattus*	Muridae	House rat	LC	*
9.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*

B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	
4.	*Lygosoma punctate*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	*
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	*
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU	

C. Amphibian					
1.	*Euphlyctis hexadactylus*	Dicroglossidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Dicroglossidae	Skipper	LC	*
3.	*Sphaerotheca rolandae*	Dicroglossidae	Burrowing frog	LC	
4.	*Hoplobatrachus crassus*	Dicroglossidae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Dicroglossidae	Paddy Field frog	LC	
6.	*Uperodon taprobanicus*	Microhylidae	Painted frog	LC	*
7.	*Ramanella variegata*	Microhylidae	Marbled frog	LC	
8.	*Duttaphrynus melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	*
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC	*

11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC	*
13.	*Pachliopta aristolochiae*	Papilionidae	Common Rose	NE	*

LC – Least Concern; * - Yes

Table 3.41.3. IUCN Status of Bird Species in Gulf of Mannar Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	
5.	*Aegithina tiphia*	Common Iora	T	LC	
6.	*Alauda gulgula*	Oriental Skylark	T	LC	
7.	*Alcedo atthis*	Common Kingfisher	T	LC	*
8.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
9.	*Anas acuta*	Northern Pintail	A	LC	
10.	*Anas clypeata*	Northern Shoveller	A	LC	
11.	*Anas crecca*	CommonTeal	A	LC	*
12.	*Anas penelope*	EurasianWigeon	A	LC	
13.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
14.	*Anas querquedula*	Garganey	A	LC	
15.	*Anastomus oscitans*	Asian Openbill	A	LC	*
16.	*Anous tenuirostris*	Lesser noddy	A	LC	
17.	*Anhinga melanogaster*	Darter	A	LC	
18.	*Anthus godlewskii*	Blyth's Pipit	T	LC	
19.	*Anthus richardi*	Richard's Pipit	D	LC	
20.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
21.	*Apus affinis*	House Swift	T	LC	
22.	*Arenaria interpres*	Ruddy turn stone	A	LC	
23.	*Ardea cinerea*	Grey Heron	A	LC	*
24.	*Ardea purpurea*	Purple Heron	A	LC	

25.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
26.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
27.	*Athene brama*	Spotted Owlet	T	LC	*
28.	*Bubulcus ibis*	Cattle Egret	D	LC	*
29.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
30.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
31.	*Burhinus oedicnemus*	Stone Curlew	A	LC	
32.	*Butas turteesa*	White-eyed Buzzard	T	LC	
33.	*Buteo buteo*	Common Buzzard	T	LC	
34.	*Butorides striatus*	Little Green Heron	A	LC	
35.	*Cacomantis passerinus*	Indian Plaintive Cuckoo	T	LC	
36.	*Calidris acuminata*	Sharp-tailed sandpiper	A	LC	
37.	*Calidris alpina*	Dunlin	A	LC	
38.	*Calidris canutus*	Red knot	A	LC	
39.	*Calidris ferruginea*	Curlew sandpiper	A	LC	
40.	*Calidris pugnax*	Ruf	A	LC	
41.	*Calidris melanotos*	Pectoral sandpiper	A	LC	
42.	*Calidris minuta*	Little Stint	A	LC	*
43.	*Calidris tenuirostris*	Great Knot	A	LC	
44.	*Calidris temminckii*	Temminck's stint	A	LC	
45.	*Caprimulgus indicus*	Indian Jungle Nightjar	T	LC	
46.	*Casmerodius albus*	Great Egret	A	LC	
47.	*Centropus sinensis*	Greater Coucal	T	LC	
48.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
49.	*Charadrius alexandrinus*	Kentish Plover	A	LC	
50.	*Charadrius dubius*	Little Ringed Plover	A	LC	
51.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
52.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
53.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
54.	*Chroicocephalus genei*	Slender-billed Gull	T	LC	

55.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
56.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
57.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
58.	*Circus macrourus*	Pallid Harrier	T	LC	
59.	*Circus melanoleucos*	Pied Harrier	T	LC	
60.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
61.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
62.	*Columba livia*	Rock Pigeon	T	LC	
63.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
64.	*Coracias benghalensis*	Indian Roller	T	LC	*
65.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
66.	*Corvus splendens*	House Crow	T	LC	*
67.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
68.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
69.	*Dendronanthus indicus*	Forest Wagtail	T	LC	
70.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
71.	*Dupetor flavicollis*	Black Bittern	A	LC	
72.	*Egretta garzetta*	Little Egret	A	LC	*
73.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
74.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
75.	*Esacus recurvirostris*	Great stone-curlew	A	LC	
76.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
77.	*Falco tinnunculus*	Common Kestrel	T	LC	
78.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
79.	*Fulica atra*	Coot	A	LC	
80.	*Glareola lactea*	Small pratincole	T	LC	
81.	*Gallicrex cinerea*	Watercock	A	LC	
82.	*Gallinula chloropus*	Common Moorhen	A	LC	*
83.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
84.	*Glareola maldivarum*	Oriental Pratincole	A	LC	

85.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
86.	*Haliastur indus*	Brahminy Kite	T	LC	*
87.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
88.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
89.	*Hirundo rustica*	Barn Swallow	T	LC	
90.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
91.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
92.	*Icthyophaga leucogaster*	White-bellied sea eagle	T	LC	
93.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
94.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
95.	*Limosa limosa*	Black-tailed Godwit	A	LC	
96.	*Lonchura malacca*	Black-headed Munia	D	LC	
97.	*Merops orientalis*	Green Bee-eater	T	LC	*
98.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
99.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
100.	*Milvus migrans*	Black Kite	T	LC	*
101.	*Motacilla flava*	Yellow Wagtail	D	LC	
102.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
103.	*Mycteria leucocephala*	Painted Stork	A	NT	*
104.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
105.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
106.	*Numenius minutus*	Little curlew	A	LC	
107.	*Numenius phaeopus*	Whimbrel	A	LC	
108.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
109.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
110.	*Passer domesticus*	House Sparrow	T	LC	*
111.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	*
112.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
113.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
114.	*Phalacrocorax niger*	Little Cormorant	A	LC	*

115.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
116.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
117.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
118.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
119.	*Ploceus manyar*	Streaked Weaver	T	LC	
120.	*Pluvialis squatarola*	Grey Plover	A	LC	
121.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
122.	*Prinia inornata*	Plain Prinia	T	LC	*
123.	*Prinia socialis*	Ashy Prinia	T	LC	*
124.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	*
125.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
126.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
127.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
128.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
129.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
130.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
131.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC	
132.	*Sterna albifrons*	Little Tern	A	LC	*
133.	*Sterna anaethetus*	Bridled Tern	A	LC	
134.	*Sterna aurantia*	River Tern	A	LC	*
135.	*Sterna caspia*	CaspianTern	A	LC	
136.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
137.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
138.	*Tachybaptus ruficollis*	Little Grebe	A	LC	*
139.	*Tachymarptis melba*	Alpine Swift	T	LC	
140.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC	
141.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
142.	*Thalasseus sandvicensis*	Sandwich Tern	A	LC	
143.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC	
144.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
145.	*Tringa ochropus*	Green Sandpiper	A	LC	*

146.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
147.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
148.	*Turnix suscitator*	Common Buttonquail	T	LC	
149.	*Tyto alba*	Barn Owl	T	LC	*
150.	*Upupa epops*	Hoopoe	T	LC	
151.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
152.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
153.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.41.4. IUCN Status of major plant invasive alien species in Gulf of Mannar Wetland

S. No.	Species	Family	Tamil Name
1.	*Ipomoea carnea*	Convolvulaceae	
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Parthenium hysterophorus*	Compositae	Vishachedi
5.	*Prosopis julifera*	Fabaceae	Semai karuvel
6.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
7.	*Typha angustifolia*	Typhaceae	Sambu
8.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.41.5. IUCN Status of major animal invasive alien species in Gulf of Mannar Wetland

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC
C. Fish				
3.	*Clarias gariepinus*	Clariidae	African Catfish	LC

Table 3.41.6. IUCN Status of major medicinal plant species in Gulf of Mannar Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Pedalium murex*	Pedaliaceae		Herb
11.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
12.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.42. KANJIRANKULAM BIRD SANCTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**
- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Kanjirankulam Bird Sanctuary or Kanjirankulam Tank or Kanjirankulam Kanmoi

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Kanjirankulam, Mudukulathur, Pulvaykulam

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanatapuram

1.4 *Geographical coordinates:*

- Latitude: 9˚21’35” N
- Longitude: 78˚28’44” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 96.99 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
❒ Natural (Coastal)	❒Coastal lagoon ❒Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 0

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ✓ Direct/ indirect inflow from the river: *Vaigai River*
- ❒ Others, please specify:
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 26.65 ; Maximum 34.45

c) Humidity (%) Minimum 75.3 ; Maximum 80.8

2.7 *Area of zone of influence (in ha):* 4189.41 ha (with an irregular radius of 3.66 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	19%
Agriculture	:	75%
Settlements (Rural)	:	2%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	1%
Waste Land	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.42 (Fig. 3.42.1-3.42.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 65 species. (refer to Table 3.42.1 in Annexure 3.42).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 148 recorded species. This includes 9 mammal species, 21 reptile species, 9 amphibian species, 96 bird species, and 13 species of butterflies (refer to Table 3.42.2-3.42.3 in Annexure 3.42).

3.3 *Species of conservation significance:* Highlighted in Table 3.42.1-3.42.3

3.4 *Major plant invasive alien species:* The Wetland supports 9 plant invasive species (refer to Table 3.42.4 in Annexure 3.42).

3.5 *Major animal invasive alien species:* The Wetland supports 3 animal invasive species (refer to Table 3.42.5 in Annexure 3.42)

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water has been drawn from outflow for agricultural activities
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.42.6 (Annexure 3.42)
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts & Bird watching
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Any others	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒No	❒Yes ❒No ✓Not assessed	Grazing activity is done by cattle
Religious practices	✓Yes ❒No	❒Yes ❒No ✓Not assessed	There is a temple around the embankment of the Wetland

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Water has been drawn from outflow for agricultural activities
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Municipal solid wastes has been dumped around the bund
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Substantial water flow from the surrounding watershed
Encroachment	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.42.4 in Annexure 3.42
Disruption to Wetland	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Few peoples were playing (cricket) inside the Wetland during summer

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well & Observed more in numbers		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex			

		boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundar ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Gamble, J.S., & Fischer, C.E.C. (1915–1935). *Flora of the Presidency of Madras*. Adlard and Son, London.
3. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.

4. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009
5. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
6. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
7. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
8. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
9. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
10. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.
11. Ratnam, K. *Birds of Tamil Nadu*. The Diocesan Press, Madras, India.

ANNEXURE 3.42

Fig. 3.42.1 Zone of Influence of Kanjirankulam Bird Sanctuary

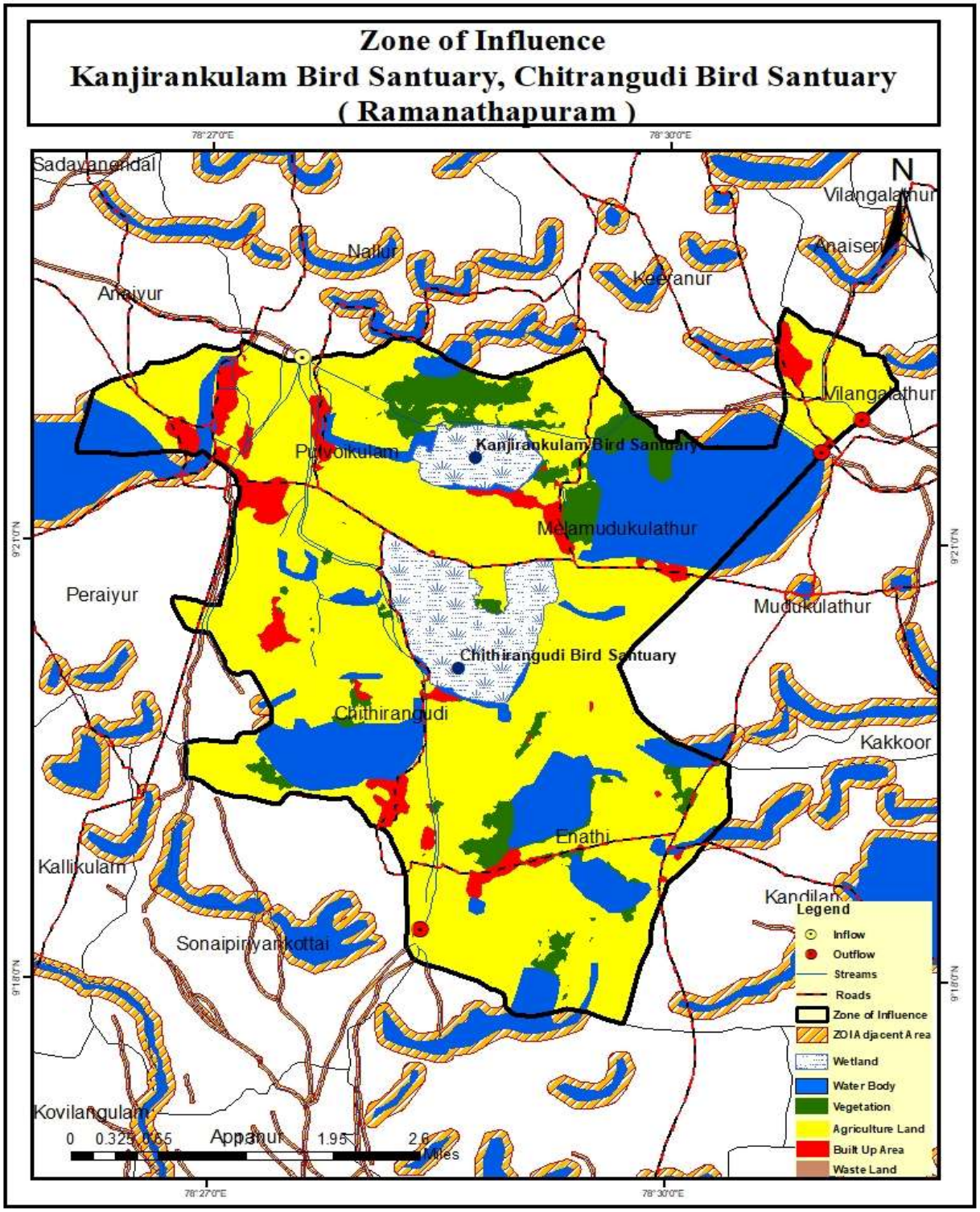


Fig. 3.42.2. Map (2014 *vs*. 2023) and Land Use/ Land Cover of Kanjirankulam Bird Sanctuary

Map of the Wetland 2014



Map of the Wetland 2023



Land Use/ Land Cover of the Wetland

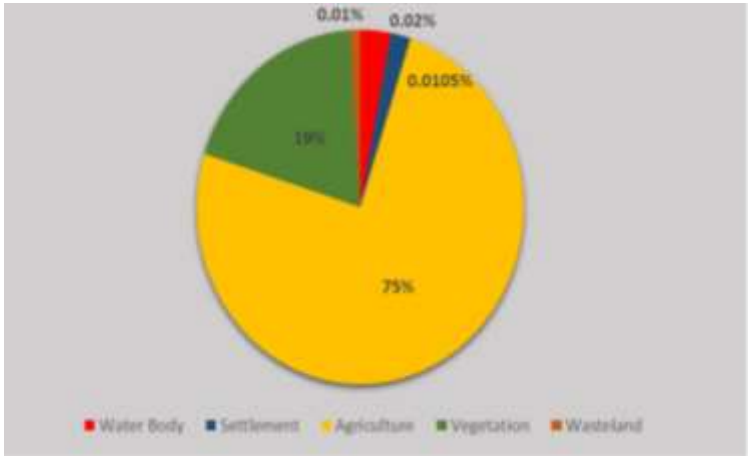


Table 3.42.1. IUCN Status of Floral Species in Kanjirankulam Bird Sanctuary

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Azima tetracantha*	Salvadoraceae		Shrub	NE
9.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Cyperus squarrosus*	Cyperaceae		Sedge	NE
20.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
21.	*Digitaria ciliaris*	Poaceae		Grass	NE
22.	*Emilia sonchifolia*	Astereceae	Muyalccevi	Herb	NE
23.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
24.	*Geniosporum tenuiflorum*	Laminaceae	Nallathulasi	Herb	NE
25.	*Gisekia pharnaceoides*	Gisekiaceae	Kolikkirai	Herb	NE
26.	*Glinus lotoides*	Molluginaceae	Cerupattai	Herb	NE
27.	*Glinus oppositifolius*	Molluginaceae	Thurapundu	Herb	NE
28.	*Heliotropium curassavicum*	Boraginaceae		Herb	LC

29.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
30.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
31.	*Ischaemum indicum*	Poaceae	-	Grass	LC
32.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
33.	*Justicia prostrata*	Acanthaceae		Herb	NE
34.	*Launaea bellidifolia*	Asteraceae		Herb	LC
35.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
36.	*Lepisanthes tetraphylla*	Sapindaceae	Neykkoddaan	Tree	LC
37.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
38.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
39.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
40.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
41.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
42.	*Pedalium murex*	Pedaliaceae		Herb	NE
43.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
44.	*Pongamia pinnata*	Fabaceae	Pungam	Tree	LC
45.	*Prosopis cineraria*	Fabaceae	Vani	Tree	LC
46.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
47.	*Salacia chinensis*	Celastraceae		Tree	LC
48.	*Salvadora persica*	Salvodaraceae	Peruvilla	Tree	LC
49.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
50.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
51.	*Senna siamea*	Fabaceae		Tree	LC
52.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
53.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
54.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
55.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
56.	*Suaeda maritima*	Amaranthaceae		Herb	LC
57.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
58.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC

59.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
60.	*Trachys muricata*	Poaceae	-	Grass	LC
61.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
62.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
63.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
64.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
65.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.42.2. IUCN Status of Selected Fauna Species in Kanjirankulam Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Antilope cervicapra*	Bovidae	Blackbuck	NT	*****
2.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
3.	*Canis aureus*	Canidae	Golden Jackal	LC	
4.	*Canis aureus*	Canidae	Jackal	LC	
5.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
6.	*Macaca radiata*	Cercopithecidae	Bonnet macaque	LC	*
7.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC	
8.	*Rattus rattus*	Muridae	House rat	LC	*
9.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common	LC	

			skink		
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	*
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	*
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Dicroglossidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Dicroglossidae	Skipper	LC	*

3.	*Sphaerotheca rolandae*	Dicroglossidae	Burrowing frog	LC	
4.	*Hoplobatrachus crassus*	Dicroglossidae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Dicroglossidae	Paddy Field frog	LC	
6.	*Uperodon taprobanicus*	Microhylidae	Painted frog	LC	*
7.	*Ramanella variegata*	Microhylidae	Marbled frog	LC	
8.	*Duttaphrynus melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	*
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC	*
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*
12.	*Acraea violae*	Nymphalidae	Tawny	LC	*

			coster		
13.	*Pachliopta aristolochiae*	*Pachliopta aristolochiae*	Common Rose	NE	*

LC – Least Concern; * - Yes

Table 3.42.3. IUCN Status of Bird Species in Kanjirankulam Bird Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Actitis hypoleucos*	Common Sandpiper	A	LC	
4.	*Aegithina tiphia*	Common Iora	T	LC	
5.	*Alauda gulgula*	Oriental Skylark	T	LC	
6.	*Alcedo atthis*	Common Kingfisher	T	LC	*
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
8.	*Anas acuta*	Northern Pintail	A	LC	
9.	*Anas clypeata*	Northern Shoveller	A	LC	
10.	*Anas crecca*	CommonTeal	A	LC	*
11.	*Anas penelope*	EurasianWigeon	A	LC	
12.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
13.	*Anastomus oscitans*	Asian Openbill	A	LC	*
14.	*Anhinga melanogaster*	Darter	A	LC	
15.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
16.	*Apus affinis*	House Swift	T	LC	
17.	*Arenaria interpres*	Ruddy turn stone	A	LC	
18.	*Ardea cinerea*	Grey Heron	A	LC	*
19.	*Ardea purpurea*	Purple Heron	A	LC	
20.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
21.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
22.	*Athene brama*	Spotted Owlet	T	LC	*
23.	*Bubulcus ibis*	Cattle Egret	D	LC	*
24.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
25.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	

26.	*Calidris ferruginea*	Curlew sandpiper	A	LC	
27.	*Calidris minuta*	Little Stint	A	LC	*
28.	*Calidris tenuirostris*	Great Knot	A	LC	
29.	*Centropus sinensis*	Greater Coucal	T	LC	
30.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
31.	*Charadrius alexandrinus*	Kentish Plover	A	LC	
32.	*Charadrius dubius*	Little Ringed Plover	A	LC	
33.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
34.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
35.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
36.	*Chroicocephalus genei*	Slender-billed Gull	T	LC	
37.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
38.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
39.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
40.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
41.	*Columba livia*	Rock Pigeon	T	LC	
42.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
43.	*Coracias benghalensis*	Indian Roller	T	LC	*
44.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
45.	*Corvus splendens*	House Crow	T	LC	*
46.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
47.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
48.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
49.	*Dupetor flavicollis*	Black Bittern	A	LC	
50.	*Egretta garzetta*	Little Egret	A	LC	*
51.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
52.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
53.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
54.	*Glareola lactea*	Small pratincole	T	LC	
55.	*Gallinula chloropus*	Common Moorhen	A	LC	*
56.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*

57.	*Haliastur indus*	Brahminy Kite	T	LC	*
58.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
59.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
60.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
61.	*Lonchura malacca*	Black-headed Munia	D	LC	
62.	*Merops orientalis*	Green Bee-eater	T	LC	*
63.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
64.	*Milvus migrans*	Black Kite	T	LC	*
65.	*Motacilla flava*	Yellow Wagtail	D	LC	
66.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
67.	*Mycteria leucocephala*	Painted Stork	A	NT	*
68.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
69.	*Numenius minutus*	Little curlew	A	LC	
70.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
71.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
72.	*Passer domesticus*	House Sparrow	T	LC	*
73.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
74.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
75.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
76.	*Ploceus manyar*	Streaked Weaver	T	LC	
77.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
78.	*Prinia inornata*	Plain Prinia	T	LC	*
79.	*Prinia socialis*	Ashy Prinia	T	LC	*
80.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
81.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
82.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
83.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
84.	*Sterna albifrons*	Little Tern	A	LC	*
85.	*Sterna anaethetus*	Bridled Tern	A	LC	
86.	*Sterna aurantia*	River Tern	A	LC	*

87.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
88.	*Tachybaptus ruficollis*	Little Grebe	A	LC	*
89.	*Tachymarptis melba*	Alpine Swift	T	LC	
90.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
91.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
92.	*Tringa ochropus*	Green Sandpiper	A	LC	*
93.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
94.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
95.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
96.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.42.4. IUCN Status of major plant invasive alien species in Kanjirankulam Bird Sanctuary

S. No.	Species	Family	Tamil Name
1.	*Ipomoea carnea*	Convolvulaceae	
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Parthenium hysterophorus*	Compositae	Vishachedi
5.	*Prosopis julifera*	Fabaceae	Semai karuvel
6.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
7.	*Senna siamea*	Fabaceae	
8.	*Typha angustifolia*	Typhaceae	Sambu
9.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.42.5. IUCN Status of major animal invasive alien species in Kanjirankulam Bird Sanctuary

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				

2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC
C. Fish				
3.	*Clarias gariepinus*	Clariidae	African Catfish	LC

Table 3.42.6. IUCN Status of major medicinal plant species in Kanjirankulam Bird Sanctuary

S.No	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
3.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
4.	*Mukia leiosperma*	Cucurbitaceae		Climber
5.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
6.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
7.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
8.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
9.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.43. CHITRANGUDI BIRD SANCTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Chitrangudi Bird Sanctuary or Chitrangudi Tank or Chitrangudi Kanmoi

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Chitrangudi, Poonghanpulli, Erachikulam, Keelakanchanakulam

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanathapuram

1.4 *Geographical coordinates:*

► Latitude: 9˚20’28” N

► Longitude: 78˚28’40” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 260.56 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2; Maximum - 3.5

2.4 *Elevation (m above mean sea level):* 26

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ✓ Direct/ indirect inflow from the river: *Vaigai River*
- ❒ Others, please specify:
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 26.65; Maximum 34.45

c) Humidity (%) Minimum 75.3; Maximum 80.8

2.7 *Area of zone of influence (in ha):* 4025.85 ha (with an irregular radius of 3.66 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	19%
Agriculture	:	75%
Settlements (Rural)	:	2%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	1%
Waste Land	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.43 (Fig. 3.43.1-3.43.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 65 species. (refer to Table 3.43.1 in Annexure 3.43).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 100 recorded species. This includes 9 mammal species, 21 reptile species, 9 amphibian species, 48 bird species, and 13 species of butterflies (refer to Table 3.43.2-3.43.3 in Annexure 3.43).

3.3 *Species of conservation significance:* Highlighted in Table 3.43.1-3.43.3

3.4 *Major plant invasive alien species:* The Wetland supports 9 plant invasive species (refer to Table 3.43.4 in Annexure 3.43).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.43.5 in Annexure 3.43).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water has been drawn from outflow for agricultural activities
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.43.6 (Annexure 3.43)
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts & Especially for Bird watching
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Aquaculture activities	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Fishing under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Agriculture or horticulture within Wetland	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Grazing	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Grazing activity is done by cattle
Religious practices	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	There is a temple around the embankment of the Wetland

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Water has been drawn from outflow for agricultural activities
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Municipal solid wastes have been dumped around the bund
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Substantial water flow from the surrounding watershed
Encroachment	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.43.4 in Annexure 3.43
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary			

		❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). The book of Indian birds (13th rev. ed.). Oxford University Press.
2. Gamble, J. S., & Fischer, C. E. C. (1915–1935). Flora of Presidency of Madras. Adlard and Son.
3. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). Flora of Tamil Nadu, India. Series 1: Analysis (Vol. III). Botanical Survey of India.
4. Ratnam, K. (n.d.). Birds of Tamil Nadu.
5. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa, 11(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009

6. Kehimkar, I. (2008). The book of Indian butterflies. Bombay Natural History Society.
7. Matthew, K. M. (1981). The material for the flora of the Tamil Nadu Carnatic. The Diocesan Press.
8. Matthew, K. M. (1982). Illustrations on the flora of the Tamil Nadu Carnatic (Vol. II). The Diocesan Press.
9. Matthew, K. M. (1983). The flora of Tamil Nadu Carnatic (Vol. III). The Diocesan Press.
10. Matthew, K. M. (1988). Further illustrations on the flora of the Tamil Nadu Carnatic (Vol. IV). The Diocesan Press.
11. Nair, N. C., & Henry, A. N. (1983). Flora of Tamil Nadu, India. Series 1 (Vol. 1). Botanical Survey of India.

ANNEXURE 3.43

Fig 3.43.1 Zone of Influence of Chitrangudi Bird Sanctuary

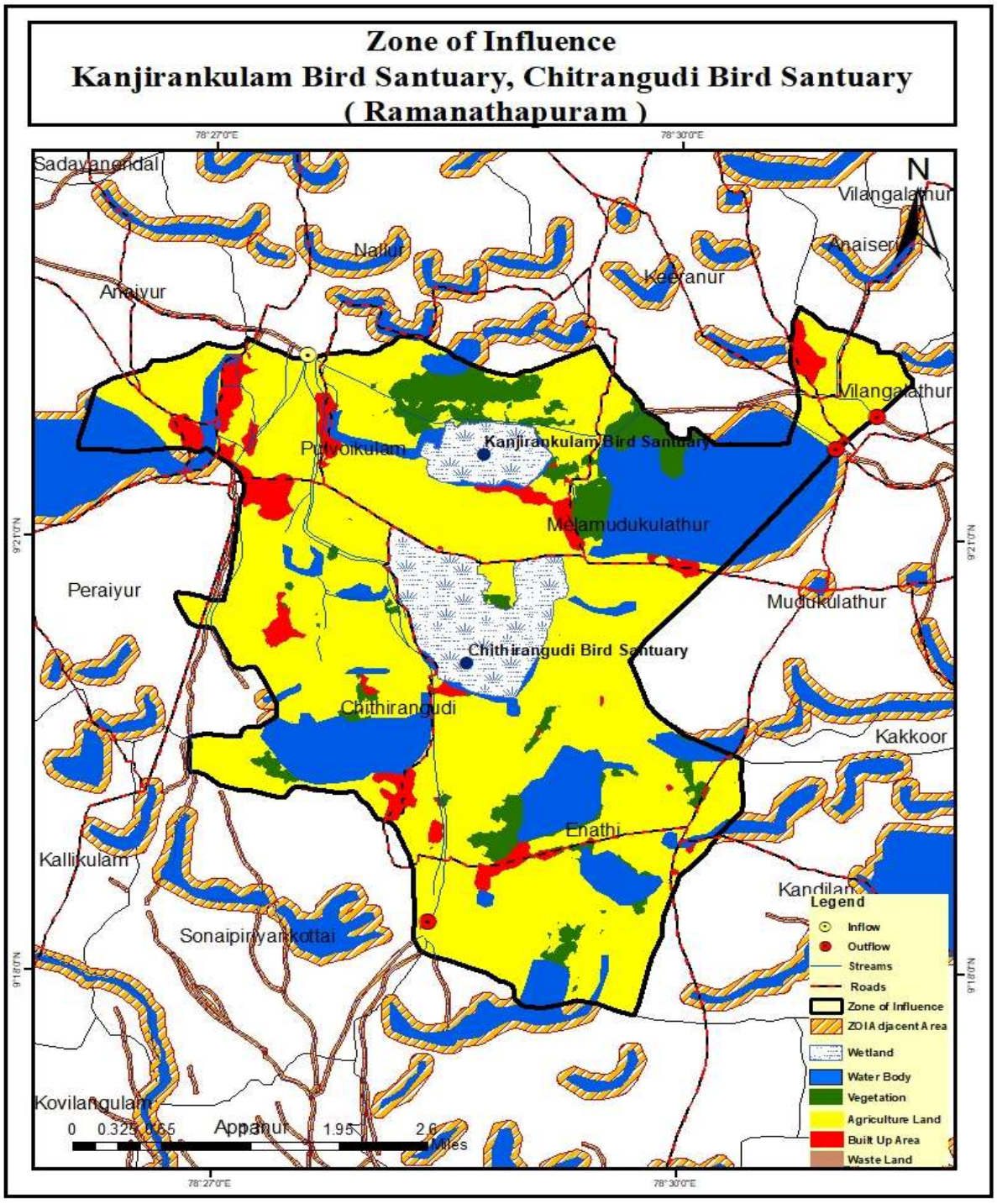


Fig 3.43.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Chitrangudi Bird Sanctuary

Map of the Wetland 2014



Map of the Wetland 2023



Land Use/ Land Cover of the Wetland

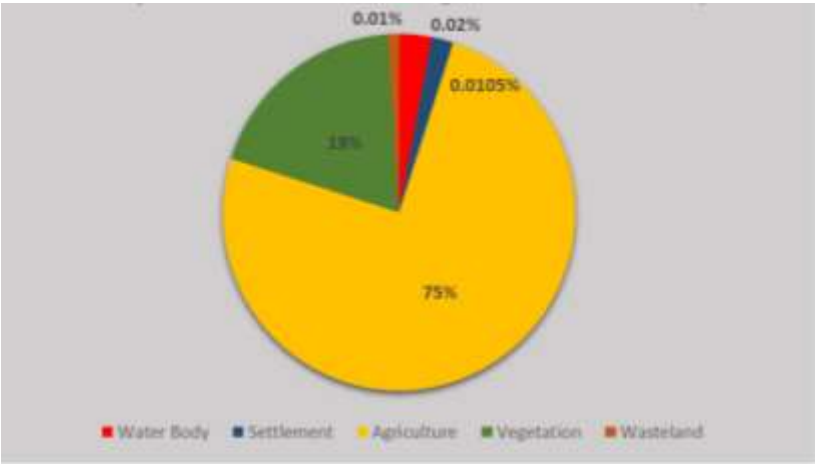


Table 3.43.1. IUCN Status of Floral Species in Chitrangudi Bird Sanctuary

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Azima tetracantha*	Salvadoraceae		Shrub	NE
9.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Cyperus squarrosus*	Cyperaceae		Sedge	NE
20.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
21.	*Digitaria ciliaris*	Poaceae		Grass	NE
22.	*Emilia sonchifolia*	Astereceae	Muyalccevi	Herb	NE
23.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
24.	*Geniosporum tenuiflorum*	Laminaceae	Nallathulasi	Herb	NE
25.	*Gisekia pharnaceoides*	Gisekiaceae	Kolikkirai	Herb	NE
26.	*Glinus lotoides*	Molluginaceae	Cerupattai	Herb	NE
27.	*Glinus oppositifolius*	Molluginaceae	Thurapundu	Herb	NE
28.	*Heliotropium curassavicum*	Boraginaceae		Herb	LC

29.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
30.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
31.	*Ischaemum indicum*	Poaceae	-	Grass	LC
32.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
33.	*Justicia prostrata*	Acanthaceae		Herb	NE
34.	*Launaea bellidifolia*	Asteraceae		Herb	LC
35.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
36.	*Lepisanthes tetraphylla*	Sapindaceae	Neykkoddaan	Tree	LC
37.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
38.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
39.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
40.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
41.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
42.	*Pedalium murex*	Pedaliaceae		Herb	NE
43.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
44.	*Pongamia pinnata*	Fabaceae	Pungam	Tree	LC
45.	*Prosopis cineraria*	Fabaceae	Vani	Tree	LC
46.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
47.	*Salacia chinensis*	Celastraceae		Tree	LC
48.	*Salvadora persica*	Salvodaraceae	Peruvilla	Tree	LC
49.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
50.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
51.	*Senna siamea*	Fabaceae		Tree	LC
52.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
53.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
54.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
55.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
56.	*Suaeda maritima*	Amaranthaceae		Herb	LC
57.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
58.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC

59.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
60.	*Trachys muricata*	Poaceae	-	Grass	LC
61.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
62.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
63.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
64.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
65.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.43.2. IUCN Status of Selected Fauna Species in Chitrangudi Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Antilope cervicapra*	Bovidae	Blackbuck	NT	*****
2.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
3.	*Canis aureus*	Canidae	Golden Jackal	LC	
4.	*Canis aureus*	Canidae	Jackal	LC	
5.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
6.	*Macaca radiata*	Cercopithecidae	Bonnet macaque	LC	*
7.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC	
8.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
9.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	

6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	*
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	*
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Dicroglossidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Dicroglossidae	Skipper	LC	*
3.	*Sphaerotheca rolandae*	Dicroglossidae	Burrowing frog	LC	
4.	*Hoplobatrachus crassus*	Dicroglossidae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Dicroglossidae	Paddy Field frog	LC	
6.	*Uperodon taprobanicus*	Microhylidae	Painted frog	LC	*
7.	*Ramanella variegata*	Microhylidae	Marbled frog	LC	
8.	*Duttaphrynus melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*	Rhacophoridae	Common tree	LC	*

			frog		
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	*
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC	*
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC	*
13.	*Pachliopta aristolochiae*	Papilionidae	Common Rose	NE	*

LC – Least Concern; * - Yes

Table 3.43.3. IUCN Status of Bird Species in Chitrangudi Bird Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Actitis hypoleucos*	Common Sandpiper	A	LC	
4.	*Aegithina tiphia*	Common Iora	T	LC	
5.	*Alauda gulgula*	Oriental Skylark	T	LC	
6.	*Alcedo atthis*	Common Kingfisher	T	LC	*
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
8.	*Anas acuta*	Northern Pintail	A	LC	
9.	*Anas clypeata*	Northern Shoveller	A	LC	

10.	*Anas crecca*	CommonTeal	A	LC	*
11.	*Anas penelope*	EurasianWigeon	A	LC	
12.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
13.	*Anastomus oscitans*	Asian Openbill	A	LC	*
14.	*Anhinga melanogaster*	Darter	A	LC	
15.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
16.	*Apus affinis*	House Swift	T	LC	
17.	*Arenaria interpres*	Ruddy turn stone	A	LC	
18.	*Ardea cinerea*	Grey Heron	A	LC	*
19.	*Ardea purpurea*	Purple Heron	A	LC	
20.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
21.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
22.	*Athene brama*	Spotted Owlet	T	LC	*
23.	*Bubulcus ibis*	Cattle Egret	D	LC	*
24.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
25.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
26.	*Calidris ferruginea*	Curlew sandpiper	A	LC	
27.	*Calidris minuta*	Little Stint	A	LC	*
28.	*Calidris tenuirostris*	Great Knot	A	LC	
29.	*Centropus sinensis*	Greater Coucal	T	LC	
30.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
31.	*Charadrius alexandrinus*	Kentish Plover	A	LC	
32.	*Charadrius dubius*	Little Ringed Plover	A	LC	
33.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
34.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
35.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
36.	*Chroicocephalus genei*	Slender-billed Gull	T	LC	
37.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
38.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
39.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	

40.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
41.	*Columba livia*	Rock Pigeon	T	LC	
42.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
43.	*Coracias benghalensis*	Indian Roller	T	LC	*
44.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
45.	*Corvus splendens*	House Crow	T	LC	*
46.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
47.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
48.	*Dicrurus adsimilis*	Black Drongo	T	LC	*

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.43.4. IUCN Status of major plant invasive alien species in Chitrangudi Bird Sanctuary

S. No.	Species	Family	Tamil Name
1.	*Ipomoea carnea*	Convolvulaceae	
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Parthenium hysterophorus*	Compositae	Vishachedi
5.	*Pedalium murex*	Pedaliaceae	
6.	*Prosopis julifera*	Fabaceae	Semai karuvel
7.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
8.	*Typha angustifolia*	Typhaceae	Sambu
9.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.43.5. IUCN Status of major animal invasive alien species in Chitrangudi Bird Sanctuary

S. No.	Species	Family	Common name	IUCN
A. Reptile				
1.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC
B. Fish				
2.	*Clarias gariepinus*	Clariidae	African Catfish	LC

Table 3.43.6. IUCN Status of major medicinal plant species in Chitrangudi Bird Sanctuary

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Borassus flabellifer*	Arecaceae	Panai Maram	Tree
7.	*Brachiaria ramosa*	Poaceae		Grass
8.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub
9.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
10.	*Leucas aspera*	Labiatae	Thumbai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Pontederia vaginalis*	Pontederiaceae	Karung kuvalai	Tree
13.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
14.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
15.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
16.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
17.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges

indicated to be best of available knowledge

- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.44. THEERTHANGAL BIRD SANCTIARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**
- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Theerthangal Bird Sanctiary or Theerthangal Tank or Theerthangal Kanmoi

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Theerthangal, Ramanatapuram

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanatapuram

1.4 *Geographical coordinates:*

- ► Latitude: 9˚27’23” N
- ► Longitude: 78˚46’ 19” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 51.37 ha

2.2 *Wetland type*:

Category	**Subcategory**
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2; Maximum - 3.5

2.4 *Elevation (m above mean sea level):* 15

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river:
- ❒ Others, please specify:
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ✓ Eutrophic
- ❒ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 26.65 ; Maximum 34.45

c) Humidity (%) Minimum 75.3 ; Maximum 80.8

2.7 *Area of zone of influence (in ha):* 3826.42 ha (with an irregular radius of 3.51 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	6%
Agriculture	:	79%
Settlements (Rural)	:	3%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	12%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.44 (Fig. 3.44.1-3.44.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 49 species. (refer to Table 3.44.1 in Annexure 3.44).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 78 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 49 bird species, and 11 species of butterflies (refer to Table 3.44.2-3.44.3 in Annexure 3.44).

3.3 *Species of conservation significance:* Highlighted in Table 3.44.1-3.44.3

3.4 *Major plant invasive alien species:* The Wetland supports 6 plant invasive species (refer to Table 3.44.4 in Annexure 3.44).

3.5. *Major animal invasive alien species:* The Wetland supports 1 animal invasive species (refer to Table 3.44.5 in Annexure 3.44).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water has been drawn from outflow for agricultural activities
Fisheries	✓ Yes ❒ No	Subsistence fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.44.8 (Annexure 3.44)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Any others	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒No	❒Yes ❒No ✓Not assessed	Illegal Subsistence fishing activity
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒No	❒Yes ❒No ✓Not assessed	Grazing activity is done by cattle
Religious practices	✓Yes ❒No	❒Yes ❒No ✓Not assessed	There is a temple around the embankment of the Wetland

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Water has been drawn from outflow for agricultural activities
Bathing or wallowing of domestic animals	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Cattle wallowing is observed
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Substantial water flow from the surrounding watershed
Encroachment	❒ High ❒ Medium	❒ Present ❒ Potential	

	❒ Low		
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.44.4-3.44.5 in Annexure 3.44
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundar ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V.M., Palot, M.J. & Ganesh, S.R. (2018). A Checklist of Reptiles of India. 35 pp. Version 3.0. Online publication is available at www.zsi.gov.in (Last update: May 2018)
2. Ali, S. (2002). The Book of Indian Birds (13th Revised Edition). Oxford University Press, New Delhi, 326pp.
3. Bibby, C.J., N.D. Burgess & D.A. Hill (1993). Bird Census Techniques. Academic Press Limited, London, 257pp.
4. Gamble, J.S. and C.E.C. Fischer. 1915-1935. Flora of Presidency of Madras, Adlard and Son, London. pp. 1-3.
5. Grimmet, R., C. Inskipp & T. Inskipp (2000). Pocket Guide to the Birds of the Indian Subcontinent. Oxford University Press, New York, 384pp.
6. Henry, A.N., Chithra, V.N. and Balakrishnan, P. (1989) Flora of Tamil Nadu India. Series 1: Analysis. Vol. III. Botanical Survey of India, Coimbatore.
7. *K. Ratnam* Bird of Tamil Nadu

8. Kamalakannan, M.& P.O.Nameer (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa 11(8): 13992–14009; https://doi.org/10.11609/jott.4705.11.8.13992–14009.
9. Kehimkar I. The Book of Indian Butterflies. Bombay Natural History Society, 2008, 497.
10. Mathew, K. M. 1981. The Material for the Flora of the Tamilnadu Carnatic, Madras, India.
11. Matthew, K. M. 1982. Illustrations on the Flora of the Tamilnadu Carnatic. Vol. II. The Diocesan press, Madras, India.
12. Matthew, K. M. 1983. The Flora of Tamilnadu Carnatic. Vol. III. The Diocesan press, Madras, India.
13. Matthew, K. M. 1988. Further Illustrations on the Flora of the Tamilnadu Carnatic. Vol. IV. The Diocesan press, Madras, India.
14. Nair, N.C. and A.N. Henry. 1983. Flora of Tamil Nadu, India.Series 1, Vol. 1, Botanical Survey of India, Southern Circle, Coimbatore. 1-184.

ANNEXURE 3.44

Fig 3.44.1 Zone of Influence of Theerthangal Bird Sanctiary

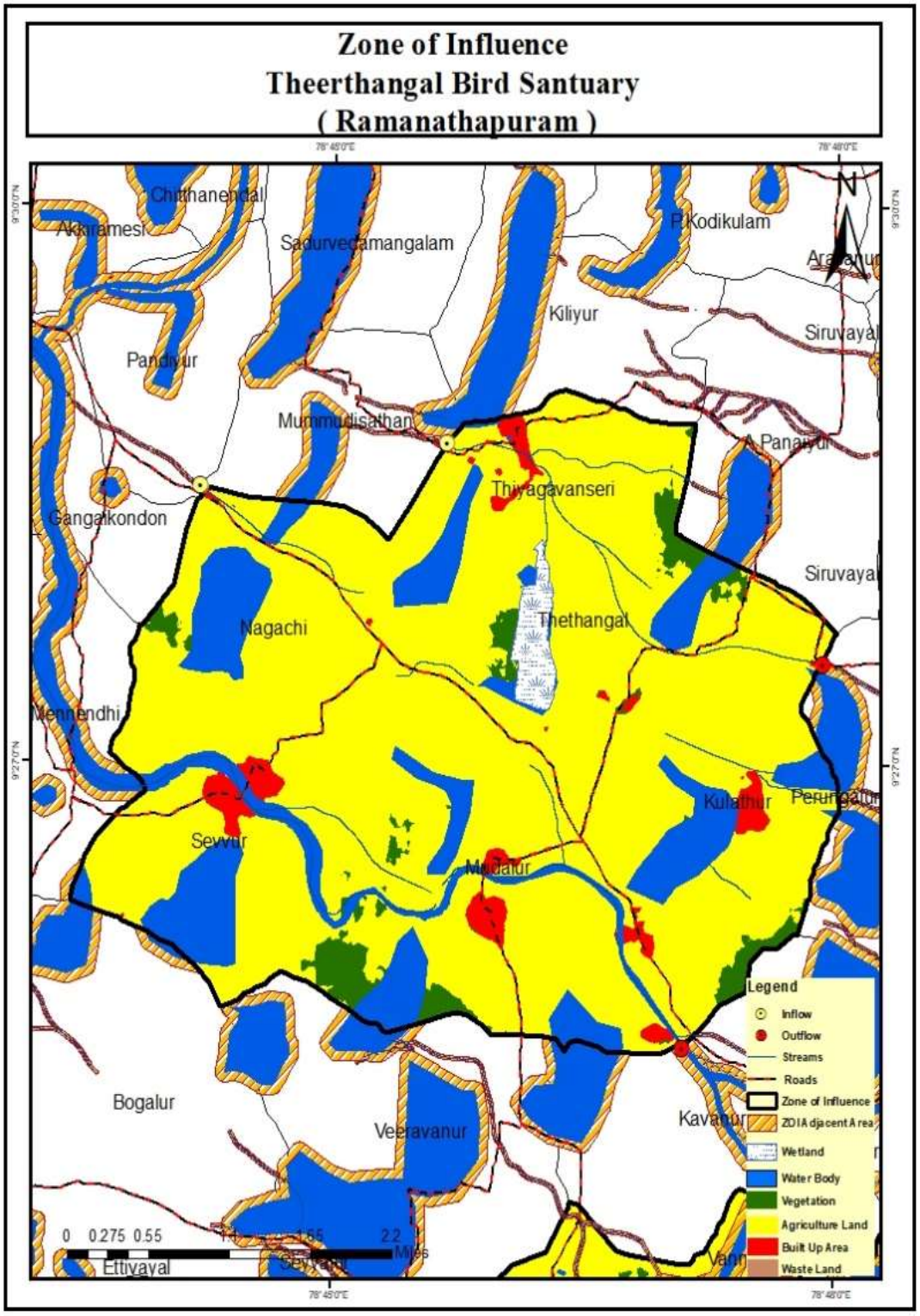


Fig 3.44.2. Map (2004 *vs.* 2024) and Land Use/ Land Cover of Theerthangal Bird Sanctiary

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

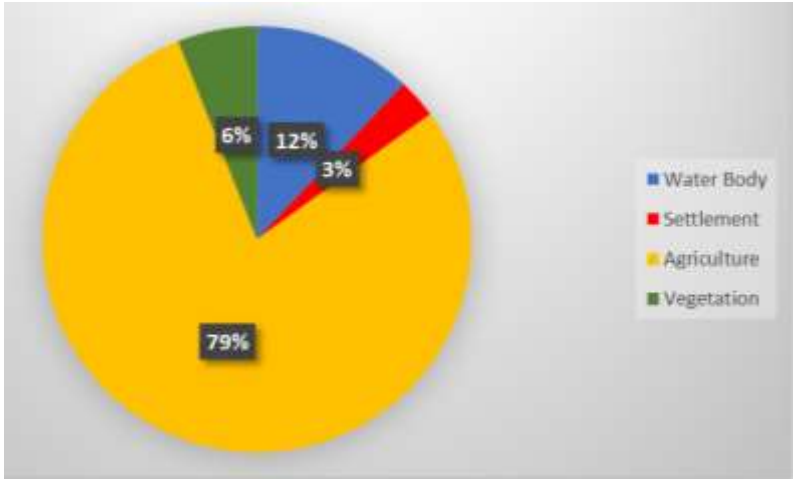


Table 3.44.1. IUCN Status of Floral Species in Theerthangal Bird Sanctuary

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
9.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
10.	*Azadiracta indica*	Meliaceae	Vembu	Tree	LC
11.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Brachiaria ramosa*	Poaceae		Grass	NE
14.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
15.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
16.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
17.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
18.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
19.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
20.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
21.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
22.	*Digitaria abludens*	Poaceae		Grass	NE
23.	*Digitaria ciliaris*	Poaceae		Grass	NE
24.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
25.	*Ficus benghalensis*	Moraceae	Allamaram	Tree	LC
26.	*Hyptis suaveolens*	Labiatae		Shrub	NE
27.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
28.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
29.	*Isachne miliacea*	Poaceae	-	Grass	LC

30.	*Ischaemum indicum*	Poaceae	-	Grass	LC
31.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
32.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
33.	*Justicia prostrata*	Acanthaceae		Herb	NE
34.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
35.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
36.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
37.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
38.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
39.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
40.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
41.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
42.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
43.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
44.	*Trachys muricata*	Poaceae	-	Grass	LC
45.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
46.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
47.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
48.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
49.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.44.2. IUCN Status of Selected Fauna Species in Theerthangal Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*

B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultia*	Lacertidae	Leschenault's snake-eye	LC	
6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC	
C. Amphibian					
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	PS
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common	LC	*

			grass yellow		
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC	*
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*

LC – Least Concern; * - Yes

Table 3.44.3. IUCN Status of Bird Species in Theerthangal Bird Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	D	LC	
3.	*Alcedo atthis*	Common Kingfisher	T	LC	
4.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
5.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
6.	*Anhinga melanogaster*	Darter	A	LC	
7.	*Anthus rufulus*	Paddy-field Pipit	D	LC	
8.	*Ardea cinerea*	Grey Heron	A	LC	
9.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
10.	*Bubulcus ibis*	Cattle Egret	D	LC	*
11.	*Casmerodius albus*	Great Egret	A	LC	
12.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
13.	*Columba livia*	Rock Pigeon	T	LC	
14.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
15.	*Coracias benghalensis*	Indian Roller	T	LC	*
16.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
17.	*Corvus splendens*	House Crow	T	LC	*
18.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*

19.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
20.	*Egretta garzetta*	Little Egret	A	LC	*
21.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
22.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
23.	*Falco tinnunculus*	Common Kestrel	T	LC	
24.	*Gallinula chloropus*	Common Moorhen	A	LC	*
25.	*Haliastur indus*	Brahminy Kite	T	LC	*
26.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
27.	*Lonchura Malacca*	Black-headed Munia	D	LC	
28.	*Merops orientalis*	Green Bee-eater	T	LC	*
29.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
30.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
31.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
32.	*Milvus migrans*	Black Kite	T	LC	*
33.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
34.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
35.	*Passer domesticus*	House Sparrow	T	LC	*
36.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
37.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
38.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
39.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
40.	*Prinia inornata*	Plain Prinia	T	LC	
41.	*Prinia socialis*	Ashy Prinia	T	LC	*
42.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
43.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
44.	*Sterna aurantia*	River Tern	A	LC	
45.	*Sternula albifrons*	Little Tern	A	LC	*
46.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
47.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
48.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.44.4. IUCN Status of major plant invasive alien species in Theerthangal Bird Sanctuary

S. No.	Species	Family	Tamil Name
1.	*Albizia saman*	Fabaceae	Rain tree
2.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
3.	*Ipomoea carnea*	Convolvulaceae	
4.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
5.	*Typha angustifolia*	Typhaceae	Sambu
6.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.44.5. IUCN Status of major animal invasive alien species in Theerthangal Bird Sanctuary

S. No.	Species	Family	Common name	IUCN
A. Fish				
1.	*Clarias gariepinus*	Clariidae	African Catfish	LC

Table 3.44.6. IUCN Status of major medicinal plant species in Theerthangal Bird Sanctiary

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Borassus flabellifer*	Arecaceae	Panai Maram	Tree
7.	*Brachiaria ramosa*	Poaceae		Grass
8.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub
9.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
10.	*Leucas aspera*	Labiatae	Thumbai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber

12.	*Pontederia vaginalis*	Pontederiaceae	Karung kuvalai	Tree
13.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
14.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
15.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
16.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
17.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.45. SAKKARAKOTTAI BIRD SANCTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Sakkarakottai Bird Sanctuary or Sakkarakottai Tank or Sakkarakottai Kanmoi

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Sakkarakottai, Rajsuriyamadai, Vannigudi, Palkarai, Achadiparambu, Ramanatapuram

1.3 *Name of the District (s) in which Wetlands complex located:* Ramanatapuram

1.4 *Geographical coordinates:*

- ► Latitude: 9˚21’8” N
- ► Longitude: 78˚48’50” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 230.59 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 8

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ✓ Direct/ indirect inflow from the river: *Vaigai River*
- ❒ Others, please specify:
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 70.6

b) Temperature (°C) Minimum 26.65 ; Maximum 34.45

c) Humidity (%) Minimum 75.3 ; Maximum 80.8

2.7 *Area of zone of influence (in ha):12245* ha (with an irregular radius of 6.24 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	10%
Agriculture	:	47%
Settlements (Rural)	:	15%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	27%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.45 (Fig. 3.45.1-3.45.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 47 species. (refer to Table 3.45.1 in Annexure 3.45).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 151 recorded species. This includes 8 mammal species, 21 reptile species, 9 amphibian species, 101 bird species, and 12 species of butterflies (refer to Table 3.45.2-3.45.3 in Annexure 3.45).

3.3 *Species of conservation significance:* Highlighted in Table 3.45.1-3.45.3

3.4 *Major plant invasive alien species:* The Wetland supports 9 plant invasive species (refer to Table 3.45.4 in Annexure 3.45).

3.5 *Major animal invasive alien species:* Not Available

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water has been drawn from outflow for agricultural activities
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.45.6 (Annexure 3.45)
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts & Bird watching
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Any others	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Fishing under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Agriculture or horticulture within Wetland	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Grazing	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Religious practices	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	There is a temple around the embankment of the Wetland
Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No	

		❒Not assessed	
Withdrawal of water for agriculture or fisheries	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Water has been drawn from outflow for agricultural activities
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest of biological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒ Medium ✓Low	✓Present ❒Potential	Substantial water flow from the surrounding watershed
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	

Spread of invasive species	❒ High ❒ Medium ✓ Low	❒ Present ✓ Potential	Listed in Table 3.45.4-3.45.5 in Annexure 3.45
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundar ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V.M., Palot, M.J., & Ganesh, S.R. (2018). *A checklist of reptiles of India* (Version 3.0). 35 pp. Online publication available at www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
3. Gamble, J.S., & Fischer, C.E.C. (1915–1935). *Flora of the Presidency of Madras*. Adlard and Son, London.
4. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.

5. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa*, *11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992-14009
6. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
7. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
8. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
9. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
10. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
11. Mayuranathan, P.V. (1929). *The flowering plants of Madras city and its immediate neighbourhood*. *Bulletin of the Madras Government Museum. New Series. Natural History Section*, *2*, 1-345.
12. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.
13. Ratnam, K. *Birds of Tamil Nadu*. The Diocesan Press, Madras, India.

ANNEXURE 3.45

Fig 3.45.1 Zone of Influence of Sakkarakottai Bird Sanctuary

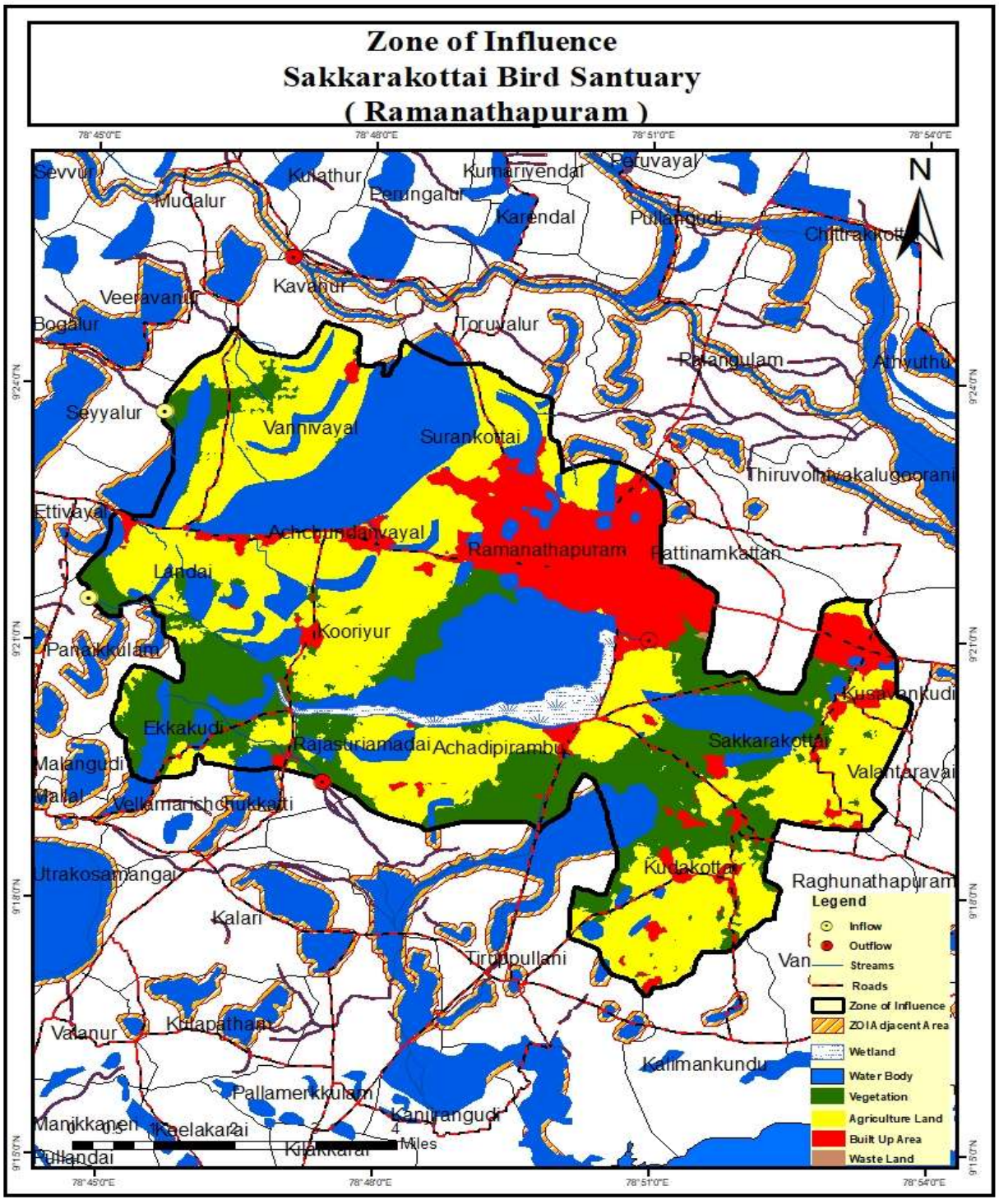


Fig 3.45.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Sakkarakottai Bird Sanctuary

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

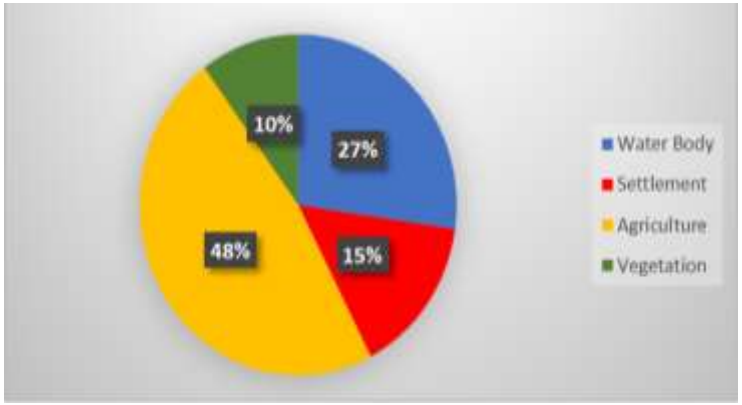


Table 3.45.1. IUCN Status of Floral Species in Sakkarakottai Bird Sanctuary

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
3.	*Acanthospermum hispidum*	Compositae		Herb	NE
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
6.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
7.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
8.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
9.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
10.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
11.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
12.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
13.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
14.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
15.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
16.	*Digitaria ciliaris*	Poaceae		Grass	NE
17.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
18.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
19.	*Ischaemum indicum*	Poaceae	-	Grass	LC
20.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
21.	*Justicia prostrata*	Acanthaceae		Herb	NE
22.	*Launaea bellidifolia*	Asteraceae		Herb	LC
23.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
24.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
25.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
26.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
27.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE

28.	*Pedalium murex*	Pedaliaceae		Herb	NE
29.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
30.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
31.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
32.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
33.	*Senna siamea*	Fabaceae		Tree	LC
34.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
35.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
36.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
37.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
38.	*Rhizophora apiculata*	Rhizophoraceae		Tree	LC
39.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
40.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
41.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
42.	*Trachys muricata*	Poaceae	-	Grass	LC
43.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
44.	*Tridax procumbens*	Compositae	Vettukkaayachedi	Herb	LC
45.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
46.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
47.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.45.2. IUCN Status of Selected Fauna Species in Sakkarakottai Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Axis axis*	Cervidae	Spotted deer	LC	
2.	*Macaca radiata*	Cercopithecidae	Bonnet macaque		*
3.	*Pipistrellus coromandra*	Vespertilionidae	Indian	LC	

			pipistrelle		
4.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
5.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
6.	Rattus rattus	Muridae	House rat	LC	*
7.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
8.	*Canis aureus*	Canidae	Jackal	LC	
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	
17.	*Naja naja*	Elapidae	Cobra	LC	

18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	*
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*		Common tree frog	LC	
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	*
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*

10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC	*
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC	*

LC – Least Concern; * - Yes

Table 3.45.3. IUCN Status of Bird Species in Sakkarakottai Bird Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Alauda gulgula*	Oriental Skylark	T	LC	
5.	*Alcedo atthis*	Common Kingfisher	T	LC	*
6.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
7.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
8.	*Anastomus oscitans*	Asian Openbill	A	LC	
9.	*Anthus richardi*	Richard's Pipit	D	LC	
10.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
11.	*Apus affinis*	House Swift	T	LC	
12.	*Ardea cinerea*	Grey Heron	A	LC	*
13.	*Ardea purpurea*	Purple Heron	A	LC	
14.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
15.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
16.	*Athene brama*	Spotted Owlet	T	LC	
17.	*Bubulcus ibis*	Cattle Egret	D	LC	*
18.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
19.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
20.	*Casmerodius albus*	Great Egret	A	LC	
21.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
22.	*Charadrius dubius*	Little Ringed Plover	A	LC	
23.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
24.	*Chlidonias leucopterus*	White-winged Tern	A	LC	

25.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
26.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
27.	*Circus macrourus*	Pallid Harrier	T	LC	
28.	*Circus melanoleucos*	Pied Harrier	T	LC	
29.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
30.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
31.	*Columba livia*	Rock Pigeon	T	LC	
32.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
33.	*Coracias benghalensis*	Indian Roller	T	LC	*
34.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
35.	*Corvus splendens*	House Crow	T	LC	*
36.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
37.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
38.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
39.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
40.	*Dupetor flavicollis*	Black Bittern	A	LC	
41.	*Egretta garzetta*	Little Egret	A	LC	*
42.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
43.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
44.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
45.	*Falco tinnunculus*	Common Kestrel	T	LC	
46.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
47.	*Fulica atra*	Coot	A	LC	
48.	*Gallicrex cinerea*	Watercock	A	LC	
49.	*Gallinula chloropus*	Common Moorhen	A	LC	*
50.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
51.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
52.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
53.	*Haliastur indus*	Brahminy Kite	T	LC	*
54.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	

55.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
56.	*Hirundo rustica*	Barn Swallow	T	LC	
57.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
58.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
59.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
60.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
61.	*Limosa limosa*	Black-tailed Godwit	A	LC	
62.	*Lonchura malacca*	Black-headed Munia	D	LC	
63.	*Merops orientalis*	Green Bee-eater	T	LC	*
64.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
65.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
66.	*Milvus migrans*	Black Kite	T	LC	*
67.	*Motacilla flava*	Yellow Wagtail	D	LC	
68.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
69.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
70.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
71.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
72.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
73.	*Passer domesticus*	House Sparrow	T	LC	*
74.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
75.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
76.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
77.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
78.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
79.	*Ploceus manyar*	Streaked Weaver	T	LC	
80.	*Pluvialis squatarola*	Grey Plover	A	LC	
81.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
82.	*Prinia inornata*	Plain Prinia	T	LC	
83.	*Prinia socialis*	Ashy Prinia	T	LC	*
84.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	

85.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
86.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
87.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
88.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
89.	*Sterna aurantia*	River Tern	A	LC	
90.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
91.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
92.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
93.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
94.	*Tringa glareola*	Wood Sandpiper	A	LC	*
95.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
96.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
97.	*Tyto alba*	Barn Owl	T	LC	
98.	*Upupa epops*	Hoopoe	T	LC	
99.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
100.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
101.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.45.4. IUCN Status of major plant invasive alien species in Sakkarakottai Bird Sanctuary

S. No.	Species	Family	Tamil Name
1.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Prosopis julifera*	Fabaceae	Semai karuvel
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Senna siamea*	Fabaceae	
7.	*Senna tora*	Caesalpiniaceae	Oosithagarai
8.	*Typha angustifolia*	Typhaceae	Sambu
9.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.45.5. IUCN Status of major medicinal plant species in Sakkarakottai Bird Sanctuary

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Borassus flabellifer*	Arecaceae	Panai Maram	Tree
7.	*Brachiaria ramosa*	Poaceae		Grass
8.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub
9.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
10.	*Leucas aspera*	Labiatae	Thumbai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Pontederia vaginalis*	Pontederiaceae	Karung kuvalai	Tree
13.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
14.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
15.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
16.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
17.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided

- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.46. VELLARVELI ERI

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Vellarveli Eri

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Vellarveli Eri , Edappadi

1.3 *Name of the District (s) in which Wetlands complex located:* Salem

1.4 *Geographical coordinates:*

- Latitude: 11˚36’22” N
- Longitude: 77˚47’33” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Water Resource Department, Village Administrative Office of Vellariveli

Section 2: Site Characteristics

2.1 *Area of Wetland:* 79.4 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological systems

❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒Mangroves ❒ Coral reef
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 294

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Mettur Dam
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ✓ Eutrophic
- ❒ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 241.5

a) Temperature (°C) Minimum 23.7 ; Maximum 37.55

b) Humidity (%) Minimum 62 ; Maximum 71

2.7 *Area of zone of influence (in ha):* 2127.71 ha (with an irregular radius of 2.65 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	0%
Agriculture	:	81%
Settlements (Rural)	:	18%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.46 (Fig. 3.46.1-3.46.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 53 species. (refer to Table 46.1 in Annexure 46).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 84 recorded species. This includes 3 mammal species, 5 reptile species, 8 amphibian species, 57 bird species, and 11 species of butterflies (refer to Table 46.2-46.3 in Annexure 46).

3.3 *Species of conservation significance:* Highlighted in Table 46.1-46.3

3.4 *Major plant invasive alien species:* The Wetland supports 5 plant invasive species (refer to Table 46.4 in Annexure 46).

3.5 *Major animal invasive alien species:* Not Available

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water is sourced from the Wetland's outlet
Fisheries	✓ Yes ❒ No	Fishing is conducted by lease with proper authorization
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.46.6 (Annexure 3.46)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	❒ Yes ✓ No	
Supports life cycle of fish or amphibians	✓ Yes ❒ No	About 8 different species of amphibians were identified
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Fishing is conducted by lease with proper authorization
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing is observed while field visit
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is few temples around the bund

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	✓ Yes ❒ No	❒ Yes ❒ No ❒ Not assessed	Water is sourced from the Wetland's outlet
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Household solid dumping poses a significant threat
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Substantial water flow from the surrounding watershed
Encroachment	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.46.4-3.46.5 in Annexure 3.46
Dumping of poultry waste	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Major disrupt for Wetland health

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary			

		❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundar ❒ Zone of influence			
Dumping of poultry waste	Prohibited	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Complete elimination of poultry dumping		

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V.M., Palot, M.J., & Ganesh, S.R. (2018). *A checklist of reptiles of India* (Version 3.0, 35 pp.). Online publication available at www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
3. Bibby, C.J., Burgess, N.D., & Hill, D.A. (1993). *Bird census techniques*. Academic Press Limited, London.
4. Gamble, J.S., & Fischer, C.E.C. (1915–1935). *Flora of the Presidency of Madras*. Adlard and Son, London.

5. Grimmett, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press, New York.
6. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
7. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa*, *11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
8. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
9. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
10. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
11. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
12. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
13. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.
14. Ratnam, K. *Birds of Tamil Nadu*.

ANNEXURE 3.46

Fig 3.46.1. Zone of Influence of Vellarvelli Eri Wetland

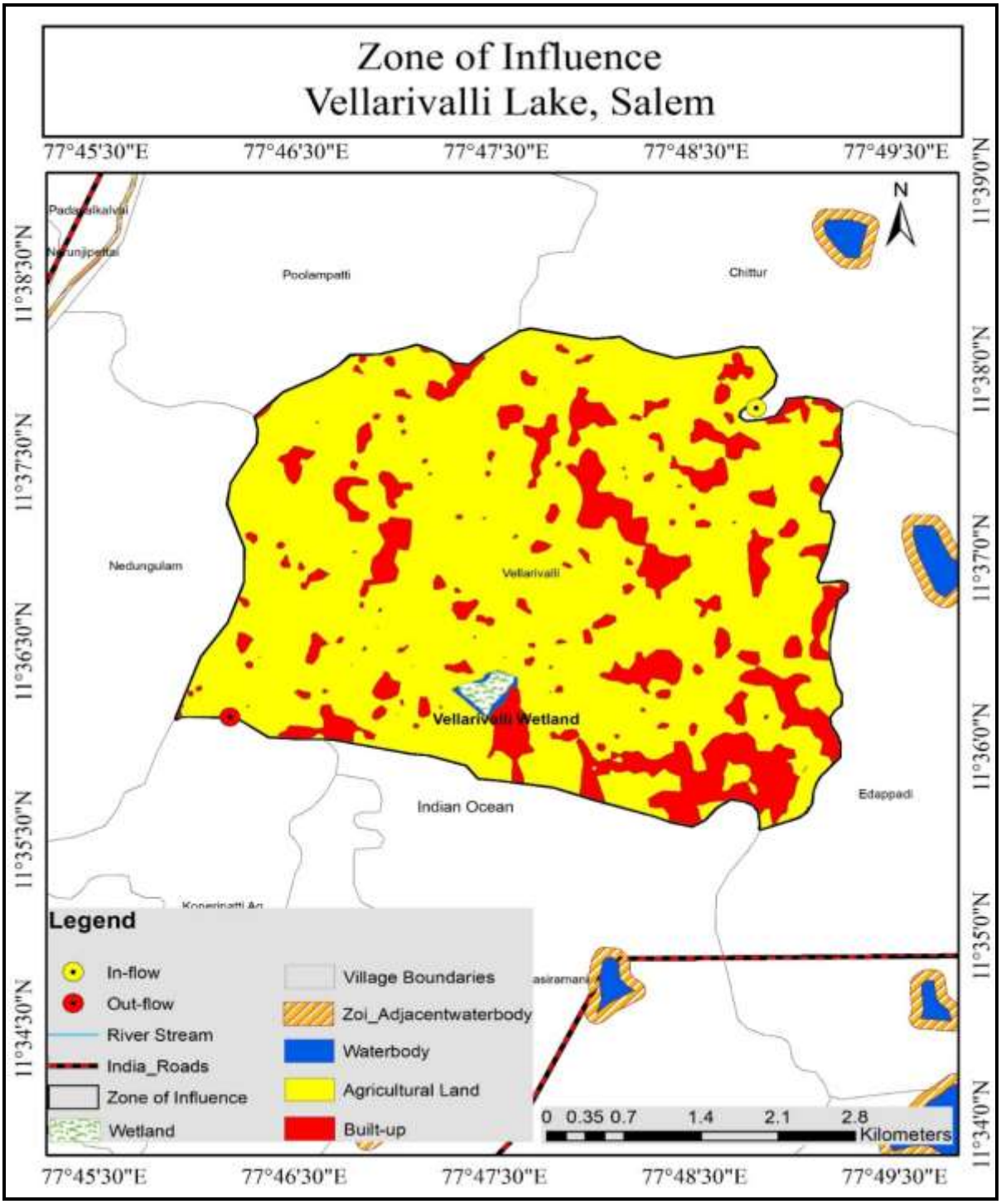


Fig. 3.46.2. Map (2004 *vs*. 2024) and Land Use/ Land Cover of Vellarvelli Eri Wetland

Map of the Wetland in 2011



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

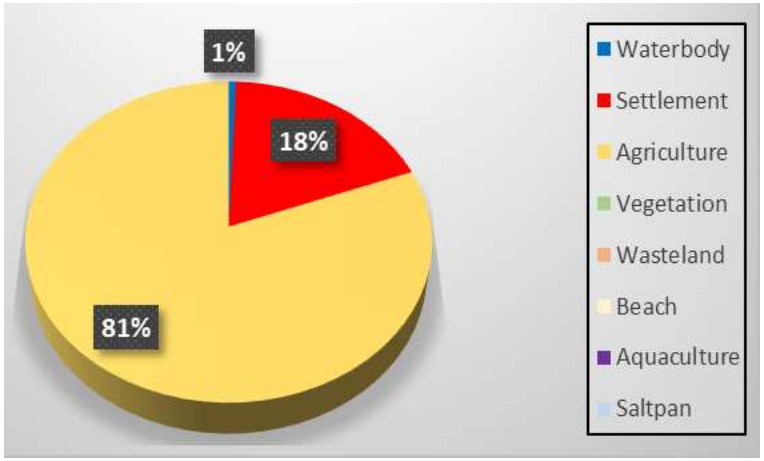


Table 3.46.1. IUCN Status of Floral Species in Vellarvelli Eri Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
2.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
7.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
8.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
9.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	
10.	*Brachiaria ramosa*	Poaceae		Grass	NE
11.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
12.	*Cardiospermum halicacabum*	Sapindaceae	NE	Herb	NE
13.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
14.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
15.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Cyperus iria*	Cyperaceae		Sedge	NE
20.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
21.	*Digitaria abludens*	Poaceae		Grass	NE
22.	*Digitaria ciliaris*	Poaceae		Grass	NE
23.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
24.	*Hyptis suaveolens*	Labiatae		Shrub	NE
25.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
26.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC

27.	*Isachne miliacea*	Poaceae	-	Grass	LC
28.	*Ischaemum indicum*	Poaceae	-	Grass	LC
29.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
30.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
31.	*Justicia prostrata*	Acanthaceae		Herb	NE
32.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
33.	*Leptochloa fusca*	Poaceae	Mandaipul	Grass	LC
34.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
35.	*Ludwigia adscendens*	Onagraceae		Herb	NE
36.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
37.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
38.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
39.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
40.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
41.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
42.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
43.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
44.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
45.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
46.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
47.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
48.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
49.	*Trachys muricata*	Poaceae	-	Grass	LC
50.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
51.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
52.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE

53.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.46.2. IUCN Status of Selected Fauna Species in Vellarvelli Eri Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	*
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	*
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	
C. Amphibian					
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*

8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
1.	Common crow	*Euploea core*	Nymphalidae	LC	PS
2.	Common Emigrant	*Catopsilia pomona*	Pieridae	NE	*
3.	Common evening brown	*Melanitis leda*	Nymphalidae	LC	*
4.	Common grass yellow	*Eurema hecabe*	Pieridae	LC	*
5.	Common lime	*Papilio demoleus*	Papilionidae	NE	*
6.	Common mormon	*Papilio polytes*	Papilionidae	NE	*
7.	Lemon pansy	*Junonia lemonias*	Nymphalidae	NE	*
8.	Mottled Emigrant	*Catopsilia pyranthe*	Pieridae	NE	*
9.	Pale Grass Blue	*Pseudozizeeria maha*	Lycaenidae	NE	*
10.	Peacock pansy	*Junonia almanac*	Nymphalidae	LC	*
11.	Plain tiger	*Danaus chrysippus*	Nymphalidae	LC	*

Table 3.46.3. IUCN Status of Bird Species in Vellarvelli Eri Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Alcedo atthis*	Common Kingfisher	T	LC	*
3.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
4.	*Ardea cinerea*	Grey Heron	A	LC	*
5.	*Ardea purpurea*	Purple Heron	A	LC	
6.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
7.	*Bubulcus ibis*	Cattle Egret	D	LC	*
8.	*Casmerodius albus*	Great Egret	A	LC	
9.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
10.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
11.	*Coracias benghalensis*	Indian Roller	T	LC	*
12.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
13.	*Corvus splendens*	House Crow	T	LC	*
14.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
15.	*Dicrurus adsimilis*	Black Drongo	T	LC	*

16.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
17.	*Egretta garzetta*	Little Egret	A	LC	*
18.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
19.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
20.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
21.	*Falco tinnunculus*	Common Kestrel	T	LC	
22.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
23.	*Gallinula chloropus*	Common Moorhen	A	LC	*
24.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
25.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
26.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
27.	*Haliastur indus*	Brahminy Kite	T	LC	*
28.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
29.	*Hirundo rustica*	Barn Swallow	T	LC	
30.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
31.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
32.	*Lonchura malacca*	Black-headed Munia	D	LC	
33.	*Merops orientalis*	Green Bee-eater	T	LC	*
34.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
35.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
36.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
37.	*Milvus migrans*	Black Kite	T	LC	*
38.	*Motacilla flava*	Yellow Wagtail	D	LC	
39.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
40.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
41.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
42.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
43.	*Passer domesticus*	House Sparrow	T	LC	*
44.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
45.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*

46.	*Ploceus manyar*	Streaked Weaver	T	LC	
47.	*Pluvialis squatarola*	Grey Plover	A	LC	
48.	*Prinia inornata*	Plain Prinia	T	LC	
49.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
50.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
51.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
52.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
53.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
54.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
55.	*Tringa glareola*	Wood Sandpiper	A	LC	*
56.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
57.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.46.4. IUCN Status of major plant invasive alien species in Vellarveli Wetland

S. No.	Species	Family	Tamil Name
1.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
4.	*Senna tora*	Caesalpiniaceae	Oosithagarai
5.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.46.5. IUCN Status of major medicinal plant species in Vellarvelli Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb

6.	*Aerva lanata*	Amaranthaceae	Peelai	Herb
7.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Leucas aspera*	Labiatae	Thumbai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Nymphaea pubescens*	Nymphaeaceae		Herb
13.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
14.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
15.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
16.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
17.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.47. YERCAUD ERI

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Yercaud Eri Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Yercaud, Kombaikkadu

1.3 *Name of the District (s) in which Wetlands complex located:* Salem

1.4 *Geographical coordinates:*

- Latitude: 11˚47’2.76” N
- Longitude: 78˚12’36.72” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 10.91 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological systems

❒ Natural (Coastal)	❒ Coastal lagoon ❒Estuary ❒ Intertidal mud, sand or salt flats ❒Mangroves ❒ Coral reef
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2 ; Maximum - 3

2.4 *Elevation (m above mean sea level):* 1352

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Ornamental tank is one of the sources of water
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water
- ✓ Eutrophic
- ❒ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 241.5
b) Temperature (°C) Minimum 23.7 ; Maximum 37.55
c) Humidity (%) Minimum 62 ; Maximum 71

2.7 *Area of zone of influence (in ha):* 1072.63 ha (with an irregular radius of 1.85 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	58%
Agriculture	:	0%
Settlements (Rural)	:	41%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.47 (Fig.3. 47.1-3.47.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 36 species. (refer to Table 3.47.1 in Annexure 3.47).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 78 recorded species. This includes 2 mammal species, 9 reptile species, 2 amphibian species, 50 bird species, and 15 species of butterflies (refer to Table 3.47.2-3.47.3 in Annexure 3.47).

3.3 *Species of conservation significance:* Highlighted in Table 3.47.1-3.47.3

3.4 *Major plant invasive alien species:* Not Available

3.5 *Major animal invasive alien species:* Not Available

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.47.4 (Annexure 3.47)
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts. Especially for Boating
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	✓ Yes ❒ No	Receives a good population of nature enthusiasts
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	❒ Yes ✓ No	

Supports life cycle of fish or amphibians	❒ Yes ✓ No	
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for the site	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Fishing under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Agriculture or horticulture within Wetland	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Grazing	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Grazing is observed while field visit
Religious practices	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Withdrawal of water for agriculture or fisheries	✓Yes ❒ No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Boating is there for recreational purposes
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ✓Medium ❒ Low	❒ Present ✓Potential	Tourism leads to more plastic pollution even lake's sediment contains too
Unsustainable harvest of biological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒ Medium ✓Low	✓Present ❒Potential	Substantial water flow from the surrounding watershed
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High	❒Present	

	❒ Medium ❒ Low	❒ Potential	
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence			Boat jetty is easy pathway to access the boat and used as anchorage purposes
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundar ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Balachandran, S. (1994). Some interesting bird records from Kaliveli Lake near Pondicherry. *Journal of the Bombay Natural History Society, 91*, 317–318.
3. Bhalla, R.S., & Prasadm, K.V.D. (2009). *Landscape assessment of the Kaliveli basin* (Midterm project report, p. 46).
4. Gamble, J.S., & Fischer, C.E.C. (1915–1935). *Flora of the Presidency of Madras*. Adlard and Son, London.
5. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.

6. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
7. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
8. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
9. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
10. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
11. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
12. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.
13. Pieter, (1987). Kaliveli tank and Yedayanthittu Estuary – A little-known Wetland habitat in Tamil Nadu. *Journal of the Bombay Natural History Society, 84*, 210–214.
14. Ratnam, K. *Birds of Tamil Nadu*.

ANNEXURE 3.47

Fig 3.47.1. Zone of Influence of Yercaud Eri

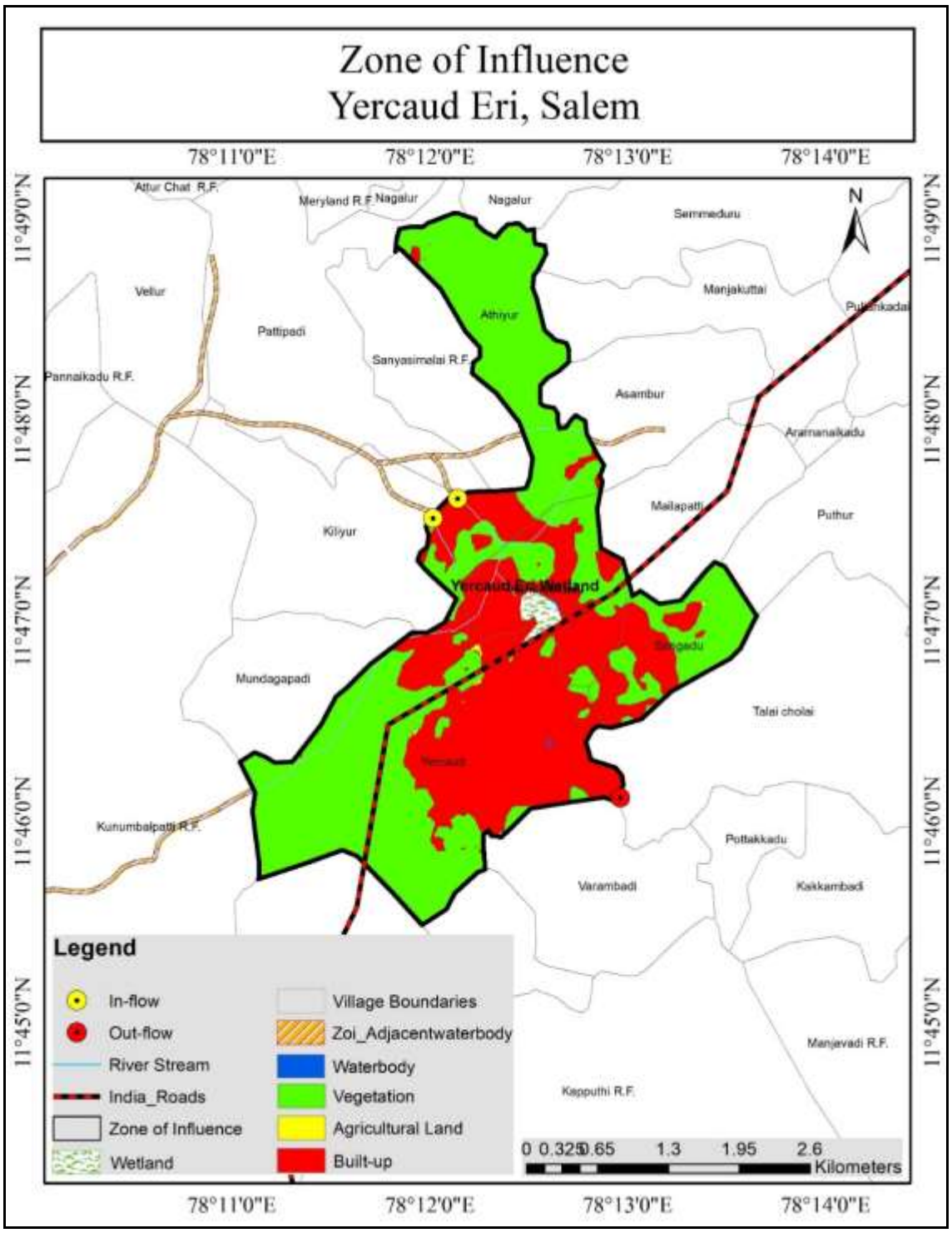


Fig 3.47.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Yercaud Eri

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

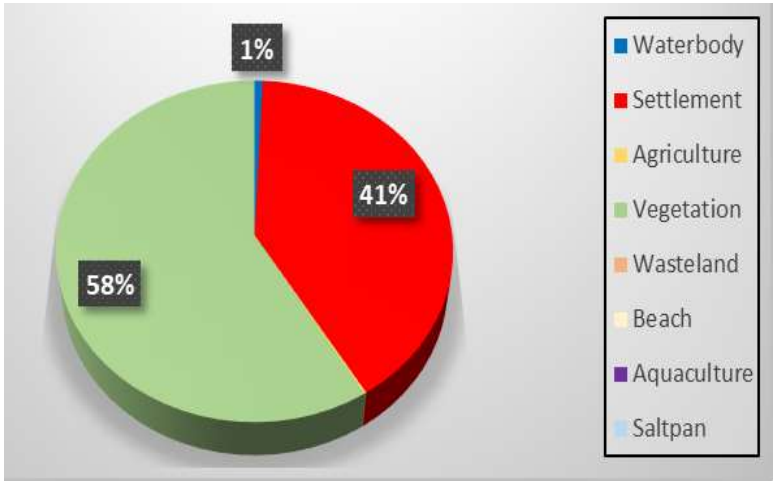


Table 3.47.1. IUCN Status of Floral Species in Yercaud Eri

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Amorphophallus paeoniifolius*	Araceae		Herb	LC
2.	*Brachiaria ramosa*	Poaceae		Grass	NE
3.	*Boswellia serrata*	Burseraceae		Tree	LC
4.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
5.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC
6.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
7.	*Cordia domestica*	Cordiaceae		Tree	LC
8.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
9.	*Crateva magna*	Capparaceae		Tree	LC
10.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
11.	*Cyperus iria*	Cyperaceae		Sedge	NE
12.	*Dolichandrone atrovirens*	Bignoniaceae		Tree	LC
13.	*Diospyros montana*	Ebenaceae		Tree	LC
14.	*Diospyros malabarica*	Ebenaceae		Tree	LC
15.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
16.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
17.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
18.	*Erythrina suberosa*	Papilionaceae		Tree	LC
19.	*Ficus tinctoria*	Moraceae	Kallathi	Tree	LC
20.	*Homonoia riparia*	Euphoraceae		Tree	LC
21.	*Isachne miliacea*	Poaceae	-	Grass	LC
22.	*Ischaemum indicum*	Poaceae	-	Grass	LC
23.	*Ludwigia adscendens*	Onagraceae		Herb	NE
24.	*Mallotus nudiflorus*	Euphorbiaceae		Tree	LC
25.	*Mitragyna parvifolia*	Rubiaceae		Tree	LC
26.	*Pandanus amaryllifolius*	Pandanaceae		Tree	LC

27.	*Pongamia pinnata*	Papilionaceae	Pungai	Tree	LC
28.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
29.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
30.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC
31.	*Terminalia arjuna*	Combretaceae		Tree	LC
32.	*Terminalia chebula*	Combretaceae		Tree	LC
33.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
34.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
35.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
36.	*Vitex leucoxylon*	Lamiaceae		Tree	LC

Table 3.47.2.IUCN Status of Selected Fauna Species in Yercaud Eri

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
B. Reptile					
1.	*Ahaetulla dispar*	Colubridae	Günther's Vine Snake	LC	*
2.	*Cnemaspis yercaudensis*	Gekkonidae		LC	*
3.	*Cnemaspis mysoriensis*	Gekkonidae		LC	
4.	*Cyrtodactylus speciosus*	Gekkonidae	Forest spotted gecko	LC	
5.	*Hemidactylus graniticolus*	Gekkonidae		LC	
6.	*Calotes versicolor*	Agamidae	Oriental garden lizard	LC	*
7.	*Eutropis allapallensis*	Scincidae		LC	
8.	*Uropeltis dindigalensis*	Uropeltidae		LC	

9.	*Trimeresurus gramineus*	Viperidae		LC	
C. Amphibian					
1.	*Duttaphrynus melanostictus*	Bufonidae		LC	*
2.	*Indosylvirana sreeni*	Ranidae		LC	*
D. Butterfly					
1.	*Pachliopta aristolochiae*	Papilionidae	Common rose	LC	*
2.	*Pachliopta hector*	Papilionidae	Crimson rose	LC	*
3.	*Papilo polymnestor cramer*	Papilionidae	Common Mormon	LC	*
4.	*Hypolimnas bolina*	Papilionidae	Great Eggfly	LC	*
5.	*Graphium sarpedon*	Papilionidae	Common bluebottle	LC	*
6.	*catopsilia Pomona*	Peridae	Common emigrant	LC	*
7.	*Leptosia nina*	Peridae	Psyche	LC	*
8.	*Catopsilia pyranthe*	Peridae	Mottled emigrant	LC	*
9.	*Eurema hecabe*	Peridae	Common grass yellow	LC	*
10.	Cepora nerissa	Peridae	Common Gull	LC	*
11.	*Colotis amata*	Peridae	Small Salmon Arab	LC	*
12.	*Belenois aurota*	Peridae	Pioneer	LC	*
13.	*Eurema brigitta*	Lycaenidae	Small grass yellow	LC	*
14.	*Zizeeria karsandra*	Lycaenidae	Dark grass blue	LC	*
15.	*Zizula hylax*	Lycaenidae	Tiny grass blue	LC	*

LC – Least Concern; * - Yes

Table 3.47.3. IUCN Status of Bird Species in Yercaud Eri

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Alcedo atthis*	Common Kingfisher	T	LC	*
3.	*Amaurornis phoenicurus*	White-breasted Waterhen	D	LC	*
4.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
5.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	*
6.	*Coracias benghalensis*	Indian Roller	T	LC	
7.	*Ceryle rudis*	Lesser Pied Kingfisher	D	LC	*
8.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	
9.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	
10.	*Dicrurus adsimilis*	Black Drongo	T	LC	
11.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	*
12.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	
13.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
14.	*Eudynamys scolopacea*	Asian Koel	T	LC	
15.	*Falco tinnunculus*	Common Kestrel	T	LC	
16.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
17.	*Gallinula chloropus*	Common Moorhen	A	LC	
18.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
19.	*Glareola maldivarum*	Oriental Pratincole	A	LC	*
20.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	
21.	*Haliastur indus*	Brahminy Kite	T	LC	*
22.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
23.	*Hirundo rustica*	Barn Swallow	T	LC	*
24.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
25.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
26.	*Lonchura Malacca*	Black-headed Munia	D	LC	*
27.	*Merops orientalis*	Green Bee-eater	T	LC	
28.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
29.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	

30.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
31.	*Milvus migrans*	Black Kite	T	LC	
32.	*Motacilla flava*	Yellow Wagtail	D	LC	
33.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
34.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
35.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
36.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
37.	*Passer domesticus*	House Sparrow	T	LC	
38.	*Phalacrocorax niger*	Little Cormorant	A	LC	
39.	*Plegadis falcinellus*	Glossy Ibis	A	LC	
40.	*Ploceus manyar*	Streaked Weaver	T	LC	
41.	*Pluvialis squatarola*	Grey Plover	A	LC	*
42.	*Prinia inornate*	Plain Prinia	T	LC	
43.	*Psittacula krameria*	Rose-ringed Parakeet	T	LC	
44.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
45.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
46.	*Saxicola caprata*	Pied Bush Chat	T	LC	
47.	*Streptopelia chinensis*	Spotted Dove	T	LC	
48.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	
49.	*Tringa glareola*	Wood Sandpiper	A	LC	
50.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.47.4 IUCN Status of major medicinal plant species in Yercaud eri

S.No	Species	Family	Tamil Name	Habit
1.	*Amorphophallus paeoniifolius*	Araceae		Herb
2.	*Brachiaria ramosa*	Poaceae		Grass
3.	*Boswellia serrate*	Burseraceae		Tree
4.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber
5.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb
6.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub

7.	*Terminalia chebula*	Combretaceae		Tree
8.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
9.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
10.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.48. VAGAIKULAM WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Vagaikulam Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Veerasamudram, Ambasamudiram, Vagaikulam, Ravanasamudram, Agampillaikulam, Meenakshipuram, Ramalingapuram, Pillaikulam

1.3 *Name of the District (s) in which Wetlands complex located:* Tirunelveli

1.4 *Geographical coordinates:*

- ► Latitude: 8˚47’42.2” N
- ► Longitude: 77˚22’47.1” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* NGO

Section 2: Site Characteristics

2.1 *Area of Wetland:* 35.49 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 96

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ✓ Direct/ indirect inflow from the river: Ramnadhi River
- ❒ Others, please specify
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): *54.5*

b) Temperature (°C) Minimum 28.75 ; Maximum 36.3

c) Humidity (%) Minimum 69.4 ; Maximum 77.3

2.7 *Area of zone of influence (in ha):* 4370.54 ha (with an irregular radius of 3.74 km)

2.8 *Major land use within zone of influence*

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	11%
Agriculture	:	73%
Settlements (Rural)	:	14%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.48 (Fig. 3.48.1-3.48.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 59 species. (refer to Table 3.48.1 in Annexure 3.48).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 123 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 94 bird species, and 11 species of butterflies (refer to Table 3.48.2-3.48.3 in Annexure 3.48).

3.3 *Species of conservation significance:* Highlighted in Table 3.48.1-3.48.3

3.4 *Major plant invasive alien species:* The Wetland supports 8 plant invasive species (refer to Table 3.48.4 in Annexure 3.48).

3.5 *Major animal invasive alien species:* Not Available

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water has been drawn from outflow for agricultural activities
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.48.6 (Annexure 3.48)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Any others	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing activity is happening
Fishing under lease from government department	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing activity is observed
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a temple around the embankment of the Wetland

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Water has been drawn from outflow for agricultural activities
Bathing or wallowing of domestic animals	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Cattle wallowing is observed
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Substantial water flow from the surrounding watershed

Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.48.4 in Annexure 3.48
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex			

		boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Abhisheka, K., David, J.P., Prashanth, M.B., Seshadri, K.S., & Ganesh, T. (2013). First detailed survey of waterbirds in Tirunelveli and Tuticorin districts, Tamil Nadu, India. *Journal of Threatened Taxa, 5*(12), 4641–4652.
2. Aengals, R., Sathish Kumar, V.M., Palot, M.J., & Ganesh, S.R. (2018). *A checklist of reptiles of India* (Version 3.0, 35 pp.). Online publication available at www.zsi.gov.in (Last update: May 2018).
3. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.

4. Bibby, C.J., Burgess, N.D., & Hill, D.A. (1993). *Bird census techniques*. Academic Press Limited, London.
5. Gamble, J.S., & Fischer, C.E.C. (1915–1935). *Flora of the Presidency of Madras*. Adlard and Son, London.
6. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press, New York.
7. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
8. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa*, *11*(8), 13992–14009.
9. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
10. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
11. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
12. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
13. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
14. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.
15. Ratnam, K. *Birds of Tamil Nadu*.
16. Sudhakaran, M.R., & Sekar, R. (2022). Status of aquatic birds and flora of Vagaikulam, Tenkasi, Tamil Nadu. *Indian Journal of Fundamental and Applied Life Sciences, 12,* 5–11

ANNEXURE 3.48

Fig 3.48.1 Zone of Influence of Vagaikulam Wetland

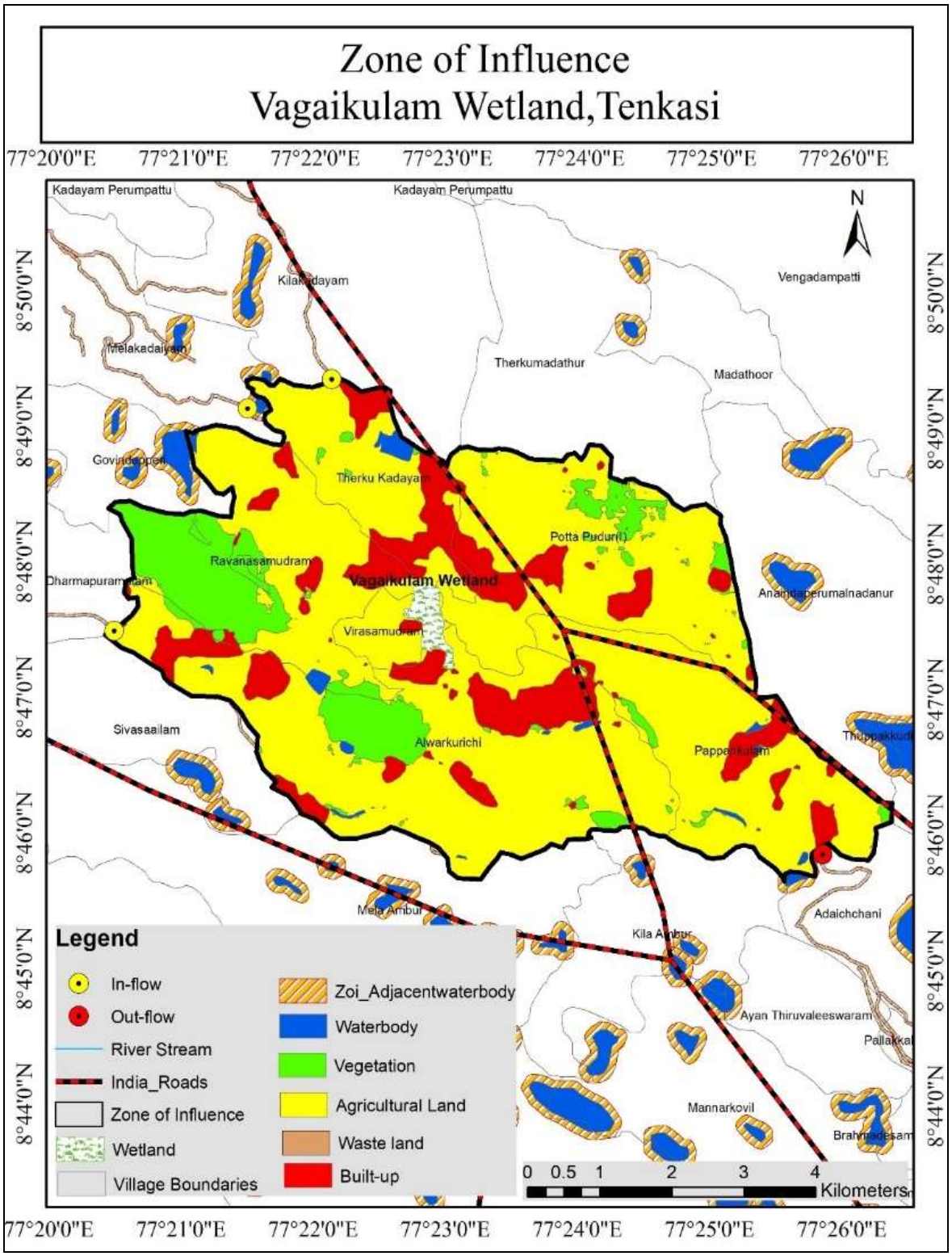


Fig. 3.48.2. Map (2004 *vs.* 2024) and Land Use/ Land Cover of Vagaikulam Wetland

Map of the Wetland in 2014



Map of the Wetland in 2022



Land Use/ Land Cover of the Wetland

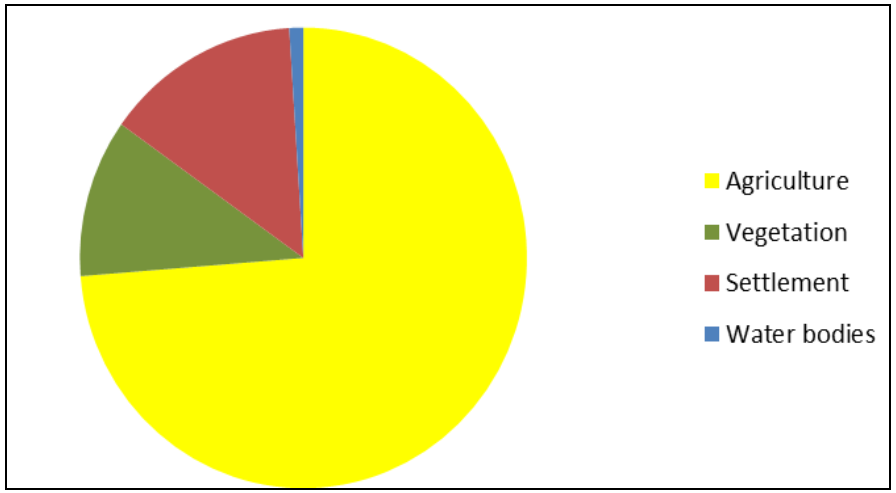


Table 3.48.1. IUCN Status of Floral Species in Vagaikulam Wetland

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
9.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
10.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
11.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Brachiaria ramosa*	Poaceae		Grass	NE
14.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
15.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
16.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
17.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
18.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
19.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
20.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
21.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
22.	*Cyperus iria*	Cyperaceae		Sedge	NE
23.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
24.	*Digitaria abludens*	Poaceae		Grass	NE
25.	*Digitaria ciliaris*	Poaceae		Grass	NE
26.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
27.	*Hyptis suaveolens*	Labiatae		Shrub	NE
28.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE

29.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
30.	*Isachne miliacea*	Poaceae	-	Grass	LC
31.	*Ischaemum indicum*	Poaceae	-	Grass	LC
32.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
33.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
34.	*Justicia prostrata*	Acanthaceae		Herb	NE
35.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
36.	*Leptochloa fusca*	Poaceae	Mandaipul	Grass	LC
37.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
38.	*Ludwigia adscendens*	Onagraceae		Herb	NE
39.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
40.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
41.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
42.	*Nymphaea pubescens*	Nymphaeaceae		Herb	LC
43.	*Ottelia alismoides*	Hydrocharitaceae		Herb	LC
44.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
45.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
46.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
47.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
48.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
49.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
50.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
51.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
52.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
53.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
54.	*Trachys muricata*	Poaceae	-	Grass	LC
55.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
56.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
57.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE

58.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
59.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.48.2. IUCN Status of Selected Fauna Species in Vagaikulam Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	*
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	*
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	
6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC	
C. Amphibian					
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree	LC	*

			frog		
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common Emigrant	NE	*
2.	*Catopsilia pomona*	Pieridae	Common evening brown	LC	*
3.	*Melanitis leda*	Nymphalidae	Common grass yellow	LC	*
4.	*Eurema hecabe*	Pieridae	Common lime	NE	*
5.	*Papilio demoleus*	Papilionidae	Common mormon	NE	*
6.	*Papilio polytes*	Papilionidae	Lemon pansy	NE	*
7.	*Junonia lemonias*	Nymphalidae	Mottled Emigrant	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Pale Grass Blue	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Peacock pansy	LC	*
10.	*Junonia almana*	Nymphalidae	Plain tiger	LC	*
11.	*Danaus chrysippus*	Nymphalidae	Common Emigrant	NE	*

LC – Least Concern; * - Yes

Table 3.48.3. IUCN Status of Bird Species in Vagaikulam Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	D	LC	*
3.	*Alauda gulgula*	Oriental Skylark	T	LC	
4.	*Alcedo atthis*	Common Kingfisher	T	LC	*
5.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
6.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	

7.	*Anastomus oscitans*	Asian Openbill	A	LC	
8.	*Anhinga melanogaster*	Darter	A	LC	
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Ardea cinerea*	Grey Heron	A	LC	*
11.	*Ardea purpurea*	Purple Heron	A	LC	
12.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
13.	*Bubulcus ibis*	Cattle Egret	D	LC	*
14.	*Casmerodius albus*	Great Egret	A	LC	
15.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
16.	*Charadrius dubius*	Little Ringed Plover	A	LC	
17.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
18.	*Circus macrourus*	Pallid Harrier	T	LC	
19.	*Circus melanoleucos*	Pied Harrier	T	LC	
20.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
21.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
22.	*Columba livia*	Rock Pigeon	T	LC	
23.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
24.	*Coracias benghalensis*	Indian Roller	T	LC	*
25.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
26.	*Corvus splendens*	House Crow	T	LC	*
27.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
28.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
29.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
30.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
31.	*Dupetor flavicollis*	Black Bittern	A	LC	
32.	*Egretta garzetta*	Little Egret	A	LC	*
33.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
34.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
35.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
36.	*Falco tinnunculus*	Common Kestrel	T	LC	

37.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
38.	*Fulica atra*	Coot	A	LC	
39.	*Gallicrex cinerea*	Watercock	A	LC	
40.	*Gallinula chloropus*	Common Moorhen	A	LC	*
41.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
42.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
43.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
44.	*Haliastur indus*	Brahminy Kite	T	LC	*
45.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
46.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
47.	*Hirundo rustica*	Barn Swallow	T	LC	
48.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
49.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
50.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
51.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
52.	*Limosa limosa*	Black-tailed Godwit	A	LC	
53.	*Lonchura malacca*	Black-headed Munia	D	LC	
54.	*Merops orientalis*	Green Bee-eater	T	LC	*
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
57.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Motacilla flava*	Yellow Wagtail	D	LC	
60.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
61.	*Mycteria leucocophala*	Painted stork	A	NT	
62.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
63.	*Nettapus coromandelianus*	Cotton Pygmy Goose	A	LC	
64.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
65.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
66.	*Orthotomus sutorius*	Common Tailorbird	T	LC	

67.	*Passer domesticus*	House Sparrow	T	LC	*
68.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
69.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
70.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
71.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
72.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
73.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
74.	*Ploceus manyar*	Streaked Weaver	T	LC	
75.	*Pluvialis squatarola*	Grey Plover	A	LC	
76.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
77.	*Prinia inornata*	Plain Prinia	T	LC	
78.	*Prinia socialis*	Ashy Prinia	T	LC	*
79.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
80.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
81.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
82.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
83.	*Sarkidiornis melanotos*	Comb Duck			
84.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
85.	*Sterna aurantia*	River Tern	A	LC	
86.	*Sternula albifrons*	Little Tern	A	LC	*
87.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
88.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
89.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
90.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
91.	*Tringa glareola*	Wood Sandpiper	A	LC	*
92.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
93.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
94.	*Zoothera citrine*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.48.4. IUCN Status of major plant invasive alien species in Vagaikulam Wetland

S. No.	Species	Family	Tamil Name
1.	*Albizia saman*	Fabaceae	Rain tree
2.	*Alternanthera pungens*	Amaranthaceae	
3.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
4.	*Hyptis suaveolens*	Labiatae	
5.	*Ipomoea carnea*	Convolvulaceae	
6.	*Lantana camara*	Verbenaceae	Unnichedi
7.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
8.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.48.5. IUCN Status of major medicinal plant species in Vagaikulam Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Aerva lanata*	Amaranthaceae	Peelai	Herb
7.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Leucas aspera*	Labiatae	Thumbai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Nymphaea pubescens*	Nymphaeaceae		Herb
13.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
14.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
15.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber

16.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
17.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.49. AGNI RIVER MOUTH

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Agni River Mouth

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Rajamadam, Pattukkottai, Muthupet, Jambavanodai, Thalaimunai, Vadapathi, Maravakkadu, and Thillaivilagam

1.3 *Name of the District (s) in which Wetlands complex located:* Thanjavur

1.4 *Geographical coordinates:*

- Latitude: 10˚17’32.8308” N
- Longitude: 79˚21’25.8804” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 289.15 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 1

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Kaveri River an d Kannaru is one of the source & Backwaters from Bay of Bengal
- ❒ Name of River/ Canal System

b)) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 180.2

b) Temperature (°C) Minimum 24.15 ; Maximum 39.25

c) Humidity (%) Minimum 70 ; Maximum 75.6

2.7 *Area of zone of influence (in ha):* 9459.94 ha (with an irregular radius of 5.6 km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	16%
Agriculture	:	33%
Settlements (Rural)	:	15%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	27%
Aquaculture	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.49 (Fig. 3.49.1-3.49.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 47 species. (refer to Table 3.49.1 in Annexure 3.49).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 138 recorded species. This includes 3 mammal species, 21 reptile species, 9 amphibian species, 91 bird species, and 14 species of butterflies (refer to Table 3.49.2-3.49.3 in Annexure 3.49).

3.3 *Species of conservation significance:* Highlighted in Table 3.49.1-3.49.3

3.4 *Major plant invasive alien species:* The Wetland supports 7 plant invasive species (refer to Table 3.49.4 in Annexure 3.49).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.49.5 in Annexure 3.49)

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing & export is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 49.6 (Annexure 3.49)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is few temples around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	
Aquaculture activities	✓ Yes ❒ No	Aquaculture plants were observed while ground-truthing
Mangroves	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing & Export activity
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is few temples around the embankment of the Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	For fishing & exporting
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium	❒Present ❒Potential	

	❒Low		
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	
Spread of invasive species	❒High ❒Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.49.4-3.49.5 in Annexure 3.49
Any other, please list	❒High ❒Medium ❒Low	❒Present ❒Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated		❒ Wetland/			

sewage/ effluent / wastewater		Wetland complex boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Arunprasath, A., Sreeram, S., & Sankara Vel, V. (2023). Karankadu mangroves – an ecological asset to the Indian east coast. *Current Science, 124*(9), 1023.
3. Byju, H., Raveendran, N., Ravichandran, S., & Kishore, R. (2023). An annotated checklist of the avifauna of Karangadu mangrove forest, Ramanathapuram, Tamil Nadu, with notes

on the site's importance for waterbird conservation. *Journal of Threatened Taxa*, *15*(3), 22813–22822.

4. Chitra, N., & Mahendran, S. (2003). A preliminary list of butterflies of Ramanathapuram District, Tamil Nadu. *Zoos' Print Journal*, *18*(4), 1090.
5. Gamble, J.S., & Fischer, C.E.C. (1915–1935). *Flora of the Presidency of Madras*. Adlard and Son, London.
6. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.
7. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa*, *11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
8. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
9. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
10. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
11. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
12. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
13. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.
14. Ratnam, K. *Birds of Tamil Nadu*.

ANNEXURE 3.49

Fig 3.49.1 Zone of Influence of Agni River Mouth

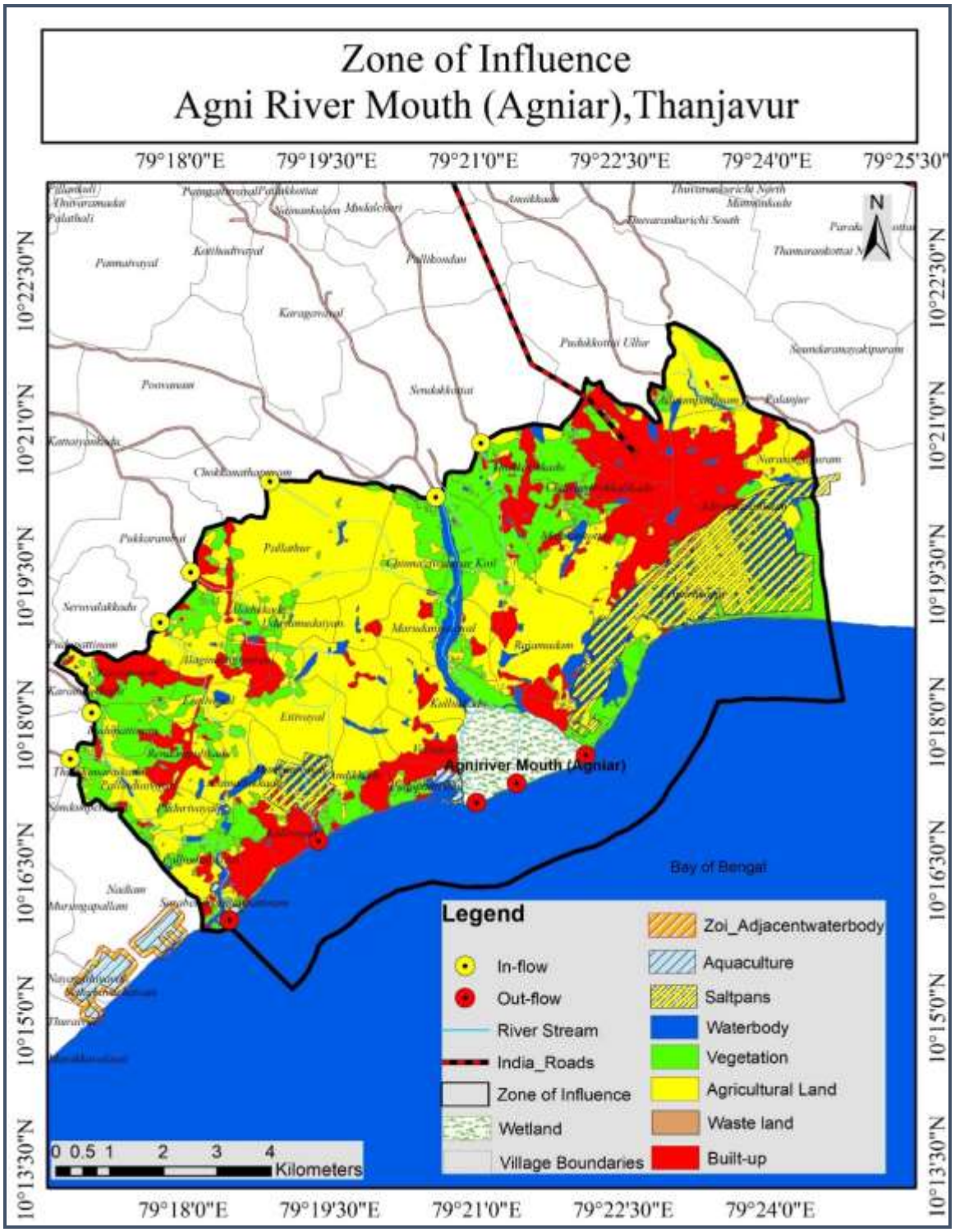


Fig 3.49.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Agni River Mouth

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

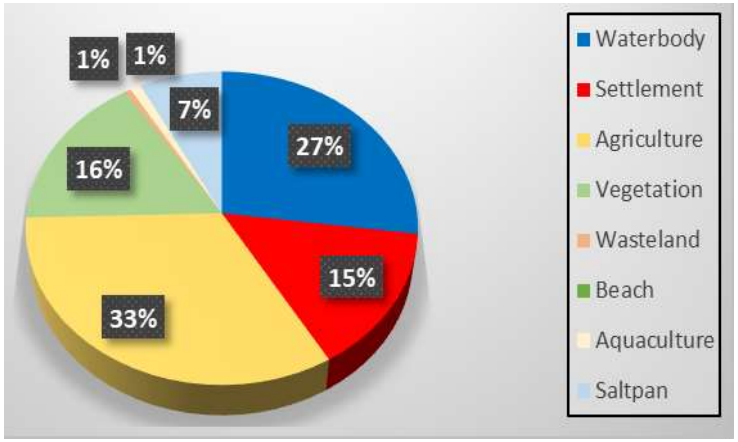


Table 3.49.1. IUCN Status of Floral Species in Agni River Mouth

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
9.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Digitaria ciliaris*	Poaceae		Grass	NE
20.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
21.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
22.	*Ischaemum indicum*	Poaceae	-	Grass	LC
23.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
24.	*Justicia prostrata*	Acanthaceae		Herb	NE
25.	*Launaea bellidifolia*	Asteraceae		Herb	LC
26.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
27.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
28.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
29.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE

30.	*Pedalium murex*	Pedaliaceae		Herb	NE
31.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
32.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
33.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
34.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
35.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
36.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
37.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
38.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
39.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
40.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
41.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
42.	*Trachys muricata*	Poaceae	-	Grass	LC
43.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
44.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
45.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
46.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
47.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.49.2. IUCN Status of Selected Fauna Species in Agni River Mouth

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
2.	*Rattus rattus*	Muridae	House rat	LC	*
3.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated	LC	*

			lizard		
3.	*Mabuya carinata*	Scincidae	Common skink	LC	*
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	*
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	*
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	*
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull	LC	

			frog		
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
D. Butterfly					
1.	Common crow	*Euploea core*	Nymphalidae	LC	*
2.	Common Emigrant	*Catopsilia Pomona*	Pieridae	NE	*
3.	Common evening brown	*Melanitis leda*	Nymphalidae	LC	*
4.	Common grass yellow	*Eurema hecabe*	Pieridae	LC	*
5.	Common lime	*Papilio demoleus*	Papilionidae	NE	*
6.	Common mormon	*Papilio polytes*	Papilionidae	NE	*
7.	Lemon pansy	*Junonia lemonias*	Nymphalidae	NE	*
8.	Pale Grass Blue	*Pseudozizeeria maha*	Lycaenidae	NE	*
9.	Peacock pansy	*Junonia almanac*	Nymphalidae	LC	*
10.	Plain tiger	*Danaus chrysippus*	Nymphalidae	LC	*
11.	Tawny coster	*Acraea violae*	Nymphalidae	LC	*
12.	Yellow Pansy	*Junonia hierta*	Nymphalidae	LC	*
13.	Lime butterfly	*Papilio demoleus*	Papilionidae	LC	*
14.	Common evening brown	*Melanitis leda*	Nymphalidae	LC	*

LC – Least Concern; * - Yes

Table 3.49.3. IUCN Status of Bird Species in Agni River Mouth

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Alauda gulgula*	Oriental Skylark	T	LC	*

6.	*Alcedo atthis*	Common Kingfisher	T	LC	*
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
8.	*Anastomus oscitans*	Asian Openbill	A	LC	*
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Apus affinis*	House Swift	T	LC	
11.	*Ardea cinerea*	Grey Heron	A	LC	*
12.	*Ardea purpurea*	Purple Heron	A	LC	
13.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
14.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
15.	*Athene brama*	Spotted Owlet	T	LC	
16.	*Bubulcus ibis*	Cattle Egret	D	LC	*
17.	*Calidris pugnax*	Ruf	A	LC	
18.	*Calidris minuta*	Little Stint	A	LC	*
19.	*Calidris temminckii*	Temminck's stint	A	LC	
20.	*Casmerodius albus*	Great Egret	A	LC	
21.	*Centropus sinensis*	Greater Coucal	T	LC	
22.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
23.	*Charadrius alexandrinus*	Kentsh Plover	A	LC	
24.	*Charadrius dubius*	Little Ringed Plover	A	LC	
25.	*Charadrius mongolus*	Lesser Sand Plover	A	LC	
26.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
27.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
28.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
29.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC	*
30.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
31.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
32.	*Columba livia*	Rock Pigeon	T	LC	
33.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
34.	*Coracias benghalensis*	Indian Roller	T	LC	*
35.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
36.	*Corvus splendens*	House Crow	T	LC	*

37.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
38.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
39.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
40.	*Egretta garzetta*	Little Egret	A	LC	*
41.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
42.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
43.	*Falco tinnunculus*	Common Kestrel	T	LC	
44.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
45.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
46.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
47.	*Haliastur indus*	Brahminy Kite	T	LC	*
48.	*Hieraaetus pennatus*	Booted Eagle	T	LC	*
49.	*Hirundo rustica*	Barn Swallow	T	LC	
50.	*Hydroprogne caspia*	Caspian Tern	A	LC	
51.	*Lanius cristatus*	Brown Shrike	T	LC	
52.	*Lanius vitatus*	Bay-backed Shrike	T	LC	
53.	*Limosa limosa*	Black-tailed Godwit	A	LC	
54.	*Merops orientalis*	Green Bee-eater	T	LC	*
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
57.	*Milvus migrans*	Black Kite	T	LC	*
58.	*Mycteria leucocephala*	Painted Stork	A	NT	*
59.	*Numenius phaeopus*	Eurasian whimbrel	A	LC	
60.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
61.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
62.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
63.	*Pandion haliaetus*	Osprey	T	LC	*
64.	*Passer domesticus*	House Sparrow	T	LC	*
65.	*Pernis ptlorhynchus*	Oriental Honey Buzzard	T	LC	*
66.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*

67.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
68.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
69.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
70.	*Pluvialis squatarola*	Grey Plover	A	LC	
71.	*Prinia inornate*	Plain Prinia	T	LC	*
72.	*Prinia socialis*	Ashy Prinia	T	LC	*
73.	*Pseudibis papillosa*	Red-naped Ibis	T	LC	*
74.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
75.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
76.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
77.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
78.	*Sterna albifrons*	Little Tern	A	LC	*
79.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
80.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC	*
81.	*Spilopelia senegalensis*	Laughing Dove	T	LC	*
82.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
83.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
84.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC	
85.	*Thalasseus bergii*	Greater Crested Tern	A	LC	
86.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
87.	*Tringa glareola*	Wood Sandpiper	A	LC	*
88.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
89.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
90.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
91.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

Table 3.49.4. IUCN Status of major plant invasive alien species in Agni River Mouth

S.No	Species	Family	Tamil Name
1.	*Lantana camara*	Verbenaceae	Unnichedi
2.	*Passiflora foetida*	Passifloraceae	Poonaipidukku
3.	*Prosopis julifera*	Fabaceae	Semai karuvel

4.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
5.	*Senna tora*	Caesalpiniaceae	Oosithagarai
6.	*Typha angustifolia*	Typhaceae	Sambu
7.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.49.5. IUCN Status of major animal invasive alien species in Agni River Mouth

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.49.6. IUCN Status of major medicinal plant species in Agni River Mouth

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Pedalium murex*	Pedaliaceae		Herb
11.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
12.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.50. AMBULIYAR RIVER MOUTH

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Ambuliyar river mouth

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Peravurani, Muthupet, Thalaimunai, Jambavanodai, Maravakkadu, Vadapathi, Perungadu

1.3 *Name of the District (s) in which Wetlands complex located:* Thanjavur

1.4 *Geographical coordinates:*

- Latitude: 10˚13’0.534” N
- Longitude: 79˚16’44.1804” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 257.25 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lake ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reef
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 0.5; Maximum - 2

2.4 *Elevation (m above mean sea level):* 1

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Maruthangudiyar, Viluniar, and Punaikuthiar & Backwaters from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 180.2

b) Temperature (°C) Minimum 24.15 ; Maximum 39.25

c) Humidity (%) Minimum 70 ; Maximum 75.6

2.7 *Area of zone of influence (in ha):* 6664.69 ha (with an irregular radius of 4.7 km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	14%
Agriculture	:	34%
Settlements (Rural)	:	10%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	3%
Waste Land	:	1%
Aquaculture	:	3%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.50 (Fig. 3.50.1-3.50.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 46 species. (refer to Table 3.50.1 in Annexure 3.50).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 138 recorded species. This includes 3 mammal species, 21 reptile species, 9 amphibian species, 91 bird species, and 14 species of butterflies (refer to Table 3.50.2-3.50.3 in Annexure 3.50).

3.3 *Species of conservation significance:* Highlighted in Table 3.50.1-3.50.3

3.4 *Major plant invasive alien species:* The Wetland supports 7 plant invasive species (refer to Table 3.50.4 in Annexure 3.50).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.50.5 in Annexure 3.50).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which listed in Table 3.50.6 (Annexure 3.50)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Significant runoff from the surrounding catchment area
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	

Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Wetland supports 9 amphibian species.
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a small Temple on the bund
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	✓Yes ❒ No	❒Yes ❒No ❒Not assessed	When it reaches the FSL
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ❒✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ❒✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium	❒Present ❒Potential	

	❒ Low		
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.50.4-3.50.5 in Annexure 3.50
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated		❒ Wetland/			

sewage/ effluent / wastewater		Wetland complex boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). *The book of Indian birds* (13th Revised Edition). Oxford University Press, New Delhi.
2. Gamble, J.S., & Fischer, C.E.C. (1915–1935). *Flora of the Presidency of Madras*. Adlard and Son, London.
3. Henry, A.N., Chithra, V.N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu, India*. Series 1: Analysis, Vol. III. Botanical Survey of India, Coimbatore.

4. Kamalakannan, M., & Nameer, P.O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
5. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
6. Mathew, K.M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
7. Mathew, K.M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press, Madras, India.
8. Mathew, K.M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press, Madras, India.
9. Mathew, K.M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press, Madras, India.
10. Nair, N.C., & Henry, A.N. (1983). *Flora of Tamil Nadu, India*. Series 1, Vol. 1. Botanical Survey of India, Southern Circle, Coimbatore.
11. Ratnam, K. *Birds of Tamil Nadu*.

ANNEXURE 3.50

Fig 3.50.1. Zone of Influence of Ambuliyar River Mouth Wetland

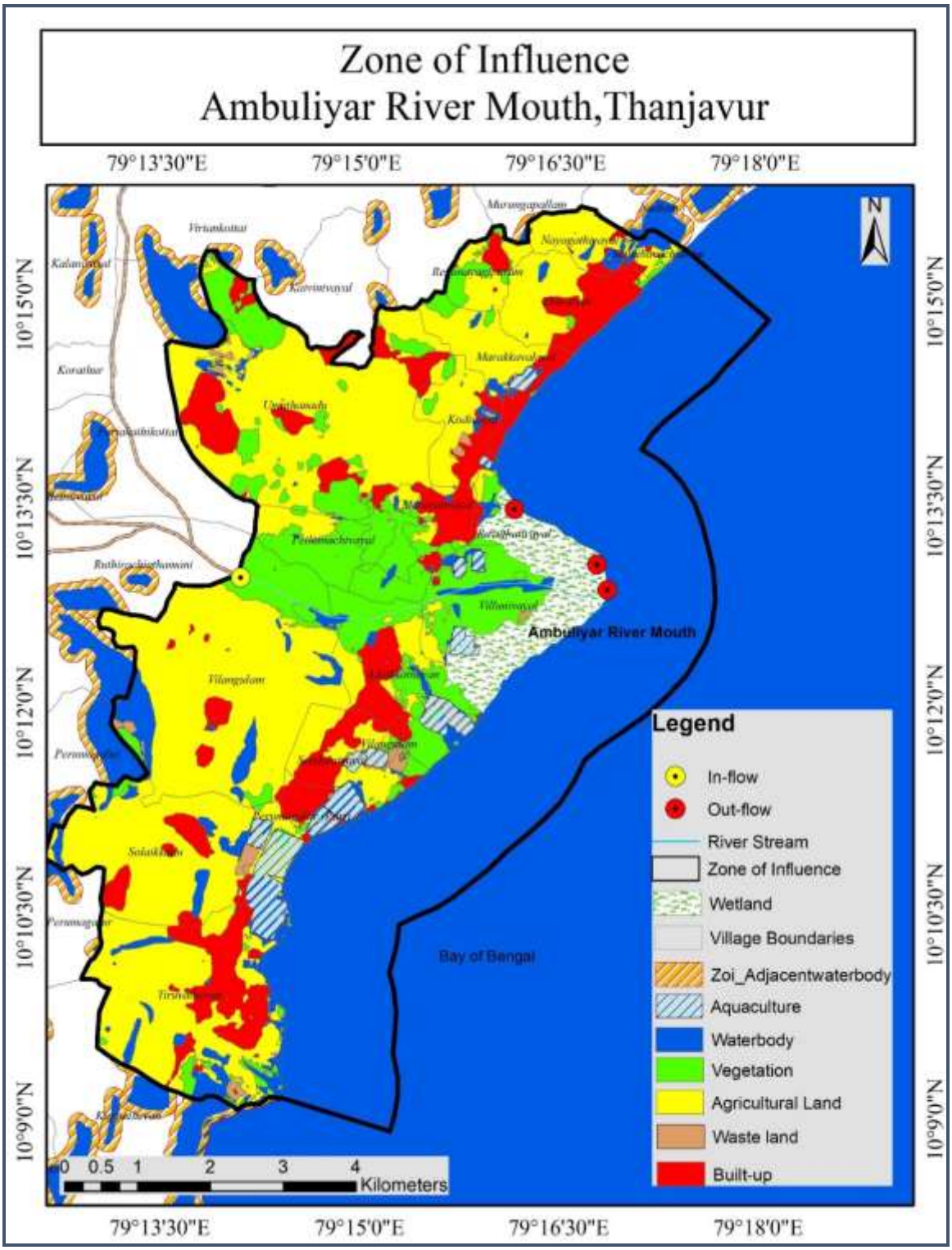


Fig 3.50.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Ambuliyar River Mouth Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

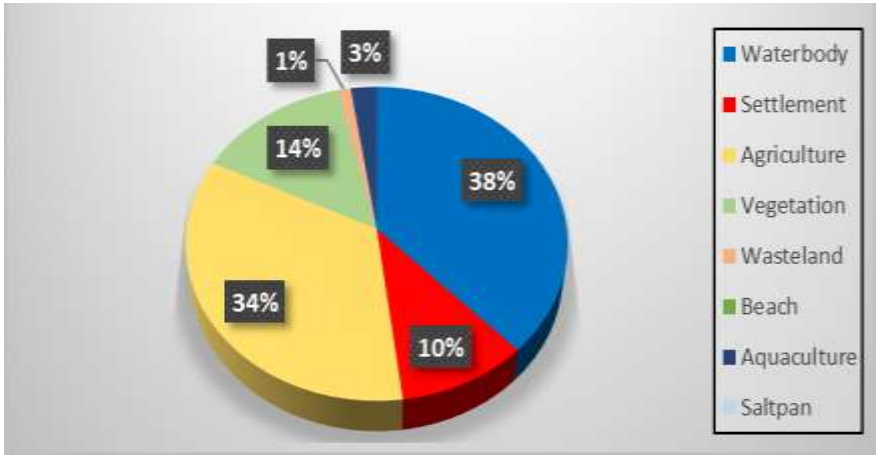


Table 3.50.1. IUCN Status of Floral Species in Ambuliyar River Mouth Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
9.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Digitaria ciliaris*	Poaceae		Grass	NE
20.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
21.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
22.	*Ischaemum indicum*	Poaceae	-	Grass	LC
23.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
24.	*Justicia prostrata*	Acanthaceae		Herb	NE
25.	*Launaea bellidifolia*	Asteraceae		Herb	LC
26.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC

27.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
28.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
29.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
30.	*Pedalium murex*	Pedaliaceae		Herb	NE
31.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
32.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
33.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
34.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
35.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
36.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
37.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
38.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
39.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
40.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
41.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
42.	*Trachys muricata*	Poaceae	-	Grass	LC
43.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
44.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
45.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
46.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC

Table 3.50.2. IUCN Status of Selected Fauna Species in Ambuliyar River Mouth Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
2.	*Rattus rattus*	Muridae	House rat	LC	*
3.	*Urva edwardsii*	Herpestidae	Indian grey	LC	*

			mongoose		
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	*
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	*
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	*
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	*
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	

20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
D. Butterfly					
1.	*Euploea core*	Common crow	Nymphalidae	LC	*
2.	*Catopsilia Pomona*	Common Emigrant	Pieridae	NE	*
3.	*Melanitis leda*	Common evening brown	Nymphalidae	LC	*
4.	*Eurema hecabe*	Common grass yellow	Pieridae	LC	*
5.	*Papilio demoleus*	Common lime	Papilionidae	NE	*
6.	*Papilio polytes*	Common mormon	Papilionidae	NE	*
7.	*Junonia lemonias*	Lemon pansy	Nymphalidae	NE	*
8.	*Pseudozizeeria maha*	Pale Grass Blue	Lycaenidae	NE	*
9.	*Junonia almanac*	Peacock pansy	Nymphalidae	LC	*
10.	*Danaus chrysippus*	Plain tiger	Nymphalidae	LC	*
11.	*Acraea violae*	Tawny coster	Nymphalidae	LC	*
12.	*Junonia hierta*	Yellow Pansy	Nymphalidae	LC	*

13.	*Papilio demoleus*	Lime butterfly	Papilionidae	LC	*
14.	*Melanitis leda*	Common evening brown	Nymphalidae	LC	*

Table 3.50.3. IUCN Status of Bird Species in Ambuliyar River Mouth Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Alauda gulgula*	Oriental Skylark	T	LC	*
6.	*Alcedo atthis*	Common Kingfisher	T	LC	*
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
8.	*Anastomus oscitans*	Asian Openbill	A	LC	*
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Apus affinis*	House Swift	T	LC	
11.	*Ardea cinerea*	Grey Heron	A	LC	*
12.	*Ardea purpurea*	Purple Heron	A	LC	
13.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
14.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
15.	*Athene brama*	Spotted Owlet	T	LC	
16.	*Bubulcus ibis*	Cattle Egret	D	LC	*
17.	*Calidris pugnax*	Ruf	A	LC	
18.	*Calidris minuta*	Little Stint	A	LC	*
19.	*Calidris temminckii*	Temminck's stint	A	LC	
20.	*Casmerodius albus*	Great Egret	A	LC	
21.	*Centropus sinensis*	Greater Coucal	T	LC	
22.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
23.	*Charadrius alexandrinus*	Kentsh Plover	A	LC	
24.	*Charadrius dubius*	Little Ringed Plover	A	LC	
25.	*Charadrius mongolus*	Lesser Sand Plover	A	LC	
26.	*Chlidonias hybridus*	Whiskered Tern	A	LC	

27.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
28.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
29.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC	*
30.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
31.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
32.	*Columba livia*	Rock Pigeon	T	LC	
33.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
34.	*Coracias benghalensis*	Indian Roller	T	LC	*
35.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
36.	*Corvus splendens*	House Crow	T	LC	*
37.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
38.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
39.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
40.	*Egretta garzetta*	Little Egret	A	LC	*
41.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
42.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
43.	*Falco tinnunculus*	Common Kestrel	T	LC	
44.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
45.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
46.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
47.	*Haliastur indus*	Brahminy Kite	T	LC	*
48.	*Hieraaetus pennatus*	Booted Eagle	T	LC	*
49.	*Hirundo rustica*	Barn Swallow	T	LC	
50.	*Hydroprogne caspia*	Caspian Tern	A	LC	
51.	*Lanius cristatus*	Brown Shrike	T	LC	
52.	*Lanius vitatus*	Bay-backed Shrike	T	LC	
53.	*Limosa limosa*	Black-tailed Godwit	A	LC	
54.	*Merops orientalis*	Green Bee-eater	T	LC	*
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	

57.	*Milvus migrans*	Black Kite	T	LC	*
58.	*Mycteria leucocephala*	Painted Stork	A	NT	*
59.	*Numenius phaeopus*	Eurasian whimbrel	A	LC	
60.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
61.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
62.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
63.	*Pandion haliaetus*	Osprey	T	LC	*
64.	*Passer domesticus*	House Sparrow	T	LC	*
65.	*Pernis ptlorhynchus*	Oriental Honey Buzzard	T	LC	*
66.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
67.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
68.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
69.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
70.	*Pluvialis squatarola*	Grey Plover	A	LC	
71.	*Prinia inornate*	Plain Prinia	T	LC	*
72.	*Prinia socialis*	Ashy Prinia	T	LC	*
73.	*Pseudibis papillosa*	Red-naped Ibis	T	LC	*
74.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
75.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
76.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
77.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
78.	*Sterna albifrons*	Little Tern	A	LC	*
79.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
80.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC	*
81.	*Spilopelia senegalensis*	Laughing Dove	T	LC	*
82.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
83.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
84.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC	
85.	*Thalasseus bergii*	Greater Crested Tern	A	LC	
86.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*

87.	*Tringa glareola*	Wood Sandpiper	A	LC	*
88.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
89.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
90.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
91.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

Table 3.50.4. IUCN Status of major plant invasive alien species in Ambuliyar River Mouth Wetland

S. No.	Species	Family	Tamil Name
1.	*Lantana camara*	Verbenaceae	Unnichedi
2.	*Martynia annua*	Martyniaceae	Thael Kodukku
3.	*Prosopis julifera*	Fabaceae	Semai karuvel
4.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
5.	*Senna tora*	Caesalpiniaceae	Oosithagarai
6.	*Typha angustifolia*	Typhaceae	Sambu
7.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.50.5. IUCN Status of major animal invasive alien species in Ambuliyar River Mouth Wetland

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.50.6. IUCN Status of major medicinal plant species in Ambuliyar River Mouth Wetland

S.No	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb

5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Pedalium murex*	Pedaliaceae		Herb
11.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
12.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.51. LONGWOOD SHOLA WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Longwood Shola Wetland or Dodda Solai

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Kothagiri, Nilgiris, Kairbetta, Hosahatti, Aravenu, and Jakkanarai

1.3 *Name of the District (s) in which Wetlands complex located:* Nilgiris

1.4 *Geographical coordinates:*

► Latitude: 10˚11’12.9” N

► Longitude: 77˚17’44.3” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 307.7 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes
	❒ Seasonal/ intermittent lakes
	❒ Permanent streams/ creeks
	❒ Seasonal/ intermittent streams/ creeks
	❒ Oxbow
	❒ River floodplain
	✓ Permanent freshwater marshes
	❒ Seasonal/ intermittent freshwater marshes
	❒ Shrub-dominated Wetlands
	❒ Tree-dominated Wetlands
	❒ Geothermal Wetlands
	❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1; Maximum - 2

2.4 *Elevation (m above mean sea level):* 1998

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ❒ Feeds groundwater river to sea
- ✓ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ❒ Mesotrophic
- ✓ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/Snowfall (mm): 645.1

b) Temperature (°C) Minimum 12.75 ; Maximum 20.75

c) Humidity (%) Minimum 85 ; Maximum 93.5

2.7 *Area of zone of influence (in ha):* 6215.30 ha (with an irregular radius of --- km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	55%
Agriculture	:	3%
Settlements (Rural)	:	21%
Settlements (Urban)	:	0%
Industrial	:	0%
Waste Land	:	21%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.51 (Fig. 3.51.1-3.51.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 74 species. (refer to Table 3.51.1 in Annexure 3.51).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 316 recorded species. This includes 17 mammal species, 25 reptile species, 19 amphibian species, 78 bird species, and 46 species of butterflies (refer to Table 3.51.2-3.51.3 in Annexure 3.51).

3.3 *Species of conservation significance:* Highlighted in Table 3.51.1-3.51.3.

3.4 *Major plant invasive alien species:* Not Available

3.5 *Major animal invasive alien species:* The Wetland supports 6 animal invasive species (refer to Table 3.51.4 in Annexure 3.51).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.51.5 in Annexure 3.51
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	✓ Yes ❒ No	Results into purification
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Fishing under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Agriculture or horticulture within Wetland	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Grazing	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Bison communities
Religious practices	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium	❒ Present ❒ Potential	

	❒ Low		
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.51.4-3.51.5 in Annexure 3.51
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary			

		❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Tourism development		✓ Wetland/ Wetlands complex boundary ❒ Zone of influence	May permitted

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). *A checklist of reptiles of India* (Version 3.0). Online publication available at www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). *The book of Indian birds* (13th Revised ed.). Oxford University Press.
3. Bibby, C. J., Burgess, N. D., & Hill, D. A. (1993). *Bird census techniques*. Academic Press Limited.
4. Gamble, J. S., & Fischer, C. E. C. (1915-1935). *Flora of the Presidency of Madras*. Adlard and Son.
5. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press.

6. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India. Series 1: Analysis* (Vol. III). Botanical Survey of India.
7. K. Ratnam. (n.d.). *Birds of Tamil Nadu*.
8. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
9. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
10. Mathew, K. M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
11. Mathew, K. M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press.
12. Mathew, K. M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press.
13. Mathew, K. M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press.
14. Nair, N. C., & Henry, A. N. (1983). *Flora of Tamil Nadu, India. Series 1* (Vol. 1). Botanical Survey of India, Southern Circle.

ANNEXURE 3.51

Fig 3.51.1. Zone of Influence of Longwood Shola Wetland

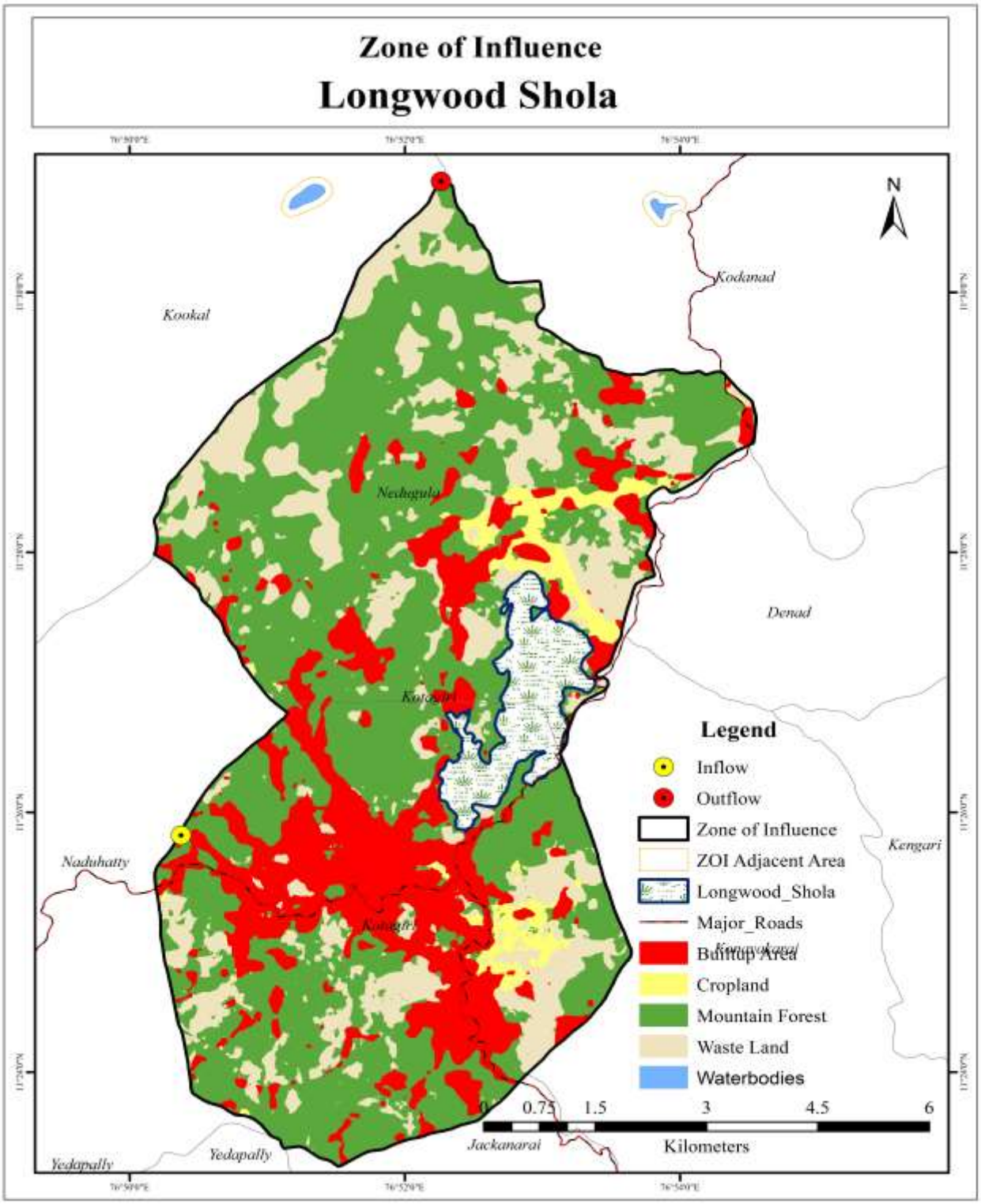


Fig 3.51.2. Map (2014 *vs.* 2024) and Land Use/ Land Cover of Longwood Shola Wetland

Map of the Wetland in 2011



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

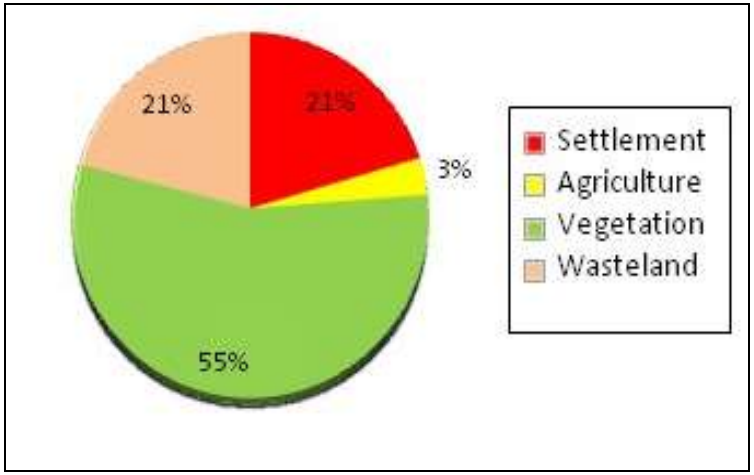


Table 3.51.1. IUCN Status of Floral Species in Longwood Shola Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Cayratia pedata*	Vitaceae	Thiraatchai	Climber	VU
2.	*Cissampelopsis walkeri*	Asteraceae	Pasumarathi	Climber	
3.	*Elaeagnus kologa*	Elaeagnaceae		Climber	
4.	*Jasminum brevilobum*	Oleaceae	Malligai	Climber	
5.	*Piper mullesua*	Piperaceae		Climber	
6.	*Piper schmidtii*	Piperaceae		Climber	
7.	*Sageretia hamosa*	Rhamnaceae		Climber	
8.	*Smilax wightii*	Smilacaceae		Climber	
9.	*Tetrastigma leucostaphylum*			Climber	
10.	*Toddalia aculeata*	Rutaceae	Mul Naram	Climber	
11.	*Vitis sp.*			Climber	
12.	*Asplenium decrescens*	Aspleniaceae		Fern	
13.	*Asplenium erectum*	Aspleniaceae		Fern	LC
14.	*Asplenium normale*	Aspleniaceae		Fern	
15.	*Dicranopteris linearis*	Gleicheniaceae		Fern	LC
16.	*Nephrolepis sp.*	Nephrolepidaceae		Fern	
17.	*Pteris quadriaurita*	Pteridaceae		Fern	
18.	*Isachne bourneorum*	Poaceae		Grass	
19.	*Calanthe triplicata*	Orchidaceae		Ground Orchid	
20.	*Arisaema tortuosum*	Araceae	Paambu Mookku	Herb	
21.	*Isodon wightii*	Lamiaceae		Herb	
22.	*Laportea bulbifera*	Urticaceae		Herb	
23.	*Pilea melastomataceae*	Urticaceae		Herb	
24.	*Scutellaria violacea*	Lamiaceae		Herb	
25.	*Solanum anguivi*	Solanaceae	Sundakkai	Herb	LC

26.	*Carex lindleyana*	Cyperaceae		Sedge	LC
27.	*Hedyotis sp.*	Rubiaceae		Shrub	
28.	*Lasianthus venulosus*	Rubiaceae		Shrub	
29.	*Maesa indica*	Primulaceae		Shrub	LC
30.	*Ophiorrizha sp.*	Ophiorrhizaceae		Shrub	
31.	*Psychotria bisulcata*	Rubiaceae		Shrub	
32.	*Psychotria nilgiriensis*	Rubiaceae		Shrub	EN
33.	*Psychotria truncatus*	Rubiaceae		Shrub	
34.	*Solanaceae type*	Solanaceae		Shrub	
35.	*Actinodaphnae bourneae*	Lauraceae		Tree	EN
36.	*Celtis tetrandra*			Tree	LC
37.	*Cinnamonum sp.*	Lauraceae	Ilavangapattai	Tree	
38.	*Cinnamonum wightii*	Lauraceae		Tree	EN
39.	*Cryptocarya stocksii*	Lauraceae		Tree	VU
40.	*Daphniphyllum neilgherrense*	Daphniphyllaceae		Tree	
41.	*Debregeasia longifolia*	Urticaceae		Tree	LC
42.	*Elaeocarpus serratus*	Elaeocarpaceae	Kadukkai	Tree	
43.	*Euonymus crenulatus*	Celastraceae		Tree	
44.	*Eurya japonica*	Theaceae		Tree	
45.	*Excoecaria crenulata*	Euphorbiaceae		Tree	
46.	*Gardneria ovata*	Loganiaceae		Tree	
47.	*Glochidion neilgherrenses*	Phyllanthaceae		Tree	
48.	*Gordonia obtusa*	Theaceae		Tree	LC
49.	*Ilex denticulata*	Aquifoliaceae		Tree	
50.	*Ilex gardenaria*	Aquifoliaceae		Tree	
51.	*Isonandra perrottetiana*	Sapotaceae		Tree	
52.	*Ixora pavetta*	Rubiaceae		Tree	

53.	*Litsea floribunda*	Lauraceae		Tree	NT
54.	*Litsea myrsticifolia*	Lauraceae		Tree	
55.	*Litsea sp.*	Lauraceae		Tree	
56.	*Litsea wightiana*	Lauraceae		Tree	NT
57.	*Litsea wightii*	Lauraceae		Tree	
58.	*Melicope lunu-ankenda*	Rutaceae		Tree	LC
59.	*Meliosma simplicifolia*	Sabiaceae		Tree	
60.	*Meliosma simplicifolia var. pungens*	Sabiaceae		Tree	
61.	*Memecylon randerianum*	Melastomataceae		Tree	
62.	*Myrsine wightiana*	Primulaceae		Tree	
63.	*Neolitsea pallens*	Lauraceae		Tree	
64.	*Neolitsea zeylanica*	Lauraceae		Tree	LC
65.	*Nothapodytes nimmoniana*			Tree	
66.	*Phoebe paniculata*	Lauraceae		Tree	LC
67.	*Phoebe wightii*	Lauraceae		Tree	LC
68.	*Symplocos cochinchinensis*			Tree	
69.	*Symplocos foliosa*			Tree	
70.	*Syzygium calophyllifoium*			Tree	
71.	*Syzygium densiflorum*			Tree	VU
72.	*Syzygium montanum*			Tree	
73.	*Turpinia nepalensis*	Staphyleaceae		Tree	
74.	*Vernonia arborea*			Tree	LC

Table 3.51.2. IUCN Status of Selected Fauna Species in Longwood Shola Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Bos gaurus*	Bovidae	Indian Gaur	VU

2.	*Panthera pardus*	Felidae	Common Leopard	VU
3.	*Sus scrofa cristatus*	Suidae	Wild Boar	LC
4.	*Muntiacus muntjak*	Cervidae	Barking Deer	LC
5.	*Felis chaus*	Felidae	Jungle Cat	LC
6.	*Hystrix indica*	Hystricidae	Indian Crested Porcupine	LC
7.	*Mcaca radiate*	Cercopithecidae	Bonnet Macaque	VU
8.	*Martes gwatkinsii*	Mustelidae	Nilgiri Marten	VU
9.	*Ratufa indica*	Sciuridae	Malabar Gaint Squirrel	LC
10.	*Moschiola indica*	Tragulidae	Mouse Deer	LC
11.	*Lepus nigricollis*	Leporidae	Black Naped Hare	LC
12.	*Funambulus palmarum*	Sciuridae	Three Striped Palm Squirrel	LC
13.	*Pteropus giganteus*	Pteropodidae	Flying Fox	LC
14.	*Rusa unicolor*	Cervidae	Sambar Deer	VU
15.	*Prionailurus bengalensis*	Felidae	Leopard Cat	LC
16.	*Melursus ursinus*	Ursidae	Sloth Bear	VU
17.	*Paradoxurus hermaphroditus*	Viverridae	Common Palm Civet	
B. Reptile				
1.	*Draco dussumieri*	Agamidae	western ghats flying lizard	LC
2.	*Calotes versicolor*	Agamidae	Garden Lizard	LC
3.	*Calotes nemoricola*	Agamidae	Nilgiri forest lizard	LC
4.	*Calotes calotes*	Agamidae	Green forest lizard	LC
5.	*Psammophilus dorsalis*	Agamidae	Peninsular rock Agama	LC
6.	*Chamaeleo zeylanicus*	Agamidae	Indian chameleon	LC
7.	*Eutropis carinata*	Scincidae	keeled grass skink	LC
8.	*Hemidactylus leschenaultii*	Gekkonidae	Bark Gecko	LC
9.	*Hemidactylus frenatus*	Gekkonidae	Common house Gecko	LC

10.	*Varanus bengalensis*	Varanidae	Bengal monitor lizard	NT
11.	*Rhabdophis plumbicolor*	Colubridae	Green keelback	LC
12.	*Amphiesma stolatum*	Colubridae	Buff striped keelback	LC
13.	*Hebius beddomei*	Colubridae	Beddome's keelback	LC
14.	*Boiga nuchalis*	Colubridae	Collared catsnake	LC
15.	*Boiga forsteni*	Colubridae	Forsten's cat snake	LC
16.	*Ptyas mucosa*	Colubridae	Ratsnake	LC
17.	*Lycodon travancoricus*	Colubridae	Travancore wolf snake	LC
18.	*Coelognathus helena*	Colubridae	Trinket snake	LC
19.	*Chrysopelea ornata*	Colubridae	Ornate Flying Snake	LC
20.	*Ahaetulla oxyrhyncha*	Colubridae	long-nosed vine snake	LC
21.	*Bungarus caeruleus*	Elapidae	common krait	LC
22.	*Plectrurus perroteti*	Uropeltidae	Nilgiri burrowing snake	LC
23.	*Python molurus*	Pythonidae	Indian python	NT
24.	*Draco dussumieri*		western ghats flying lizard	LC
25.	*Calotes versicolor*		Garden Lizard	LC
C. Amphibian				
1.	*Duttaphrynus melanostictus*	Bufonidae	Asian Common Toad	LC
2.	*Microhyla rubra*	Microhylidae	Red Narrow Mouthed Frog	LC
3.	*Uperodon triangularis*	Microhylidae		VU
4.	*Indosylvirana flavescens*	Ranidae		
5.	*Clinotarsus curtipes*	Ranidae	Bicolored Frog	NT
6.	*Rhacophorus malabaricus*	Rhacophoridae	Malabar Gliding Frog	LC
7.	*Ghatixalus variabilis*	Rhacophoridae		EN
8.	*Ghatixalus asterops*	Rhacophoridae		DD

9.	*Raorchestes charius*	Rhacophoridae		EN
10.	*Raorchestes signatus*	Rhacophoridae		EN
11.	*Raorchestes tinniens*	Rhacophoridae		EN
12.	*Raorchestes akroparallagi*	Rhacophoridae		LC
13.	*Raorchestes coonoorensis*	Rhacophoridae		LC
14.	*Euphlyctis cyanophlyctis*	Dicroglossidae		LC
15.	*Micrixalus phyllophilus*	Micrixalidae		VU
16.	*Nyctibatrachus indraneili*	Nyctibatrachidae		
17.	*Polypedates maculatus*	Rhacophoridae		LC
18.	*Hoplobatrachus tigerinus*	Dicroglossidae		LC
19.	*Duttaphrynus melanostictus*		Asian Common Toad	LC
D. Butterfly				
1.	*Acraea violae*	Nymphalidae	Tawny Coster	NE
2.	*Tirumala septentrionis*	Nymphalidae	Dark Blue Tiger	LC
3.	*Danaus chrysippus*	Nymphalidae	Plain Tiger	NE
4.	*Parantica nilgiriensis*	Nymphalidae	Nilgiri Tiger	NE
5.	*Euploea core*	Nymphalidae	Common Crow	LC
6.	*Parantica aglea*	Nymphalidae	Glassy Blue tiger	NE
7.	*Danaus genutia*	Nymphalidae	Striped Tiger	NE
8.	*Ypthima heubneri*	Nymphalidae	Common Fourring	NE
9.	*Ypthima chenui*	Nymphalidae	Nilgiri Fourring	NE
10.	*Cupha erymanthis*	Nymphalidae	Rustic	NE
11.	*Precis iphita*	Nymphalidae	Chocolate Pancy	NE
12.	*Hypolimnas misippus*	Nymphalidae	Danaid Eggfly	LC
13.	*Junonia lemonias*	Nymphalidae	Lemon Pansy	NE
14.	*Neptis hylas*	Nymphalidae	Common Sailer	LC
15.	*Phalanta phalantha*	Nymphalidae	Common leopard	LC
16.	*Pantoporia hordonia*	Nymphalidae	Common Lascar	

17.	*Ariadne ariadne*	Nymphalidae	Common Caster	NE
18.	*Ariadne ariadne*	Nymphalidae	Angled Caster	NE
19.	*Melanites leda*	Nymphalidae	Common Evening Brown	NE
20.	*Polyura athamas*		Common Nawab	
21.	*lethe rohria*		Common Tree brown	
22.	*Mycalesis oculus*		Red-Disc Bush brown	
23.	*Orsotrioena medus*		Nigger	
24.	*Athyma perius*		Common Sergeant	
25.	*Euthalia aconthea*		Common Baron	
26.	*Junonia atlites*		Grey Pansy	
27.	*Junonia almana*		Peacock Pansy	
28.	*Hypolimnas bolina*		Great Eggfly	
29.	*Mycalesis perseus*		Common Bushbrown	
30.	*Ypthima baldus*		Common Five-ring	
31.	*Ypthima ceylonica*		White Four-ring	
32.	*Libythea myrrha*		Club Beak	
33.	*Nacaduba kurava*	Lycaenidae	Transparent 6-Lineblue	NE
34.	*Chilades lajus*	Lycaenidae	Lime Blue	NE
35.	*Lampides boeticus*	Lycaenidae	Pea Blue	NE
36.	*Jamides celeno*	Lycaenidae	Common Cerulean	NE
37.	Mycalesis patnia		Glade-Eye Bushbrown	
38.	*Discolampa ethion*		Banded Blue Pierrot	
39.	*Spindasis vlucanus*	Lycaenidae	Common Silverline	NE
40.	*Rapala manea*	Lycaenidae	Slate Flash	NE
41.	*Rapala iarbus*		Indian Red Flash	

42.	*Abisara echerius*		Plum Judy	
43.	*Rathinda amor*		Monkey Puzzle	
44.	*Loxura atymnus*		Yam Fly	
45.	*Castalius rosimon*		Common Pierrot	
46.	*Talicada nyseus*		Red Pierrot	
47.	*Iraota timoleon*		Silverstreak Blue	
48.	*Graphium sarpedon*	Papilionidae	Common Blue Bottle	LC
49.	*Papilio buddha*	Papilionidae	Common Banded Peacok	NE
50.	*Pachliopta hector*	Papilionidae	Common rose	NE
51.	*Graphium Agamemnon*	Papilionidae	Tailed Jay	LC
52.	*Pachliopta hector*	Papilionidae	Crimson Rose	NE
53.	*Papilio polytes*	Papilionidae	Common Mormon	NE
54.	*Papilio helenus*	Papilionidae	Red Helen	NE
55.	*Papilio polymnestor*	Papilionidae	Blue Mormon	LC
56.	*Papilio demoleus*	Papilionidae	Lime Butterfly	LC
57.	*Troides minos*	Papilionidae	Southern Birdwing	NE
58.	*Cepora nerissa*	Pieridae	Common Gull	NE
59.	*Peroronia valeria*		Common Wandere	
60.	*Ixias marianne*	Pieridae	White Orange Tip	NE
61.	*Delias eucharis*	Pieridae	Common Jezebel	NE
62.	*Eurema hecabe*	Pieridae	Common Grass Yellow	NE
63.	*Eurema blanda*	Pieridae	Three Spot Grass Yellow	NE
64.	*Anaphaeis aurota*		Pioneer	
65.	*Catopsilia crocale*	Pieridae	Lemon Emigrant	NE
66.	*Hebomia glaucippe*		Great Orange Tip	
67.	*Catopsillia pomona*		Common Emigrant	

68.	*Caprona ransonnetti*		Golden Angle	
69.	*Iambrix salsala*		Chestnut Bob	
70.	*Baoris farri*		Paintbrush Swift	
71.	*Badamia exclamationis*		Brown Awl	
72.	*Calaenorrhinus ambareesa*		Malabar Spotted Flat	
73.	*Hasora chromus*		Common Banded Awl	
74.	*Spialia galba*		Indian Skipper	
75.	*Oriens goloides*		Common Dartlet	
76.	*Taractrocera ceramas*		Tamil Grass Dart	
77.	*Pelopidas mathias*		Small Banded Swift	
78.	*Borbo chinnara*		Rice Swift	

LC – Least Concern; * - Yes

Table 3.51.3. IUCN Status of Bird Species in Longwood Shola Wetland

S. No.	Scientific Name of the Species	Family Name	Common name	IUCN
1.	Accipiter badius	Accipitridae	Shikra	LC
2.	Accipiter trivirgatus	Accipitridae	Crested Goshawk	LC
3.	Aquila fasciata	Accipitridae	Bonelli's Eagle	LC
4.	Buteo buteo	Accipitridae	Common Buzzard	LC
5.	Circaetus gallicus	Accipitridae	Short-toed Snake-Eagle	LC
6.	Elanus caeruleus	Accipitridae	Black-winged Kite (Black-shouldered Kite)	LC
7.	Haliastur indus	Accipitridae	Brahminy Kite	LC
8.	Ictinaetus malaiensis	Accipitridae	Black Eagle	LC
9.	Lophotriorchis kienerii	Accipitridae	Rufous-bellied Eagle	NT
10.	Milvus migrans	Accipitridae	Black Kite	LC
11.	Pernis ptilorhynchus	Accipitridae	Oriental Honey-buzzard (Crested Honey Buzzard)	LC
12.	Spilornis cheela	Accipitridae	Crested Serpent-Eagle	LC
13.	Acrocephalus dumetorum	Acrocephalida	Blyth's Reed Warbler	LC

		e		
14.	Iduna caligata	Acrocephalidae	Booted Warbler	LC
15.	Aegithina tiphia	Aegithinidae	Common Iora	LC
16.	Eremopterix griseus	Alaudidae	Ashy-crowned Sparrow-Lark	LC
17.	Galerida malabarica	Alaudidae	Malabar Lark	LC
18.	Halcyon smyrnensis	Alcedinidae	White-throated Kingfisher	LC
19.	Alcippe poioicephala	Alcippeidae	Brown-cheeked Fulvetta	LC
20.	Aerodramus unicolor	Apodidae	Indian Swiftlet	LC
21.	Apus affinis	Apodidae	Little Swift	LC
22.	Apus melba	Apodidae	Alpine Swift	LC
23.	Cypsiurus balasiensis	Apodidae	Asian Palm-Swift	LC
24.	Hirundapus giganteus	Apodidae	Brown-backed Needletail	LC
25.	Zoonavena sylvatica	Apodidae	White-rumped Needletail	LC
26.	Ardea purpurea	Ardeidae	Purple Heron	LC
27.	Ardeola grayii	Ardeidae	Indian Pond-Heron	LC
28.	Bubulcus ibis	Ardeidae	Cattle Egret	LC
29.	Egretta garzetta	Ardeidae	Little Egret	LC
30.	Artamus fuscus	Artamidae	Ashy Woodswallow	LC
31.	Ocyceros griseus	Bucerotidae	Malabar Grey Hornbill	VU
32.	Pericrocotus cinnamomeus	Campephagidae	Small Minivet	LC
33.	Pericrocotus flammeus	Campephagidae	Orange Minivet	LC
34.	Vanellus indicus	Charadriidae	Red-wattled Lapwing	LC
35.	Chloropsis aurifrons	Chloropseidae	Golden-fronted Leafbird	LC
36.	Chloropsis jerdoni	Chloropseidae	Jerdon's Leafbird	LC
37.	Anastomus oscitans	Ciconiidae	Asian Openbill	LC
38.	Orthotomus sutorius	Cisticolidae	Common Tailorbird	LC
39.	Prinia socialis	Cisticolidae	Ashy Prinia	LC
40.	Chalcophaps indica	Columbidae	Asian Emerald Dove	LC
41.	Columba elphinstonii	Columbidae	Nilgiri Wood-Pigeon	VU
42.	Columba livia	Columbidae	Rock Pigeon (Blue Rock Pigeon)	LC

43.	Streptopelia chinensis	Columbidae	Spotted Dove	LC
44.	Streptopelia decaocto	Columbidae	Eurasian Collared-Dove	LC
45.	Streptopelia senegalensis	Columbidae	Laughing Dove	LC
46.	Copsychus fulicatus	Coraciidae	Indian Robin	LC
47.	Coracias benghalensis	Coraciidae	Indian Roller	LC
48.	Corvus macrorhynchos	Corvidae	Large-billed Crow	LC
49.	Corvus splendens	Corvidae	House Crow	LC
50.	Dendrocitta vagabunda	Corvidae	Rufous Treepie	LC
51.	Cacomantis sonneratii	Cuculidae	Banded Bay Cuckoo	LC
52.	Centropus sinensis	Cuculidae	Greater Coucal	LC
53.	Eudynamys scolopaceus	Cuculidae	Asian Koel	LC
54.	Hierococcyx varius	Cuculidae	Common Hawk-Cuckoo	LC
55.	Phaenicophaeus viridirostris	Cuculidae	Blue-faced Malkoha	LC
56.	Dicaeum agile	Dicaeidae	Thick-billed Flowerpecker	LC
57.	Dicaeum concolor	Dicaeidae	Nilgiri Flowerpecker	LC
58.	Dicaeum erythrorhynchos	Dicaeidae	Pale-billed Flowerpecker	LC
59.	Dicrurus aeneus	Dicruridae	Bronzed Drongo	LC
60.	Dicrurus caerulescens	Dicruridae	White-bellied Drongo	LC
61.	Dicrurus leucophaeus	Dicruridae	Ashy Drongo	LC
62.	Dicrurus macrocercus	Dicruridae	Black Drongo	LC
63.	Dicrurus paradiseus	Dicruridae	Greater Racket-tailed Drongo	LC
64.	Amandava amandava	Estrildidae	Red Avadavat	LC
65.	Euodice malabarica	Estrildidae	Indian Silverbill	LC
66.	Lonchura kelaarti	Estrildidae	Black-throated Munia	LC
67.	Lonchura punctulata	Estrildidae	Scaly-breasted Munia (Spotted Munia)	LC
68.	Lonchura striata	Estrildidae	White-rumped Munia	LC
69.	Carpodacus erythrinus	Fringillidae	Common Rosefinch	LC
70.	Hemiprocne coronata	Hemiprocnidae	Crested Treeswift	LC
71.	Cecropis daurica	Hirundinidae	Red-rumped Swallow	LC
72.	Delichon urbicum	Hirundinidae	Common House-Martin	LC

73.	Hirundo domicola	Hirundinidae	Hill Swallow	LC
74.	Hirundo rustica	Hirundinidae	Barn Swallow	LC
75.	Ptyonoprogne concolor	Hirundinidae	Dusky Crag-Martin	LC
76.	Irena puella	Irenidae	Asian Fairy-bluebird	LC
77.	Lanius cristatus	Laniidae	Brown Shrike	LC
78.	Lanius schach	Laniidae	Long-tailed Shrike	LC
79.	Montecincla cachinnans	Leiothrichidae	Nilgiri Laughingthrush (Nilgiri Chilappan)	EN
80.	Argya affinis	Leiotrichidae	Yellow-billed Babbler	LC
81.	Argya striata	Leiotrichidae	Jungle Babbler	LC
82.	Argya subrufa	Leiotrichidae	Rufous Babbler	LC
83.	Psilopogon haemacephalus	Megalaimidae	Coppersmith Barbet	LC
84.	Psilopogon viridis	Megalaimidae	White-cheeked Barbet	LC
85.	Psilopogon zeylanicus	Megalaimidae	Brown-headed Barbet	LC
86.	Merops leschenaulti	Meropidae	Chestnut-headed Bee-eater	LC
87.	Merops orientalis	Meropidae	Green Bee-eater	LC
88.	Nyctyornis athertoni	Meropidae	Blue-bearded Bee-eater	LC
89.	Hypothymis azurea	Monarchidae	Black-naped Monarch	LC
90.	Terpsiphone paradisi	Monarchidae	Indian Paradise-Flycatcher	LC
91.	Dendronanthus indicus	Motacillidae	Forest Wagtail	LC
92.	Motacilla cinerea	Motacillidae	Grey Wagtail	LC
93.	Motacilla flava	Motacillidae	Western Yellow Wagtail	LC
94.	Motacilla maderaspatensis	Motacillidae	White-browed Wagtail	LC
95.	Copsychus saularis	Muscicapidae	Oriental Magpie-Robin	LC
96.	Cyornis pallidipes	Muscicapidae	White-bellied Blue Flycatcher	LC
97.	Cyornis tickelliae	Muscicapidae	Tickell's Blue Flycatcher	LC
98.	Eumyias albicaudatus	Muscicapidae	Nilgiri Flycatcher	LC
99.	Eumyias thalassinus	Muscicapidae	Verditer Flycatcher	LC
100.	Ficedula nigrorufa	Muscicapidae	Black-and-orange Flycatcher	LC
101.	Ficedula subrubra	Muscicapidae	Kashmir Flycatcher	VU
102.	Larvivora brunnea	Muscicapidae	Indian Blue Robin	LC
103.	Monticola cinclorhyncha	Muscicapidae	Blue-capped Rock-Thrush	LC

104.	Monticola solitarius	Muscicapidae	Blue Rock-Thrush	LC
105.	Muscicapa dauurica	Muscicapidae	Asian Brown Flycatcher	LC
106.	Myophonus horsfieldii	Muscicapidae	Malabar Whistling-Thrush	LC
107.	Saxicola caprata	Muscicapidae	Pied Bushchat	LC
108.	Sholicola major	Muscicapidae	Nilgiri Blue Robin (Nilgiri Sholakili)	EN
109.	Arachnothera longirostra	Nectariniidae	Little Spiderhunter	LC
110.	Cinnyris asiaticus	Nectariniidae	Purple Sunbird	LC
111.	Cinnyris lotenius	Nectariniidae	Loten's Sunbird	LC
112.	Leptocoma minima	Nectariniidae	Crimson-backed Sunbird (Small Sunbird)	LC
113.	Leptocoma zeylonica	Nectariniidae	Purple-rumped Sunbird	LC
114.	Oriolus chinensis	Oriolidae	Black-naped Oriole	LC
115.	Oriolus kundoo	Oriolidae	Indian Golden Oriole	LC
116.	Oriolus xanthornus	Oriolidae	Black-hooded Oriole	LC
117.	Anthus hodgsoni	otacillidae	Olive-backed Pipit	LC
118.	Anthus nilghiriensis	otacillidae	Nilgiri Pipit	VU
119.	Machlolophus aplonotus	Paridae	Indian Yellow Tit	LC
120.	Parus cinereus	Paridae	Cinereous Tit (Great Tit)	LC
121.	Gymnoris xanthocollis	Passeridae	Yellow-throated Sparrow	LC
122.	Passer domesticus	Passeridae	House Sparrow	LC
123.	Pavo cristatus	Passeridae	Indian Peafowl	LC
124.	Pellorneum ruficeps	Pellorneidae	Puff-throated Babbler	LC
125.	Galloperdix spadicea	Phasianidae	Red Spurfowl	LC
126.	Gallus sonneratii	Phasianidae	Grey Junglefowl	LC
127.	Ortygornis pondicerianus	Phasianidae	Grey Francolin	LC
128.	Perdicula asiatica	Phasianidae	Jungle Bush-Quail	LC
129.	Perdicula erythrorhyncha	Phasianidae	Painted Bush-Quail	LC
130.	Phylloscopus affinis	Phylloscopidae	Tickell's Leaf Warbler	LC
131.	Phylloscopus magnirostris	Phylloscopidae	Large-billed Leaf Warbler	LC
132.	Phylloscopus nitidus	Phylloscopidae	Green Warbler	LC
133.	Phylloscopus occipitalis	Phylloscopidae	Western Crowned Warbler	LC

134.	Phylloscopus trochiloides	Phylloscopidae	Greenish Warbler	LC
135.	Phylloscopus tytleri	Phylloscopidae	Tytler's Leaf Warbler	LC
136.	Chrysocolaptes guttacristatus	Picidae	Greater Flameback	LC
137.	Leiopicus mahrattensis	Picidae	Yellow-crowned Woodpecker	LC
138.	Micropternus brachyurus	Picidae	Rufous Woodpecker	LC
139.	Picumnus innominatus	Picidae	Speckled Piculet	LC
140.	Picus chlorolophus	Picidae	Lesser Yellownape	LC
141.	Picus xanthopygaeus	Picidae	Streak-throated Woodpecker	LC
142.	Yungipicus nanus	Picidae	Brown-capped Pygmy Woodpecker	LC
143.	Dinopium benghalense	Psittacidae	Black-rumped Flameback	LC
144.	Psittacula columboides	Psittacidae	Malabar Parakeet (Blue-winged Parakeet)	LC
145.	Psittacula krameri	Psittacidae	Rose-ringed Parakeet	LC
146.	Loriculus vernalis	Psittaculidae	Vernal Hanging-Parrot	LC
147.	Brachypodius priocephalus	Pycnonotidae	Grey-headed Bulbul	NT
148.	Hypsipetes ganeesa	Pycnonotidae	Square-tailed Bulbul (Black Bulbul)	LC
149.	Iole indica	Pycnonotidae	Yellow-browed Bulbul	LC
150.	Pycnonotus cafer	Pycnonotidae	Red-vented Bulbul	LC
151.	Pycnonotus jocosus	Pycnonotidae	Red-whiskered Bulbul	LC
152.	Pycnonotus luteolus	Pycnonotidae	White-browed Bulbul	LC
153.	Rubigula gularis	Pycnonotidae	Flame-throated Bulbul	LC
154.	Amaurornis phoenicurus	Rallidae	White-breasted Waterhen	LC
155.	Rhipidura albogularis	Rhipiduridae	Spot-breasted Fantail (White-spotted Fantail)	LC
156.	Rhipidura aureola	Rhipiduridae	White-browed Fantail	LC
157.	Tringa ochropus	Scolopacidae	Green Sandpiper	LC
158.	Sitta frontalis	Sittidae	Velvet-fronted Nuthatch	LC
159.	Culicicapa ceylonensis	Stenostiridae	Grey-headed Canary-Flycatcher	LC
160.	Athene brama	Strigidae	Spotted Owlet	LC
161.	Bubo nipalensis	Strigidae	Spot-bellied Eagle-Owl	LC
162.	Ketupa zeylonensis	Strigidae	Brown Fish-Owl	LC

163.	Strix leptogrammica	Strigidae	Brown Wood-Owl	LC
164.	Acridotheres fuscus	Sturnidae	Jungle Myna	LC
165.	Acridotheres tristis	Sturnidae	Common Myna	LC
166.	Gracula indica	Sturnidae	Southern Hill Myna	LC
167.	Sturnia pagodarum	Sturnidae	Brahminy Starling	LC
168.	Dumetia hyperythra	Timaliidae	Tawny-bellied Babbler	LC
169.	Pomatorhinus horsfieldii	Timaliidae	Indian Scimitar-Babbler	LC
170.	Harpactes fasciatus	Trogonidae	Malabar Trogon	LC
171.	Geokichla citrina	Turdidae	Orange-headed Thrush	LC
172.	Turdus simillimus	Turdidae	Indian Blackbird	LC
173.	Zoothera neilgherriensis	Turdidae	Nilgiri Thrush	LC
174.	Upupa epops	Upupidae	Eurasian Hoopoe	LC
175.	Hemipus picatus	Vangidae	Bar-winged Flycatcher-shrike	LC
176.	Tephrodornis pondicerianus	Vangidae	Common Woodshrike	LC
177.	Zosterops palpebrosus	Zosteropidae	Indian White-eye (Oriental White-eye)	LC

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.51.4. IUCN Status of major animal invasive alien species in Longwood Shola Wetland

S.No	**Species**	**Family**	**Common name**	**IUCN**
A. Mammal				
1.	*Muntiacus muntjak*	Cervidae	Barking Deer	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC
3.	*Calotes versicolor*	Agamidae	Garden Lizard	LC
C. Birds				
4.	Acridotheres tristis	Sturnidae	Common Myna	LC
5.	Passer domesticus	Passeridae	House Sparrow	LC
D. Amphibian				
6.	*Hoplobatrachus tigerinus*	Dicroglossidae		LC

Table 3.51.5. IUCN Status of major medicinal plant species in Longwood Shola Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
2.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC
3.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
4.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
5.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
6.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
7.	*Terminalia chebula*	Combretaceae		Tree	LC
8.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
9.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
10.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.52. UDHAYAMARTHANDAPURAM BIRDS SANCTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and

1.1 *Name of the Wetland:* Udhayamarthandapuram Bird Sanctuary

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Thiruthuraipoondi, Udhayamarthandapuram, Vadakkupalliyamedu, Natchikulam, Tholi, Ezhilur, Munangkadu

1.3 *Name of the District (s) in which Wetlands complex located:* Thiruvarur

1.4 *Geographical coordinates:*

► Latitude: 10˚27’02” N

► Longitude: 79˚33’16” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 43.75 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reef
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2.5; Maximum - 4

2.4 *Elevation (m above mean sea level):* 1

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ❒ Others, please specify:
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ✓ Eutrophic
- ❒ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 175.3

b) Temperature (°C) Minimum 23.4 ; Maximum 36.85

c) Humidity (%) Minimum 74.5 ; Maximum 79.8

2.7 *Area of zone of influence (in ha):* 3791.53 ha (with an irregular radius of 3.5 km)

2.8 *Major land use within zone of influence*

Land Use	Percentage
Forest	0%
Vegetation (Plantation)	3%
Agriculture	77%
Settlements (Rural)	17%
Settlements (Urban)	0%
Industrial	0%
Waterbody	3%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.52 (Fig. 3.52.1-3.52.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 167 species. (refer to Table 3.52.1 in Annexure 3.52).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 123 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 94 bird species, and 11 species of butterflies (refer to Table 3.52.2-3.52.3 in Annexure 3.52).

3.3 *Species of conservation significance:* Highlighted in Table 3.52.1-3.52.3.

3.4 *Major plant invasive alien species:* The Wetland supports 12 plant invasive species (refer to Table 3.52.4 in Annexure 3.52).

3.5 *Major animal invasive alien species:* Not available.

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Surpluses from the Wetland and then supplied to the fields, only when it reaches full supply level (FSL)
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland and which listed in Table 3.52.5 in Annexure 3.52
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variants of amphibians has been surviving
Mining	✓ Yes ❒ No	Observed the traces of Mining also illegally mining activity is happening
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒No	❒Yes ❒No ✓Not assessed	Activity of Grazing has observed
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	✓ Yes ❒ No	❒ Yes ❒ No ❒ Not assessed	When it reaches the FSL
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Household sewage discharge poses a significant threat
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Observed the traces of Mining also illegally mining activity is happening
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	❒ Present ✓ Potential	Listed in Table 3.52.4-3.52.5 in Annexure 3.52
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well		
Discharge of treated sewage/ effluent / wastewater	Prohibited	✓ Wetland/ Wetland complex boundary	disruption to Biodiversity		

		❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources

1. Aengals, R., Sathish Kumar, V.M., Palot, M.J. & Ganesh, S.R. (2018). A Checklist of Reptiles of India. 35 pp. Version 3.0. Online publication is available at www.zsi.gov.in (Last update: May 2018)
2. Ali, S. (2002). The Book of Indian Birds (13th Revised Edition). Oxford University Press, New Delhi, 326pp.
3. Balachandran, S. (1998) Migratory, Threatened and Rare birds of Kanyakumari District. Proc. Seminar on endangered fauna of Kanyakumari district, Tamil Nadu (Ed.: R. S. Lal Mohan, 38-39).
4. Bibby, C.J., N.D. Burgess & D.A. Hill (1993). Bird Census Techniques. Academic Press Limited, London, 257pp.

5. BirdLife International (2024) Important Bird Area factsheet: Suchindram Therur, Vembanoor. Downloaded from https://datazone.birdlife.org/site/factsheet/suchindram-therur-vembanoor-iba-india on 07/08/2024.
6. Gamble, J.S. and C.E.C. Fischer. 1915-1935. Flora of Presidency of Madras, Adlard and Son, London. pp. 1-3.
7. Grimmet, R., C. Inskipp & T. Inskipp (2000). Pocket Guide to the Birds of the Indian Subcontinent. Oxford University Press, New York, 384pp.
8. Grubh, R. and Grubh, S. (1989) Suchindram Kulam: A Waterbird Sanctuary for Kumari Distict. Bombay Natural History Society, Mumbai. Wetlands International (2002) Waterbirds Population Estimates: Third Edition. Wetlands International Global Series No. 12. Wageningen, the Netherlands.
9. Henry, A.N., Chithra, V.N. and Balakrishnan, P. (1989) Flora of Tamil Nadu India. Series 1: Analysis. Vol. III. Botanical Survey of India, Coimbatore.
10. *K. Ratnam* Bird of Tamil Nadu
11. Kamalakannan, M.& P.O.Nameer (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa 11(8): 13992–14009; https://doi.org/10.11609/jott.4705.11.8.13992–14009.
12. Kehimkar I. The Book of Indian Butterflies. Bombay Natural History Society, 2008, 497.
13. Manakadan, R. and Kannan, V. (2001-2002) A study of Spot-billed Pelicans Pelecanus philippensis with special reference to its conservation. Annual Report, Bombay Natural History Society.
14. Mathew, K. M. 1981. The Material for the Flora of the Tamilnadu Carnatic, Madras, India.
15. Matthew, K. M. 1982. Illustrations on the Flora of the Tamilnadu Carnatic. Vol. II. The Diocesan press, Madras, India.
16. Matthew, K. M. 1983. The Flora of Tamilnadu Carnatic. Vol. III. The Diocesan press, Madras, India.
17. Matthew, K. M. 1988. Further Illustrations on the Flora of the Tamilnadu Carnatic. Vol. IV. The Diocesan press, Madras, India.
18. Nair, N.C. and A.N. Henry. 1983. Flora of Tamil Nadu, India.Series 1, Vol. 1, Botanical Survey of India, Southern Circle, Coimbatore. 1-184.
19. Sridharan, N., Somasundaram, S., Thiyakesan, K., & Vijayan, L. (2011). Status of Wetland birds in Kanyakumari, Thanjavur, Cuddalore and Nagapattinam districts of Tamil Nadu, India. Indian Forester, 137(10), 1177–1182.

ANNEXURE 3.52

Fig 3.52.1. Zone of Influence of Udhayamarthandapuram Bird Sanctuary

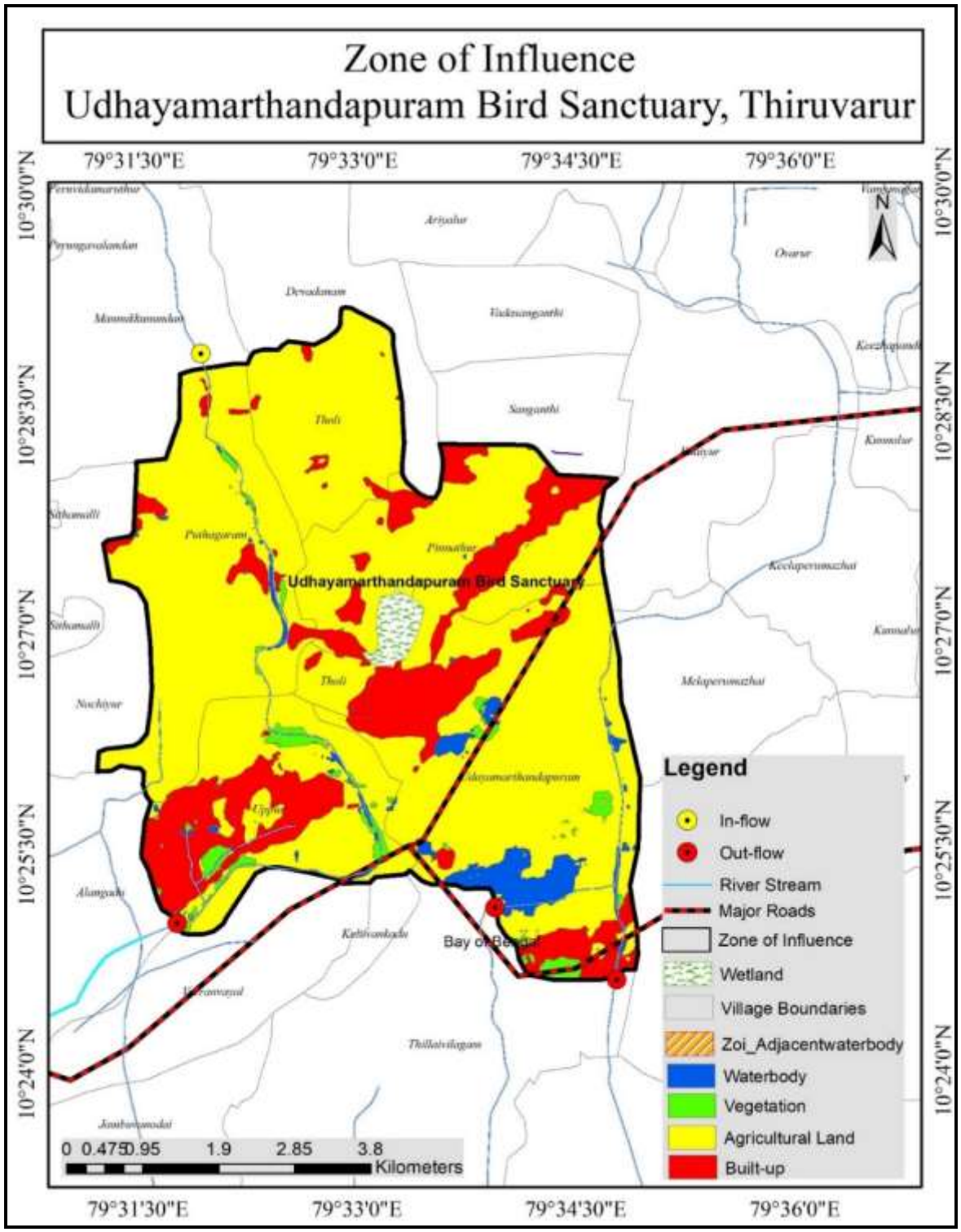


Fig 3.52.2. Map (2004 *vs*. 2024) and Land Use/ Land Cover of Udhayamarthandapuram Bird Sanctuary

Map of the Wetland in 2011



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

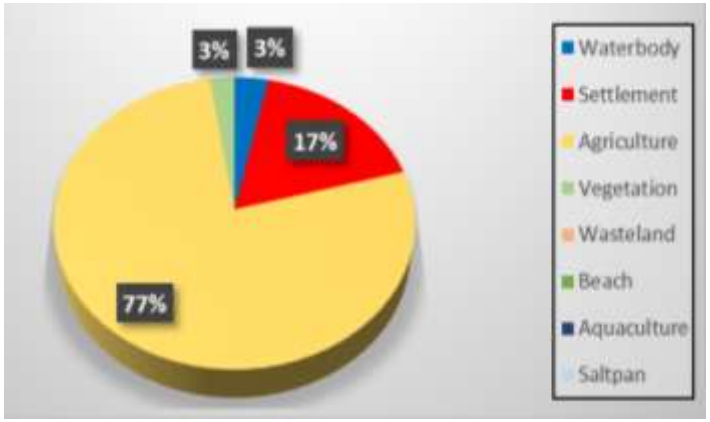


Table 3.52.1. IUCN Status of Floral Species in Udhayamarthandapuram Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia catechu*	Mimosaceae	Karuvali	Tree	LC
4.	*Acacia leucophloea*	Mimosaceae	Velvelam	Tree	LC
5.	*Acacia auriculiformis*	Mimosaceae		Tree	LC
6.	*Acacia nilotica*	Mimosaceae	Karuvelam	Tree	LC
7.	*Acalypha ciliata*	Euphorbiaceae	Agal	Herb	LC
8.	*Acalypha fruticosa*	Euphorbiaceae	Sinni	Herb	LC
9.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
10.	*Acanthospermum hispidum*	Compositae		Herb	NE
11.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
12.	*Aegle marmelos*	Rutaceae	Vilvam	Tree	NT
13.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
14.	*Aerva persica*	Amaranthaceae	Pulaippoo	Herb	NE
15.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
16.	*Agave americana*	Agavaceae	Kathazhai	Shrub	LC
17.	*Ageratum conyzoides*	Compositae	Poom pillu	Herb	NE
18.	*Ailanthus excelsa*	Simaroubaceae	Perumaram	Tree	NE
19.	*Alangium salvifolium*	Alangiaceae	Alinjil	Tree	NE
20.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
21.	*Allmania nodiflora*	Amaranthaceae	-	Herb	LC
22.	*Alloteropsis cimicina*	Poaceae		Grass	LC
23.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
24.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
25.	*Alysicarpus longifolius*	Fabaceae		Herb	NE
26.	*Alysicarpus monilifer*	Fabaceae		Herb	NE

27.	*Ampelocissus araneosa*	Vitaceae		Climber	NE
28.	*Andrographis paniculata*	Acanthaceae	Siriyanangai	Herb	NE
29.	*Anisomeles indica*	Labiatae		Shrub	NE
30.	*Annona squamosa*	Annonaceae	Seetha	Tree	LC
31.	*Apluda mutica*	Poaceae	Mandapul	Grass	NE
32.	*Aristida adscensionis*	Poaceae	Oocipul	Grass	NE
33.	*Aristida setacea*	Poaceae	Variyapul	Grass	NE
34.	*Azadirachta indica*	Meliaceae	Vaembu	Tree	LC
35.	*Bacopa monnieri*	Scrophulariaceae	Neerbrahmi	Herb	NE
36.	*Bambusa bambos*	Poaceae	Mungil	Tree	NE
37.	*Barleria longiflora*	Acanthaceae		Herb	NE
38.	*Bauhinia racemosa*	Caesalpiniaceae	Aathi	Tree	NE
39.	*Baunihia purpurea*	Fabaceae	Purple orchid	Tree	LC
40.	*Bidens pilosa*	Compositae	-	Herb	LC
41.	*Biophytum sensitivum*	Oxalidaceae		Herb	NE
42.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
43.	*Boerhavia erecta*	Nyctaginaceae	Seemai mookarattai	Herb	LC
44.	*Bombax ceiba*	Bombacaceae	Ilavu	Tree	LC
45.	*Borassus flabellifer*	Arecaceae	Pania	Tree	NE
46.	*Butea monosperma*	Fabaceae	Thalasu	Tree	LC
47.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
48.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
49.	*Cassia fistula*	Caesalpiniaceae	Kondrai	Tree	LC
50.	*Cassia roxburghii*	Caesalpiniaceae	Vakai	Tree	NE
51.	*Cassia siamea*	Caesalpiniaceae	Manjakondrai	Tree	LC
52.	*Casuarina equisetifolia*	Casuarinaceae	Savukku	Tree	LC
53.	*Celosia argentea*	Amaranthaceae	Pannai keerai	Herb	LC

54.	*Cereus pterogonus*	Cactaceae		Shrub	NE
55.	*Ceropegia candelabrum*	Asclepiadaceae		Climber	NE
56.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
57.	*Chromolaena odorata*	Compositae		Shrub	NE
58.	*Chrysopogon fulvus*	Poaceae	-	Grass	LC
59.	*Cissus quadrangularis*	Vitaceae	Pirandai	Climber	NE
60.	*Citrullus colocynthis*	Cucurbitaceae	Aattrukumatti	Climber	NE
61.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
62.	*Clitoria ternatea*	Fabaceae	Kaarkataan	Climber	NE
63.	*Coccinia grandis*	Cucurbitaceae	Kovai	Climber	NE
64.	*Cocculus hirsutus*	Menispermaceae	Kattukodi	Climber	NE
65.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
66.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
67.	*Cyperus iria*	Cyperaceae		Sedge	NE
68.	*Cyperus rotundus*	Cyperaceae	Koraikizhanghu	Sedge	NE
69.	*Cyphostemma setosum*	Vitaceae	Pulinaralai	Herb	NE
70.	*Dactyloctenium aegyptium*	Poaceae		Grass	NE
71.	*Dalbergia sissoo*	Fabaceae	Totakatti	Tree	LC
72.	*Delonix regia*	Fabaceae		Tree	LC
73.	*Dendrocalamus strictus*	Poaceae	Kal Moongil	Grass	LC
74.	*Dendrophthoe falcata*	Loranthaceae	Pulluruvi	Shrub	NE
75.	*Dichanthium annulatum*	Poaceae		Grass	NE
76.	*Dichanthium caricosum*	Poaceae		Grass	NE
77.	*Echinochloa colona*	Poaceae		Grass	LC
78.	*Echinochloa crus-galli*	Poaceae	-	Grass	LC
79.	*Eclipta prostrata*	Compositae	Karisaalai	Herb	LC
80.	*Elephantopus scaber*	Compositae	Anashovadi	Herb	NE

81.	*Eleusine indica*	Poaceae	Tipparagai	Grass	LC
82.	*Elytraria acaulis*	Acanthaceae		Herb	NE
83.	*Enicostema axillare*	Gentianaceae	Vellaragu	Herb	LC
84.	*Eragrostis amabilis*	Poaceae	-	Grass	LC
85.	*Eragrostis ciliaris*	Poaceae	-	Grass	LC
86.	*Eragrostis Pilosa*	Poaceae		Grass	NE
87.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
88.	*Euphorbia hirta*	Euphorbiaceae	Ammanpacharisi	Herb	NE
89.	*Ficus benghalensis*	Moraceae	Alamaram	Tree	NE
90.	*Ficus hispida*	Moraceae		Tree	LC
91.	*Ficus racemosa*	Moraceae	Athi	Tree	LC
92.	*Ficus religiosa*	Moraceae	Arasu	Tree	LC
93.	*Gmelina arborea*	Verbenaceae	Kumalaamaram	Tree	LC
94.	*Gmelina asiatica*	Verbenaceae	Nilakkumizh	Shrub	LC
95.	*Gomphrena serrata*	Amaranthaceae		Herb	NE
96.	*Grewia tenax*	Tiliaceae		Shrub	LC
97.	*Hedyotis aspera*	Rubiaceae		Herb	NE
98.	*Hemidesmus indicus*	Periplocaceae	Nannaari	Herb	NE
99.	*Heteropogon contortus*	Poaceae		Grass	NE
100	*Hydrilla verticillata*	Hydrocharitaceae		Herb	LC
101	*Hyptis suaveolens*	Labiatae		Shrub	NE
102	*Ichnocarpus frutescens*	Apocynaceae	Udarkodi, Paravalli	Climber	NE
103	*Indigofera linnaei*	Fabaceae		Herb	NE
104	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
105	*Lannea coromandelica*	Anacardiaceae	Odhiya maram	Tree	LC
106	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
107	*Leucaena leucocephala*	Fabaceae		Tree	LC

108	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
109	*Mangifera indica*	Anacardiaceae	Maa maram	Tree	LC
110	*Merremia emarginata*	Convolvulaceae	Perettaikkeerai	Herb	NE
111	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
112	*Nerium oleander*	Apocynaceae	Karaviram	Shrub	LC
113	*Nymphaea nouchali*	Nymphaeaceae		Herb	LC
114	*Ocimum americanum*	Labiatae	Ganjaankorai	Herb	NE
115	*Ocimum basilicum*	Labiatae	Karpura thulasi	Herb	NE
116	*Ocimum sanctum*	Labiatae	Thulasi	Herb	LC
117	*Ocimum tenuiflorum*	Labiatae	Thulasi	Herb	LC
118	*Panicum repens*	Poaceae	Injipillu	Grass	LC
119	*Paspalidium flavidum*	Poaceae	Arisi pullu	Grass	LC
120	*Paspalidium geminatum*	Poaceae		Grass	LC
121	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
122	*Pennisetum glaucum*	Poaceae	Kambu	Grass	LC
123	*Pergularia daemia*	Asclepiadaceae	Uthamani	Climber	LC
124	*Perotis indica*	Poaceae	Narival pullu	Grass	LC
125	*Phoenix sylvestris*	Arecaceae	Eecham	Tree	LC
126	*Phyllanthus emblica*	Euphorbiaceae	Nelli	Tree	LC
127	*Phyllanthus maderaspatensis*	Euphorbiaceae		Herb	LC
128	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
129	*Pithecellobium dulce*	Fabaceae	Kodukkapuli	Tree	LC
130	*Plygonum glabrum*	Polygonaceae		Herb	NE
131	*Polyalthia longifolia*	Annonaceae	Asogam	Tree	NE
132	*Pongamia pinnata*	Fabaceae	Punga maram	Tree	LC
133	*Prosopis juliflora*	Fabaceae	Seemai karuvai	Tree	LC
134	*Rhynchosia cana*	Fabaceae		Shrub	NE

135	*Ricinus communis*	Euphorbiaceae	Amanakku	Shrub	NE
136	*Rivea hypocrateriformis*	Convolvulaceae	Boodhikeerai	Climber	LC
137	*Senna alata*	Caesalpiniaceae	Seemai agathi	Shrub	LC
138	*Senna auriculata*	Caesalpiniaceae	Avaram	Shrub	NE
139	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
140	*Senna siamea*	Fabaceae		Tree	LC
141	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
142	*Simarouba glauca*	Simaroubaceae		Tree	LC
143	*Solanum americanum*	Solanaceae	Manatakkali	Herb	NE
144	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
145	*Spathodea campanulata*	Bignoniaceae	Squirt tree	Tree	LC
146	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
147	*Streblus asper*	Moraceae	Kuruvipala	Tree	LC
148	*Syzygium cumini*	Myrtaceae	Navaal	Tree	LC
149	*Tabebuia rosea*	Bignoniaceae	Rosy trumpet tree	Tree	LC
150	*Tamarindus indica*	Caesalpiniaceae	Puliya maram	Tree	LC
151	*Tecoma stans*	Bignoniaceae	Yellow elder	Tree	LC
152	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
153	*Tephrosia tinctoria*	Fabaceae		Herb	LC
154	*Terminalia arjuna*	Combretaceae	Maruthamaram	Tree	NE
155	*Terminalia catappa*	Combretaceae	Natvadumai	Tree	LC
156	*Terminalia chebula*	Combretaceae	Kadukaai	Tree	LC
157	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
158	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
159	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
160	*Trachys muricata*	Poaceae	-	Grass	LC
161	*Trianthema portulacastrum*	Aizoaceae		Herb	NE

162	*Tridax procumbens*	Compositae	Vettukkaayam	Herb	LC
163	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
164	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
165	*Vitex negundo*	Verbenaceae	Nochi	Tree	LC
166	*Ziziphus mauritiana*	Rhamnaceae	Illandhai	Tree	LC
167	*Ziziphus oenoplia*	Rhamnaceae	Soorai pazham	Shrub	NE

Table 52.2. IUCN Status of Selected Fauna Species in Udhayamarthandapuram Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	*
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	*
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	
6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC	
C. Amphibian					
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*

2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
1.	*Euploea core*	Common crow	Nymphalidae	LC	PS
2.	*Catopsilia pomona*	Common Emigrant	Pieridae	NE	*
3.	*Melanitis leda*	Common evening brown	Nymphalidae	LC	*
4.	*Eurema hecabe*	Common grass yellow	Pieridae	LC	*
5.	*Papilio demoleus*	Common lime	Papilionidae	NE	*
6.	*Papilio polytes*	Common mormon	Papilionidae	NE	*
7.	*Junonia lemonias*	Lemon pansy	Nymphalidae	NE	*
8.	*Catopsilia pyranthe*	Mottled Emigrant	Pieridae	NE	*
9.	*Pseudozizeeria maha*	Pale Grass Blue	Lycaenidae	NE	*
10.	*Junonia almana*	Peacock pansy	Nymphalidae	LC	*
11.	*Atrophaneura hector*	Papilionidae	Crimson rose	LC	*

LC – Least Concern; * - Yes

Table 52.3. IUCN Status of Bird Species in Udhayamarthandapuram Bird Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	D	LC	*

3.	*Alauda gulgula*	Oriental Skylark	T	LC	
4.	*Alcedo atthis*	Common Kingfisher	T	LC	*
5.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
6.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
7.	*Anastomus oscitans*	Asian Openbill	A	LC	
8.	*Anhinga melanogaster*	Darter	A	LC	*
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Ardea cinerea*	Grey Heron	A	LC	*
11.	*Ardea purpurea*	Purple Heron	A	LC	
12.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
13.	*Bubulcus ibis*	Cattle Egret	D	LC	*
14.	*Casmerodius albus*	Great Egret	A	LC	
15.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
16.	*Charadrius dubius*	Little Ringed Plover	A	LC	
17.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
18.	*Circus macrourus*	Pallid Harrier	T	LC	
19.	*Circus melanoleucos*	Pied Harrier	T	LC	
20.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
21.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
22.	*Columba livia*	Rock Pigeon	T	LC	
23.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
24.	*Coracias benghalensis*	Indian Roller	T	LC	*
25.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
26.	*Corvus splendens*	House Crow	T	LC	*
27.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
28.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
29.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
30.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
31.	*Dupetor flavicollis*	Black Bittern	A	LC	
32.	*Egretta garzetta*	Little Egret	A	LC	*
33.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*

34.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
35.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
36.	*Falco tinnunculus*	Common Kestrel	T	LC	
37.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
38.	*Fulica atra*	Coot	A	LC	
39.	*Gallicrex cinerea*	Watercock	A	LC	
40.	*Gallinula chloropus*	Common Moorhen	A	LC	*
41.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
42.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
43.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
44.	*Haliastur indus*	Brahminy Kite	T	LC	*
45.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
46.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
47.	*Hirundo rustica*	Barn Swallow	T	LC	
48.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
49.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
50.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
51.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
52.	*Limosa limosa*	Black-tailed Godwit	A	LC	
53.	*Lonchura malacca*	Black-headed Munia	D	LC	
54.	*Merops orientalis*	Green Bee-eater	T	LC	*
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
57.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Motacilla flava*	Yellow Wagtail	D	LC	
60.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
61.	*Mycteria leucocophala*	Painted stork	A	NT	
62.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
63.	*Nettapus coromandelianus*	Cotton Pygmy Goose	A	LC	
64.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	

65.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
66.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
67.	*Passer domesticus*	House Sparrow	T	LC	*
68.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
69.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
70.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
71.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
72.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
73.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
74.	*Ploceus manyar*	Streaked Weaver	T	LC	
75.	*Pluvialis squatarola*	Grey Plover	A	LC	
76.	*Porphyrio porphyria*	Purple Swamphen	A	LC	*
77.	*Prinia inornata*	Plain Prinia	T	LC	
78.	*Prinia socialis*	Ashy Prinia	T	LC	*
79.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
80.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
81.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
82.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
83.	*Sarkidiornis melanotos*	Comb Duck			
84.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
85.	*Sterna aurantia*	River Tern	A	LC	
86.	*Sternula albifrons*	Little Tern	A	LC	*
87.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
88.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
89.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
90.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
91.	*Tringa glareola*	Wood Sandpiper	A	LC	*
92.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
93.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
94.	*Zoothera citrine*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 52.4. IUCN Status of major plant invasive alien species in Udhayamarthandapuram Wetland

S. No.	Species	Family	Tamil Name
1.	*Agave americana*	Agavaceae	Kathazhai
2.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
3.	*Cassia siamea*	Caesalpiniaceae	Manjakondrai
4.	*Casuarina equisetifolia*	Casuarinaceae	Savukku
5.	*Lantana camara*	Verbenaceae	Unnichedi
6.	*Leucaena leucocephala*	Fabaceae	
7.	*Nerium oleander*	Apocynaceae	Karaviram
8.	*Prosopis juliflora*	Fabaceae	Seemaikaruvai
9.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
10.	*Senna tora*	Caesalpiniaceae	Oosithagarai
11.	*Tecoma stans*	Bignoniaceae	Yellow elder
12.	*Typha angustifolia*	Typhaceae	Sambu

Table 52.5. IUCN Status of major medicinal plant species in Udhayamarthandapuram Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Acalypha ciliata*	Euphorbiaceae	Agal	Herb
3.	*Acalypha fruticosa*	Euphorbiaceae	Sinni	Herb
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
5.	*Acanthospermum hispidum*	Compositae		Herb
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
7.	*Aegle marmelos*	Rutaceae	Vilvam	Tree
8.	*Azadirachta indica*	Meliaceae	Vaembu	Tree
9.	*Bacopa monnieri*	Scrophulariaceae	Neerbrahmi	Herb
10.	*Borassus flabellifer*	Arecaceae	Pania	Tree
11.	*Cissus quadrangularis*	Vitaceae	Pirandai	Climber
12.	*Citrullus colocynthis*	Cucurbitaceae	Aattrukumatti	Climber
13.	*Clitoria ternatea*	Fabaceae	Kaarkataan	Climber

14.	*Coccinia grandis*	Cucurbitaceae	Kovai	Climber
15.	*Cocculus hirsutus*	Menispermaceae	Kattukodi	Climber
16.	*Leucas aspera*	Labiatae	Thumbai	Herb
17.	*Ocimum basilicum*	Labiatae	Karpura thulasi	Herb
18.	*Ocimum sanctum*	Labiatae	Thulasi	Herb
19.	*Solanum americanum*	Solanaceae	Manatakkali	Herb
20.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
21.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
22.	*Tridax procumbens*	Compositae	Vettukkaayam	Herb
23.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
24.	*Vitex negundo*	Verbenaceae	Nochi	Tree
25.	*Ziziphus mauritiana*	Rhamnaceae	Illandhai	Tree

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.53. VADUVUR BIRD SANCTUARY WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Vaduvur Birds Sanctuary Wetland or Vaduvoor Lake

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Needamangalam

1.3 *Name of the District (s) in which Wetlands complex located:* Thiruvarur

1.4 *Geographical coordinates:*

- Latitude: 10˚42’10” N
- Longitude: 79˚18’59” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 112.58 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological systems

❒ Natural (Coastal)	❒Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
✓ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ✓ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 3.5

2.4 *Elevation (m above mean sea level):* 28

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify:
- ✓ Name of River/ Canal System: Kaveri river

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ❒ Feeds groundwater river to sea
- ✓ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 175.3

b) Temperature (°C) Minimum 23.4 ; Maximum 36.85

c) Humidity (%) Minimum 74.5 ; Maximum 79.8

2.7 *Area of zone of influence (in ha):* 2611.42 ha (with an irregular radius of 2.9 km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	1%
Agriculture	:	83%
Settlements (Rural)	:	15%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.53 (Fig. 3.53.1-3.53.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 167 species. (refer to Table 3.53.1 – 3.53.1 in Annexure 3.53).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 123 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 94 bird species, and 11 species of butterflies (refer to Table 3.53.2-3.53.4 in Annexure 3.53).

3.3 *Species of conservation significance:* Highlighted in Table 3.53.1-3.53.4.

3.4 *Major plant invasive alien species:* The Wetland supports 9 plant invasive species (refer to Table 3.53.5 in Annexure 3.53).

3.5 *Major animal invasive alien species:* The Wetland supports only one animal invasive species (refer to Table 3.53.6 in Annexure 3.53).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water has been drawn from outflow for agricultural activities
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.53.7 (Annexure 3.53)
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts & Bird watching
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	

Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒No	❒Yes ❒No ✓Not assessed	Grazing activity is done by cattle

Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a temple around the embankment of the Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	Water has been drawn from outflow for agricultural activities
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒ Medium	✓Present ❒Potential	Substantial water flow from the surrounding

	✓ Low		watershed
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.53.5-3.53.6 in Annexure 3.53
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well		

Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundar ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Ahmad, N. (1980). Some aspects of economic resources of Sunderbans mangrove forests of Bangladesh. In P. Soepadmo (Ed.), *Mangrove Environment: Research and Management* (pp. 50-51). Report on UNESCO Asian Symposium, held at University of Malaya, Kuala Lumpur, Malaysia, 25-29 August 1980.

2. Anonymous. (1991). *India 1990: A Reference Annual*. Research and Reference Division, Ministry of Information and Broadcasting, Government of India, Delhi.
3. Anonymous. (1993). *Directory of Indian Wetlands*. World Wildlife Federation, New Delhi.
4. Anonymous. (1994). *World Development Report*. World Bank Development Report.
5. Chopra, R. (1985). *The State of India's Environment*. Ambassador Press, New Delhi.
6. Choudhury, B. C. (2000). Conserving Wetlands: Emerging scenario. In R. Badola & B. M. Rathore (Eds.), *Proceedings of the workshop on 'Conserving Biodiversity in the 21st Century, through Integrated Conservation and Development Planning on a Regional Scale'* (pp. 131-138). LBSNA Mussorie and WII Dehradun.
7. Das, S., Behera, S. C., Kar, A., Narendra, P., & Guha, S. (1997). Hydrogeomorphological mapping in ground water exploration using remotely sensed data – A case study in Keonjhar District, Orissa. *Journal of the Indian Society of Remote Sensing, 25*, 247-250.
8. Das, K. K., Prasad, S. N., Roy, P. S., & Bhan, S. K. (1994). Mapping of potential crane habitat in Etawah and Mainpuri Districts (U.P.) using satellite remote sensing techniques. A project report: Indian Institute of Remote Sensing, Dehradun, and Salim Ali Centre for Ornithology and Natural History, Kalampalayam, Coimbatore.

ANNEXURE 3.53

Fig 3.53.1 Zone of Influence of Vaduvur Bird Sanctuary

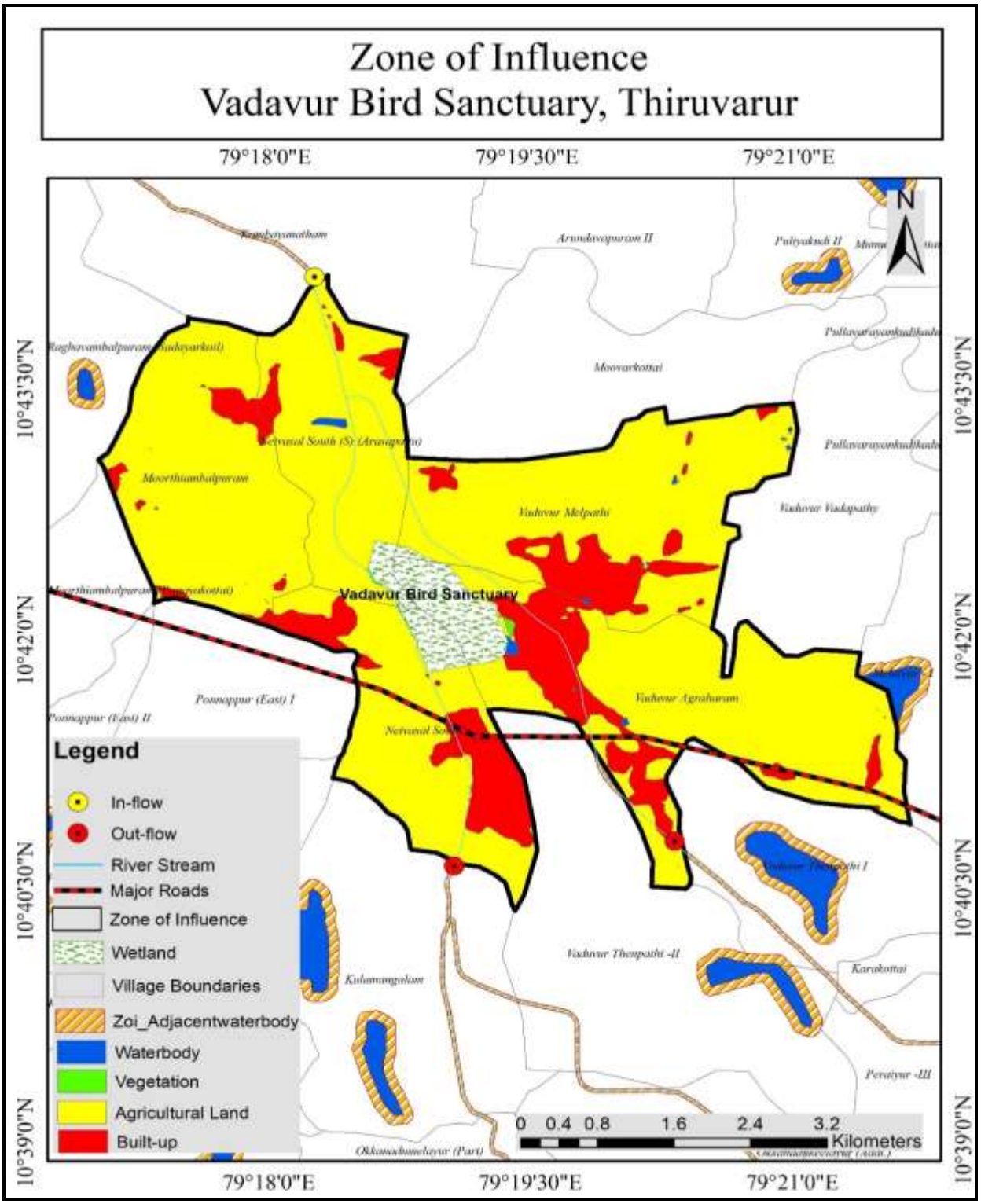


Fig 3.53.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Vaduvur Bird Sanctuary

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

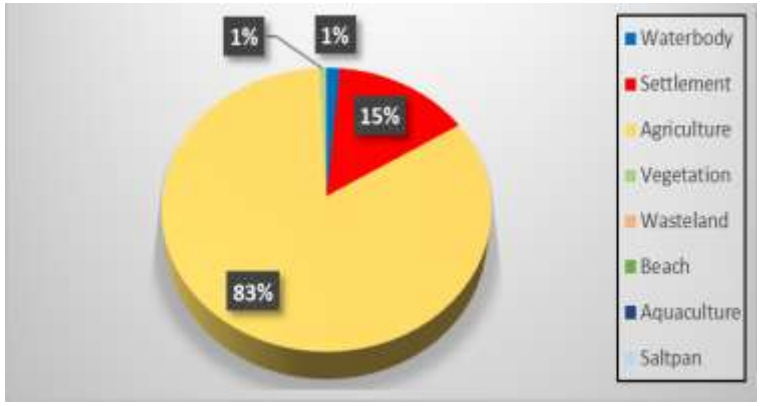


Table 3.53.1. IUCN Status of Floral Species in Vaduvur Bird Sanctuary

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia catechu*	Mimosaceae	Karuvali	Tree	LC
4.	*Acacia leucophloea*	Mimosaceae	Velvelam	Tree	LC
5.	*Acacia auriculiformis*	Mimosaceae		Tree	LC
6.	*Acacia nilotica*	Mimosaceae	Karuvelam	Tree	LC
7.	*Acalypha ciliata*	Euphorbiaceae	Agal	Herb	LC
8.	*Acalypha fruticosa*	Euphorbiaceae	Sinni	Herb	LC
9.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
10.	*Acanthospermum hispidum*	Compositae		Herb	NE
11.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
12.	*Aegle marmelos*	Rutaceae	Vilvam	Tree	NT
13.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
14.	*Aerva persica*	Amaranthaceae	Pulaippoo	Herb	NE
15.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
16.	*Agave americana*	Agavaceae	Kathazhai	Shrub	LC
17.	*Ageratum conyzoides*	Compositae	Poom pillu	Herb	NE
18.	*Ailanthus excelsa*	Simaroubaceae	Perumaram	Tree	NE
19.	*Alangium salvifolium*	Alangiaceae	Alinjil	Tree	NE
20.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
21.	*Allmania nodiflora*	Amaranthaceae	-	Herb	LC
22.	*Alloteropsis cimicina*	Poaceae		Grass	LC
23.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
24.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
25.	*Alysicarpus longifolius*	Fabaceae		Herb	NE
26.	*Alysicarpus monilifer*	Fabaceae		Herb	NE
27.	*Ampelocissus araneosa*	Vitaceae		Climber	NE
28.	*Andrographis paniculata*	Acanthaceae	Siriyanangai	Herb	NE
29.	*Anisomeles indica*	Labiatae		Shrub	NE

30.	*Annona squamosa*	Annonaceae	Seetha	Tree	LC
31.	*Apluda mutica*	Poaceae	Mandapul	Grass	NE
32.	*Aristida adscensionis*	Poaceae	Oocipul	Grass	NE
33.	*Aristida setacea*	Poaceae	Variyapul	Grass	NE
34.	*Azadirachta indica*	Meliaceae	Vaembu	Tree	LC
35.	*Bacopa monnieri*	Scrophulariaceae	Neerbrahmi	Herb	NE
36.	*Bambusa bambos*	Poaceae	Mungil	Tree	NE
37.	*Barleria longiflora*	Acanthaceae		Herb	NE
38.	*Bauhinia racemosa*	Caesalpiniaceae	Aathi	Tree	NE
39.	*Baunihia purpurea*	Fabaceae	Purple orchid	Tree	LC
40.	*Bidens pilosa*	Compositae	-	Herb	LC
41.	*Biophytum sensitivum*	Oxalidaceae		Herb	NE
42.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
43.	*Boerhavia erecta*	Nyctaginaceae	Seemai mookarattai	Herb	LC
44.	*Bombax ceiba*	Bombacaceae	Ilavu	Tree	LC
45.	*Borassus flabellifer*	Arecaceae	Pania	Tree	NE
46.	*Butea monosperma*	Fabaceae	Thalasu	Tree	LC
47.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
48.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
49.	*Cassia fistula*	Caesalpiniaceae	Kondrai	Tree	LC
50.	*Cassia roxburghii*	Caesalpiniaceae	Vakai	Tree	NE
51.	*Cassia siamea*	Caesalpiniaceae	Manjakondrai	Tree	LC
52.	*Casuarina equisetifolia*	Casuarinaceae	Savukku	Tree	LC
53.	*Celosia argentea*	Amaranthaceae	Pannai keerai	Herb	LC
54.	*Cereus pterogonus*	Cactaceae		Shrub	NE
55.	*Ceropegia candelabrum*	Asclepiadaceae		Climber	NE
56.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
57.	*Chromolaena odorata*	Compositae		Shrub	NE
58.	*Chrysopogon fulvus*	Poaceae	-	Grass	LC
59.	*Cissus quadrangularis*	Vitaceae	Pirandai	Climber	NE

60.	*Citrullus colocynthis*	Cucurbitaceae	Aattrukumatti	Climber	NE
61.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
62.	*Clitoria ternatea*	Fabaceae	Kaarkataan	Climber	NE
63.	*Coccinia grandis*	Cucurbitaceae	Kovai	Climber	NE
64.	*Cocculus hirsutus*	Menispermaceae	Kattukodi	Climber	NE
65.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
66.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
67.	*Cyperus iria*	Cyperaceae		Sedge	NE
68.	*Cyperus rotundus*	Cyperaceae	Koraikizhanghu	Sedge	NE
69.	*Cyphostemma setosum*	Vitaceae	Pulinaralai	Herb	NE
70.	*Dactyloctenium aegyptium*	Poaceae		Grass	NE
71.	*Dalbergia sissoo*	Fabaceae	Totakatti	Tree	LC
72.	*Delonix regia*	Fabaceae		Tree	LC
73.	*Dendrocalamus strictus*	Poaceae	Kal Moongil	Grass	LC
74.	*Dendrophthoe falcata*	Loranthaceae	Pulluruvi	Shrub	NE
75.	*Dichanthium annulatum*	Poaceae		Grass	NE
76.	*Dichanthium caricosum*	Poaceae		Grass	NE
77.	*Echinochloa colona*	Poaceae		Grass	LC
78.	*Echinochloa crus-galli*	Poaceae	-	Grass	LC
79.	*Eclipta prostrata*	Compositae	Karisaalai	Herb	LC
80.	*Elephantopus scaber*	Compositae	Anashovadi	Herb	NE
81.	*Eleusine indica*	Poaceae	Tipparagai	Grass	LC
82.	*Elytraria acaulis*	Acanthaceae		Herb	NE
83.	*Enicostema axillare*	Gentianaceae	Vellaragu	Herb	LC
84.	*Eragrostis amabilis*	Poaceae	-	Grass	LC
85.	*Eragrostis ciliaris*	Poaceae	-	Grass	LC
86.	*Eragrostis Pilosa*	Poaceae		Grass	NE
87.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
88.	*Euphorbia hirta*	Euphorbiaceae	Ammanpacharisi	Herb	NE
89.	*Ficus benghalensis*	Moraceae	Alamaram	Tree	NE
90.	*Ficus hispida*	Moraceae		Tree	LC

91.	*Ficus racemosa*	Moraceae	Athi	Tree	LC
92.	*Ficus religiosa*	Moraceae	Arasu	Tree	LC
93.	*Gmelina arborea*	Verbenaceae	Kumalaamaram	Tree	LC
94.	*Gmelina asiatica*	Verbenaceae	Nilakkumizh	Shrub	LC
95.	*Gomphrena serrata*	Amaranthaceae		Herb	NE
96.	*Grewia tenax*	Tiliaceae		Shrub	LC
97.	*Hedyotis aspera*	Rubiaceae		Herb	NE
98.	*Hemidesmus indicus*	Periplocaceae	Nannaari	Herb	NE
99.	*Heteropogon contortus*	Poaceae		Grass	NE
100	*Hydrilla verticillata*	Hydrocharitaceae		Herb	LC
101	*Hyptis suaveolens*	Labiatae		Shrub	NE
102	*Ichnocarpus frutescens*	Apocynaceae	Udarkodi, Paravalli	Climber	NE
103	*Indigofera linnaei*	Fabaceae		Herb	NE
104	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
105	*Lannea coromandelica*	Anacardiaceae	Odhiya maram	Tree	LC
106	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
107	*Leucaena leucocephala*	Fabaceae		Tree	LC
108	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
109	*Mangifera indica*	Anacardiaceae	Maa maram	Tree	LC
110	*Merremia emarginata*	Convolvulaceae	Perettaikkeerai	Herb	NE
111	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
112	*Nerium oleander*	Apocynaceae	Karaviram	Shrub	LC
113	*Nymphaea nouchali*	Nymphaeaceae		Herb	LC
114	*Ocimum americanum*	Labiatae	Ganjaankorai	Herb	NE
115	*Ocimum basilicum*	Labiatae	Karpura thulasi	Herb	NE
116	*Ocimum sanctum*	Labiatae	Thulasi	Herb	LC
117	*Ocimum tenuiflorum*	Labiatae	Thulasi	Herb	LC
118	*Panicum repens*	Poaceae	Injipillu	Grass	LC
119	*Paspalidium flavidum*	Poaceae	Arisi pullu	Grass	LC
120	*Paspalidium geminatum*	Poaceae		Grass	LC

121	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
122	*Pennisetum glaucum*	Poaceae	Kambu	Grass	LC
123	*Pergularia daemia*	Asclepiadaceae	Uthamani	Climber	LC
124	*Perotis indica*	Poaceae	Narival pullu	Grass	LC
125	*Phoenix sylvestris*	Arecaceae	Eecham	Tree	LC
126	*Phyllanthus emblica*	Euphorbiaceae	Nelli	Tree	LC
127	*Phyllanthus maderaspatensis*	Euphorbiaceae		Herb	LC
128	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
129	*Pithecellobium dulce*	Fabaceae	Kodukkapuli	Tree	LC
130	*Plygonum glabrum*	Polygonaceae		Herb	NE
131	*Polyalthia longifolia*	Annonaceae	Asogam	Tree	NE
132	*Pongamia pinnata*	Fabaceae	Punga maram	Tree	LC
133	*Prosopis juliflora*	Fabaceae	Seemai karuvai	Tree	LC
134	*Rhynchosia cana*	Fabaceae		Shrub	NE
135	*Ricinus communis*	Euphorbiaceae	Amanakku	Shrub	NE
136	*Rivea hypocrateriformis*	Convolvulaceae	Boodhikeerai	Climber	LC
137	*Senna alata*	Caesalpiniaceae	Seemai agathi	Shrub	LC
138	*Senna auriculata*	Caesalpiniaceae	Avaram	Shrub	NE
139	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
140	*Senna siamea*	Fabaceae		Tree	LC
141	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
142	*Simarouba glauca*	Simaroubaceae		Tree	LC
143	*Solanum americanum*	Solanaceae	Manatakkali	Herb	NE
144	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
145	*Spathodea campanulata*	Bignoniaceae	Squirt tree	Tree	LC
146	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
147	*Streblus asper*	Moraceae	Kuruvipala	Tree	LC
148	*Syzygium cumini*	Myrtaceae	Navaal	Tree	LC
149	*Tabebuia rosea*	Bignoniaceae	Rosy trumpet tree	Tree	LC
150	*Tamarindus indica*	Caesalpiniaceae	Puliya maram	Tree	LC

151	*Tecoma stans*	Bignoniaceae	Yellow elder	Tree	LC
152	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
153	*Tephrosia tinctoria*	Fabaceae		Herb	LC
154	*Terminalia arjuna*	Combretaceae	Maruthamaram	Tree	NE
155	*Terminalia catappa*	Combretaceae	Natvadumai	Tree	LC
156	*Terminalia chebula*	Combretaceae	Kadukaai	Tree	LC
157	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
158	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
159	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
160	*Trachys muricata*	Poaceae	-	Grass	LC
161	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
162	*Tridax procumbens*	Compositae	Vettukkaayam	Herb	LC
163	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
164	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
165	*Vitex negundo*	Verbenaceae	Nochi	Tree	LC
166	*Ziziphus mauritiana*	Rhamnaceae	Illandhai	Tree	LC
167	*Ziziphus oenoplia*	Rhamnaceae	Soorai pazham	Shrub	NE

Table 3.53.2. IUCN Status of Selected Fauna Species in Vaduvur Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	*
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	*
3.	*Psammophilus dorsalis*	Agamidae	Peninsular	LC	

			Rock Agama		
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	
6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC	
C. Amphibian					
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*

7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
10.	*Junonia almanac*	Nymphalidae	Peacock pansy	LC	*
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*

LC – Least Concern; * - Yes

Table 3.53.3. IUCN Status of Bird Species in Vaduvur Bird Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	D	LC	*
3.	*Alauda gulgula*	Oriental Skylark	T	LC	
4.	*Alcedo atthis*	Common Kingfisher	T	LC	*
5.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
6.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
7.	*Anastomus oscitans*	Asian Openbill	A	LC	
8.	*Anhinga melanogaster*	Darter	A	LC	*
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Ardea cinerea*	Grey Heron	A	LC	*
11.	*Ardea purpurea*	Purple Heron	A	LC	
12.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
13.	*Bubulcus ibis*	Cattle Egret	D	LC	*
14.	*Casmerodius albus*	Great Egret	A	LC	
15.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
16.	*Charadrius dubius*	Little Ringed Plover	A	LC	
17.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
18.	*Circus macrourus*	Pallid Harrier	T	LC	
19.	*Circus melanoleucos*	Pied Harrier	T	LC	
20.	*Cisticola juncidis*	Zitting Cisticola	T	LC	

21.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
22.	*Columba livia*	Rock Pigeon	T	LC	
23.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
24.	*Coracias benghalensis*	Indian Roller	T	LC	*
25.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
26.	*Corvus splendens*	House Crow	T	LC	*
27.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
28.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
29.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
30.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
31.	*Dupetor flavicollis*	Black Bittern	A	LC	
32.	*Egretta garzetta*	Little Egret	A	LC	*
33.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
34.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
35.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
36.	*Falco tinnunculus*	Common Kestrel	T	LC	
37.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
38.	*Fulica atra*	Coot	A	LC	
39.	*Gallicrex cinerea*	Watercock	A	LC	
40.	*Gallinula chloropus*	Common Moorhen	A	LC	*
41.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
42.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
43.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
44.	*Haliastur indus*	Brahminy Kite	T	LC	*
45.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
46.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
47.	*Hirundo rustica*	Barn Swallow	T	LC	
48.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
49.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
50.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	

51.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
52.	*Limosa limosa*	Black-tailed Godwit	A	LC	
53.	*Lonchura Malacca*	Black-headed Munia	D	LC	
54.	*Merops orientalis*	Green Bee-eater	T	LC	*
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
57.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Motacilla flava*	Yellow Wagtail	D	LC	
60.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
61.	*Mycteria leucocophala*	Painted stork	A	NT	
62.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
63.	*Nettapus coromandelianus*	Cotton Pygmy Goose	A	LC	
64.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
65.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
66.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
67.	*Passer domesticus*	House Sparrow	T	LC	*
68.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
69.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
70.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
71.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
72.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
73.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
74.	*Ploceus manyar*	Streaked Weaver	T	LC	
75.	*Pluvialis squatarola*	Grey Plover	A	LC	
76.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
77.	*Prinia inornata*	Plain Prinia	T	LC	
78.	*Prinia socialis*	Ashy Prinia	T	LC	*
79.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
80.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	

81.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
82.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
83.	*Sarkidiornis melanotos*	Comb Duck			
84.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
85.	*Sterna aurantia*	River Tern	A	LC	
86.	*Sternula albifrons*	Little Tern	A	LC	*
87.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
88.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
89.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
90.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
91.	*Tringa glareola*	Wood Sandpiper	A	LC	*
92.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
93.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
94.	*Zoothera citrine*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.53.4. IUCN Status of Aquatic flora Species in Vaduvur Bird Sanctuary

S. No.	Botanical Name	Life form	Family
Pteridophytes			
1	*Azolla pinnata*	Floating	Salviniaceae
2	*Ceratopteris thalictroides*	Floating	Parkeriaceae
3	*Marsilia minutta*	Emergent anchored	Marsileaceae
Angiosperms			
4	*Hygrophila auriculata*	Emergent anchored	Acanthacea
5	*Alternanthera sessilis*	Emergent anchored	Amaranthaceae
6	*Alternanthera pungens*	Emergent anchored	
7	*Limnophyton obtusifolium*	Floating	Alismataceae
8	*Aponogeton natans*	Floating leaved anchored	Aponogetonaceae
9	*Pistia stratiotes*	Floating	Araceae
10	*Wolffia globosa*	Floating	

11	*Spirodela polyrrhiza*	Floating	
12	*Eclipta prostrata*	Emergent anchored	Asteraceae
13	*Ipomoea aquatica*	Floating leaved anchored	Convolvulaceae
14	*Ipomoea carnea*	Emergent anchored	
15	*Ipomoea obscura*	Floating leaved anchored	
16	*Cyperus compressus*	Emergent anchored	Cyperaceae
17	*Cyperus halpan*	Emergent anchored	
18	*Cyperus iria*	Emergent anchored	
19	*Cyperus rotundus*	Emergent anchored	
20	*Fimbristylis aestivalis*	Emergent anchored	
21	*Kyllinga squamulata*	Emergent anchored	
22	*Rhynchospora corymbosa*	Emergent anchored	
23	*Hydrilla verticillata*	Submerged anchored	Hydrocharitaceae
24	*Ottelia alismoides*	Submerged anchored	
25	*Vallisneria natans*	Submerged anchored	
26	*Nechamandra alternifolia*	Submerged anchored	
27	*Najas graminea*	Submerged anchored	
28	*Najas indica*	Submerged anchored	
29	*Najas minor*	Submerged anchored	
30	*Lemna gibba*	Floating	Lemnaceae
31	*Nymphoides hydrophylla*	Floating leaved anchored	Menyanthaceae
32	*Neptunia oleracea*	Floating	Mimosaceae
33	*Nelumbo nucifera*	Floating leaved anchored	Nelumbonaceae
34	*Nymphaea nouchali*	Floating leaved anchored	Nymphaeaceae
35	*Nymphaea pubescens*	Floating leaved anchored	
36	*Ludwigia adscendens*	Emergent anchored	Onagraceae
37	*Ludwigia perennis*	Emergent anchored	

38	*Panicum repens*	Emergent anchored	Poaceae
39	*Saccharum spontaenum*	Emergent anchored	
40	*Polygonum glabrum*	Emergent anchored	Polygonaceae
41	*Polygonum barbatum*	Emergent anchored	
42	*Eichhornia crassipes*	Floating	Pontederiaceae
43	*Monochoria vaginalis*	Floating	
44	*Trapa natans*	Floating	Trapaceae
45	*Typha angustata*	Emergent anchored	Typhaceae
46	*Clerodendrum inerme*	Floating	Verbenaceae

Table 3.53.5. IUCN Status of major plant invasive alien species in Vaduvur Wetland

S. No.	Species	Family	Tamil Name
1.	*Agave Americana*	Agavaceae	Kathazhai
2.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
3.	*Cassia siamea*	Caesalpiniaceae	Manjakondrai
4.	*Casuarina equisetifolia*	Casuarinaceae	Savukku
5.	*Lantana camara*	Verbenaceae	Unnichedi
6.	*Leucaena leucocephala*	Fabaceae	
7.	*Nerium oleander*	Apocynaceae	Karaviram
8.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
9.	*Senna tora*	Caesalpiniaceae	Oosithagarai

Table 3.53.6. IUCN Status of major animal invasive alien species in Vaduvur Wetland

S. No.	Species	Family	Tamil Name
1.	*Oreochromis* species	Cichlidae	Nile Tilapia

Table 3.53.7. IUCN Status of major medicinal plant species in Vaduvur Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Azadirachta indica*	Meliaceae	Vaembu	Tree
4.	*Bacopa monnieri*	Scrophulariaceae	Neerbrahmi	Herb

5.	*Borassus flabellifer*	Arecaceae	Pania	Tree
6.	*Cissus quadrangularis*	Vitaceae	Pirandai	Climber
7.	*Citrullus colocynthis*	Cucurbitaceae	Aattrukumatti	Climber
8.	*Enicostema axillare*	Gentianaceae	Vellaragu	Herb
9.	*Hedyotis aspera*	Rubiaceae		Herb
10.	*Hemidesmus indicus*	Periplocaceae	Nannaari	Herb
11.	*Ocimum basilicum*	Labiatae	Karpura thulasi	Herb
12.	*Ocimum sanctum*	Labiatae	Thulasi	Herb
13.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
14.	*Solanum virginianum*	Solanaceae	Kandankathiri	Herb
15.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb
16.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree
17.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
18.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
19.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
20.	*Vitex negundo*	Verbenaceae	Nochi	Tree

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.54. MELPUDHUKUDI SUNAI WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Melpudhukudi Sunai

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Viramanikkam, Tiruchendhur

1.3 *Name of the District (s) in which Wetlands complex located:* Thoothukudi

1.4 *Geographical coordinates:*

► Latitude: 8˚33’39.3048” N

► Longitude: 78˚3’2.4516” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 0.41 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	✓ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological systems

❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 15

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: Spring Water
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 30.4

b) Temperature (°C) Minimum 28.75 ; Maximum 36.3

c) Humidity (%) Minimum 69.4 ; Maximum 77.3

2.7 *Area of zone of influence (in ha):* 1032.41 ha (with an irregular radius of 1.81 km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	23%
Agriculture	:	65%
Settlements (Rural)	:	11%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.54 (Fig. 3.54.1-3.54.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 65 species. (refer to Table 3.54.1 in Annexure 3.54).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 160 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 94 bird species, and 48 species of butterflies (refer to Table 3.54.2-3.54.3 in Annexure 3.54).

3.3 *Species of conservation significance:* Highlighted in Table 3.54.1-3.54.3

3.4 *Major plant invasive alien species:* The Wetland supports 9 plant invasive species (refer to Table 3.54.4 in Annexure 3.54).

3.5 *Major animal invasive alien species:* Not available

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Surplused from the Wetland and then supplied to the fields, only when it reaches full supply level (FSL)
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.54.5 in Annexure 3.54
Is a recreational site	✓ Yes ❒ No	Receives a good population for a Wetland adjacent temple (Arunjunai kaatha ayyanar)
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	significant runoff from the surrounding catchment area
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple on the bund of Wetland.
Is a site for recreation and tourism	✓ Yes ❒ No	Receives a good population as recreational one not in the aspect of tourism
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Amlost 8 variant amphibians species were surviving
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒No	❒Yes ❒No ✓Not assessed	There is a temple on the bund of Wetland

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	✓ Yes ❒ No	❒ Yes ❒ No ❒ Not assessed	When it reaches the FSL
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Significant runoff from the surrounding catchment area
Encroachment	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	❒ Present ✓ Potential	Listed in Table 3.54.4-3.54.5 in Annexure 3.54
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary			

		❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Unnecessary entry into Wetland	Prohibited	✓ Wetland/ Wetland complex boundary ❒ Zone of influence			People coming for the temple entering into Wetland

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Ahmad, N. (1980). Some aspects of economic resources of Sunderbans mangrove forests of Bangladesh. In P. Soepadmo (Ed.), *Mangrove Environment: Research and Management* (pp. 50-51). Report on UNESCO Asian Symposium, University of Malaya, Kuala Lumpur, Malaysia, 25-29 August 1980.
2. Anonymous. (1991). *India 1990: A Reference Annual*. Research and Reference Division, Ministry of Information and Broadcasting, Government of India, Delhi.

   Anonymous. (1993). *Directory of Indian Wetlands*. World Wildlife Federation, New Delhi.
3. Anonymous. (1994). *World Development Report*. World Bank Development Report.

Chopra, R. (1985). *The State of India's Environment*. Ambassador Press, New Delhi.

Choudhury, B. C. (2000). Conserving Wetlands: Emerging scenario. In R. Badola & B. M. Rathore (Eds.), *Proceedings of the workshop on the 'Conserving Biodiversity in the 21st Century, through Integrated Conservation and Development Planning on a Regional Scale'* (pp. 131-138). LBSNA Mussorie and WII Dehradun.

4. Das, S., Behera, S. C., Kar, A., Narendra, P., & Guha, S. (1997). Hydrogeomorphological mapping in ground water exploration using remotely sensed data – A case study in Keonjhar District, Orissa. *Journal of the Indian Society of Remote Sensing, 25*, 247-250.
5. Das, K. K., Prasad, S. N., Roy, P. S., & Bhan, S. K. (1994). Mapping of potential crane habitat in Etawah and Mainpuri Districts (U.P.) using satellite remote sensing techniques. A project report: Indian Institute of Remote Sensing, Dehradun, and Salim Ali Centre for Ornithology and Natural History, Kalampalayam, Coimbatore.

ANNEXURE 3.54

Fig 3.54.1. Zone of influence of Melpudhukudi Sunai Wetland

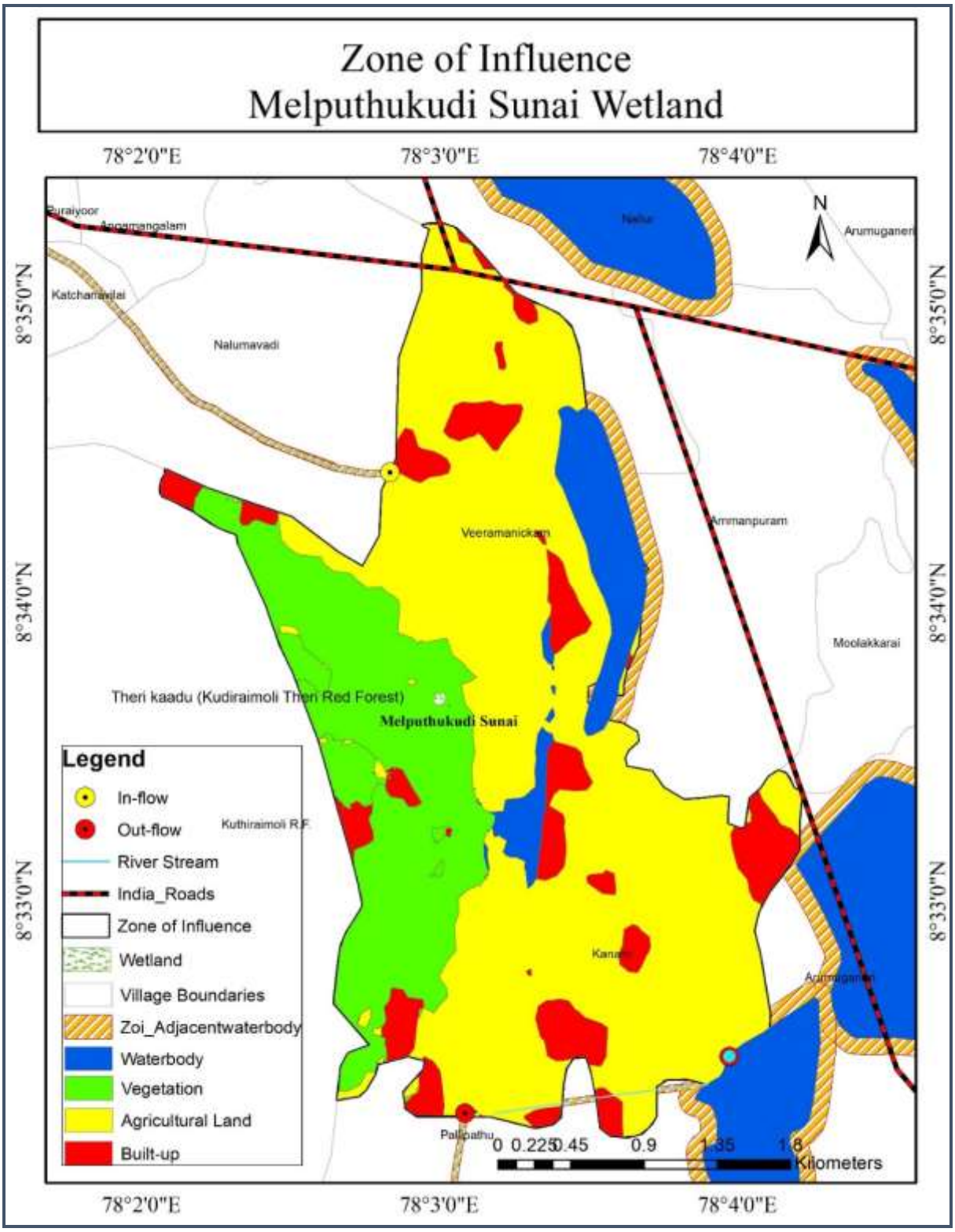


Fig 3.54.2. Map (2014 *vs*. 2024) and land use/ land cover of Melpudhukudi Sunai Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

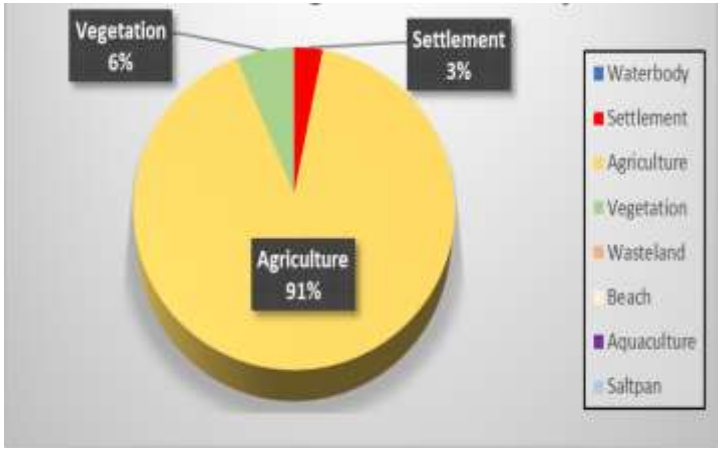


Table 3.54.1. IUCN status of floral species in Melpudhukudi Sunai Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
9.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
10.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
11.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
12.	*Barringtonia acutangula*	Lecythidaceae	Neerkadambu	Tree	LC
13.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
14.	*Borassus flabellifer*	Arecaceae	Panai Maram	Tree	LC
15.	*Brachiaria ramosa*	Poaceae		Grass	NE
16.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
17.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
18.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
19.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
20.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
21.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
22.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
23.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
24.	*Cyperus iria*	Cyperaceae		Sedge	NE
25.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
26.	*Digitaria abludens*	Poaceae		Grass	NE

27.	*Digitaria ciliaris*	Poaceae		Grass	NE
28.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
29.	*Ficus benghalensis*	Moraceae	Allamaram	Tree	LC
30.	*Hyptis suaveolens*	Labiatae		Shrub	NE
31.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
32.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
33.	*Isachne miliacea*	Poaceae	-	Grass	LC
34.	*Ischaemum indicum*	Poaceae	-	Grass	LC
35.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
36.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
37.	*Justicia prostrata*	Acanthaceae		Herb	NE
38.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
39.	*Leptochloa fusca*	Poaceae	Mandaipul	Grass	LC
40.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
41.	*Ludwigia adscendens*	Onagraceae		Herb	NE
42.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
43.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
44.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
45.	*Nymphaea pubescens*	Nymphaeaceae		Herb	LC
46.	*Ottelia alismoides*	Hydrocharitaceae		Herb	LC
47.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
48.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
49.	*Pontederia vaginalis*	Pontederiaceae	Karung kuvalai	Tree	LC
50.	*Prosopis juliflora*	Fabaceae	Karuvel	Tree	NE
51.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
52.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
53.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE

54.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
55.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
56.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
57.	*Terminalia arjuna*	Combretaceae	Marutham	Tree	LC
58.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
59.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
60.	*Trachys muricata*	Poaceae	-	Grass	LC
61.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
62.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
63.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
64.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
65.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.54.2. IUCN status of selected fauna species in Melpudhukudi Sunai Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	*
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	*
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	

6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC	
C. Amphibian					
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
1.	*Acraea terpsicore*	Tawny Caster	Nymphalidae		
2.	*Ariadne ariadne*	Angled Castor	,,		
3.	*Ariadne merione*	Common Caster	,,		
4.	*Danaus chrysippus*	Plain Tiger			
5.	*Danaus genutia*	Striped Tiger	,,		
6.	*Euploea core*	Common Indian Crow	,,		
7.	*Euthalia nais*	Baronet	,,		
8.	*Hypolimnas bolina*	Great Egg Fly	,,		
9.	*Junonia almana*	Peacock Pansy	,,		
10.	*Junonia hierta*	Yellow Pansy	,,		
11.	*Junonia iphita*	Chocolate Pansy	,,		
12.	*Junonia lemonias*	Lemon Pansy	,,		
13.	*Junonia orithya*	Blue Pansy	,,		
14.	*Melanitis leda*	Common Evening Brown	,,		
15.	*Neptis hylas*	Common Sailor	,,		
16.	*Phalanta phalantha*	Common Leopard	,,		

17.	*Tirumala limniace*	Blue Tiger	,,		
18.	*Appias albino*	Common Albatross	Pieridae		
19.	*Belenois aurota*	Pioneer	,,		
20.	*Ixias marianne*	White Orange Tip			
21.	*Catopsilia pomona*	Common Emigrant	,,		
22.	*Catopsilia pyranthe*	Mottled Emigrant	,,		
23.	*Cepora nerissa*	Common Gull	,,		
24.	*Colisa croceus*	Dark Clouded Yellow	,,		
25.	*Colotis danae*	Crimson Tip			
26.	*Colotis etrida*	Small Orange Tip	,,		
27.	*Eurema hecabe*	Common Grass Yellow	,,		
28.	*Delias eucharis*	Common Jezebel	,,		
29.	*Leptosia nina*	Psyche	,,		
30.	*Castalius rosimon*	Common Pierrot	Lycaenidae		
31.	*Chilades parrhasius*	Indian Cupid	,,		
32.	*Euchrysops cnejus*	Gram Blue	,,		
33.	*Freyeria trochylus*	Grass Jewel	,,		
34.	*Jamides celeno*	Common Cerulin	,,		
35.	*Zizeeria knysna*	Tiny Grass Blue	,,		
36.	*Zizina otis*	Lesser Grass Blue	,,		
37.	*Atrophaneura aristolochiae*	Common Rose	Papilionidae		
38.	*Atrophaneura hector*	Crimson Rose	,,		
39.	*Graphium agamemnon*	Tailed Jay	,,		
40.	*Graphium sarpedon*	Common Bluebottle			
41.	*Papilio demoleus*	Lime Butterflies	,,		

42.	*Papilio polytes*	Common Mormon	,,		
43.	*Papilio polymnestor*	Blue Mormon	,,		
44.	*Troides minos*	Southern Bird Wing	,,		
45.	*Borbo cinnara*	Rice Swift	Hesperiidae		
46.	*Sarangesa purendra*	Spotted Small Flat	,,		
47.	*Spialia galba*	Indian Skipper	,,		
48.	*Suastus gremius*	Indian Palm Bob	,,		

LC – Least Concern; * - Yes

Table 3.54.3. IUCN status of bird species in Melpudhukudi Sunai Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	D	LC	*
3.	*Alauda gulgula*	Oriental Skylark	T	LC	
4.	*Alcedo atthis*	Common Kingfisher	T	LC	*
5.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
6.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
7.	*Anastomus oscitans*	Asian Openbill	A	LC	
8.	*Anhinga melanogaster*	Darter	A	LC	
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Ardea cinerea*	Grey Heron	A	LC	*
11.	*Ardea purpurea*	Purple Heron	A	LC	
12.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
13.	*Bubulcus ibis*	Cattle Egret	D	LC	*
14.	*Casmerodius albus*	Great Egret	A	LC	
15.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
16.	*Charadrius dubius*	Little Ringed Plover	A	LC	
17.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
18.	*Circus macrourus*	Pallid Harrier	T	LC	

19.	*Circus melanoleucos*	Pied Harrier	T	LC	
20.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
21.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
22.	*Columba livia*	Rock Pigeon	T	LC	
23.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
24.	*Coracias benghalensis*	Indian Roller	T	LC	*
25.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
26.	*Corvus splendens*	House Crow	T	LC	*
27.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
28.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
29.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
30.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
31.	*Dupetor flavicollis*	Black Bittern	A	LC	
32.	*Egretta garzetta*	Little Egret	A	LC	*
33.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
34.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
35.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
36.	*Falco tinnunculus*	Common Kestrel	T	LC	
37.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
38.	*Fulica atra*	Coot	A	LC	
39.	*Gallicrex cinerea*	Watercock	A	LC	
40.	*Gallinula chloropus*	Common Moorhen	A	LC	*
41.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
42.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
43.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
44.	*Haliastur indus*	Brahminy Kite	T	LC	*
45.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
46.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
47.	*Hirundo rustica*	Barn Swallow	T	LC	
48.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	

49.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
50.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
51.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
52.	*Limosa limosa*	Black-tailed Godwit	A	LC	
53.	*Lonchura Malacca*	Black-headed Munia	D	LC	
54.	*Merops orientalis*	Green Bee-eater	T	LC	*
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
57.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Motacilla flava*	Yellow Wagtail	D	LC	
60.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
61.	*Mycteria leucocophala*	Painted stork	A	NT	
62.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
63.	*Nettapus coromandelianus*	Cotton Pygmy Goose	A	LC	
64.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
65.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
66.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
67.	*Passer domesticus*	House Sparrow	T	LC	*
68.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
69.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
70.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
71.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
72.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
73.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
74.	*Ploceus manyar*	Streaked Weaver	T	LC	
75.	*Pluvialis squatarola*	Grey Plover	A	LC	
76.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
77.	*Prinia inornata*	Plain Prinia	T	LC	
78.	*Prinia socialis*	Ashy Prinia	T	LC	*

79.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
80.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
81.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
82.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
83.	*Sarkidiornis melanotos*	Comb Duck			
84.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
85.	*Sterna aurantia*	River Tern	A	LC	
86.	*Sternula albifrons*	Little Tern	A	LC	*
87.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
88.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
89.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
90.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
91.	*Tringa glareola*	Wood Sandpiper	A	LC	*
92.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
93.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
94.	*Zoothera citrine*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.54.4. IUCN Status of major plant invasive alien species in Melpudhukudi Sunai Wetland

S. No.	Species	Family	Tamil Name
1.	*Albizia saman*	Fabaceae	Rain tree
2.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
3.	*Ipomoea carnea*	Convolvulaceae	
4.	*Lantana camara*	Verbenaceae	Unnichedi
5.	*Prosopis juliflora*	Fabaceae	Karuvel
6.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
7.	*Senna tora*	Caesalpiniaceae	Oosithagarai
8.	*Typha angustifolia*	Typhaceae	Sambu
9.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.54.5. IUCN Status of major medicinal plant species in Melpudhukudi sunai Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Borassus flabellifer*	Arecaceae	Panai Maram	Tree
7.	*Brachiaria ramosa*	Poaceae		Grass
8.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub
9.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
10.	*Leucas aspera*	Labiatae	Thumbai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Pontederia vaginalis*	Pontederiaceae	Karung kuvalai	Tree
13.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
14.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
15.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
16.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
17.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided

- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.55. THIRUPANICHETTIKULAM

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Thirupani Chettikulam Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Thirupani Chettikulam, Srivaikuntam

1.3 *Name of the District (s) in which Wetlands complex located:* Thoothukudi

1.4 *Geographical coordinates:*

- Latitude: 8˚40’2.4924” N
- Longitude: 78˚1’29.9928” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 20.13 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒Mangroves ❒ Coral reef
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2; Maximum - 3.5

2.4 *Elevation (m above mean sea level):* 11

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ❒ Others, please specify:
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 30.4

b) Temperature (°C) Minimum 28.75 ; Maximum 36.3

c) Humidity (%) Minimum 69.4 ; Maximum 77.3

2.7 *Area of zone of influence (in ha):* 6465.25 ha (with an irregular radius of 4.54 km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	29%
Agriculture	:	56%
Settlements (Rural)	:	10%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	5%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.55 (Fig. 3.55.1-3.55.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 63 species. (refer to Table 55.1 in Annexure 55).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 118 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 89 bird species, and 11 species of butterflies (refer to Table 55.2-55.3 in Annexure 55).

3.3 *Species of conservation significance:* Highlighted in Table 55.1-55.3

3.4 *Major plant invasive alien species:* The Wetland supports 9 plant invasive species (refer to Table 55.4 in Annexure 55).

3.5 *Major animal invasive alien species:* Not Available.

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water has been drawn from outflow for agricultural activities
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.55.5 (Annexure 3.55)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	significant runoff from the surrounding catchment area
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Fishing under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Agriculture or horticulture within Wetland	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Grazing	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Religious practices	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No	

		❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	Water has been drawn from outflow for agricultural activities
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒ Medium ✓Low	✓Present ❒Potential	Substantial water flow from the surrounding watershed
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	

Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.55.4-3.55.5 in Annexure 3.55
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Abhisheka, K., David, J. P., Prashanth, M. B., Seshadri, K. S., & Ganesh, T. (2013). First detailed survey of waterbirds in Tirunelveli and Tuticorin districts, Tamil Nadu, India. *Journal of Threatened Taxa*, *5*(12), 4641–4652. https://doi.org/10.11609/JoTT.o3125.4641-52
2. Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). A checklist of reptiles of India (Version 3.0). 35 pp. Online publication available at www.zsi.gov.in (Last update: May 2018).
3. Ali, S. (2002). *The Book of Indian Birds* (13th Revised ed.). Oxford University Press.
4. Bibby, C. J., Burgess, N. D., & Hill, D. A. (1993). *Bird Census Techniques*. Academic Press Limited.

5. Gamble, J. S., & Fischer, C. E. C. (1915-1935). *Flora of Presidency of Madras*. Adlard and Son.
6. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket Guide to the Birds of the Indian Subcontinent*. Oxford University Press.
7. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India. Series 1: Analysis* (Vol. III). Botanical Survey of India.
8. Ratnam, K. (n.d.). *Birds of Tamil Nadu*.
9. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
10. Kehimkar, I. (2008). *The Book of Indian Butterflies*. Bombay Natural History Society.
11. Mathew, K. M. (1981). *The Material for the Flora of the Tamilnadu Carnatic*. Madras, India.
12. Mathew, K. M. (1982). *Illustrations on the Flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press.
13. Mathew, K. M. (1983). *The Flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press.
14. Mathew, K. M. (1988). *Further Illustrations on the Flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press.
15. Nair, N. C., & Henry, A. N. (1983). *Flora of Tamil Nadu, India. Series 1* (Vol. 1). Botanical Survey of India, Southern Circle.

ANNEXURE 3.55

Fig 3.55.1. Zone of Influence of Thirupanichettikulam

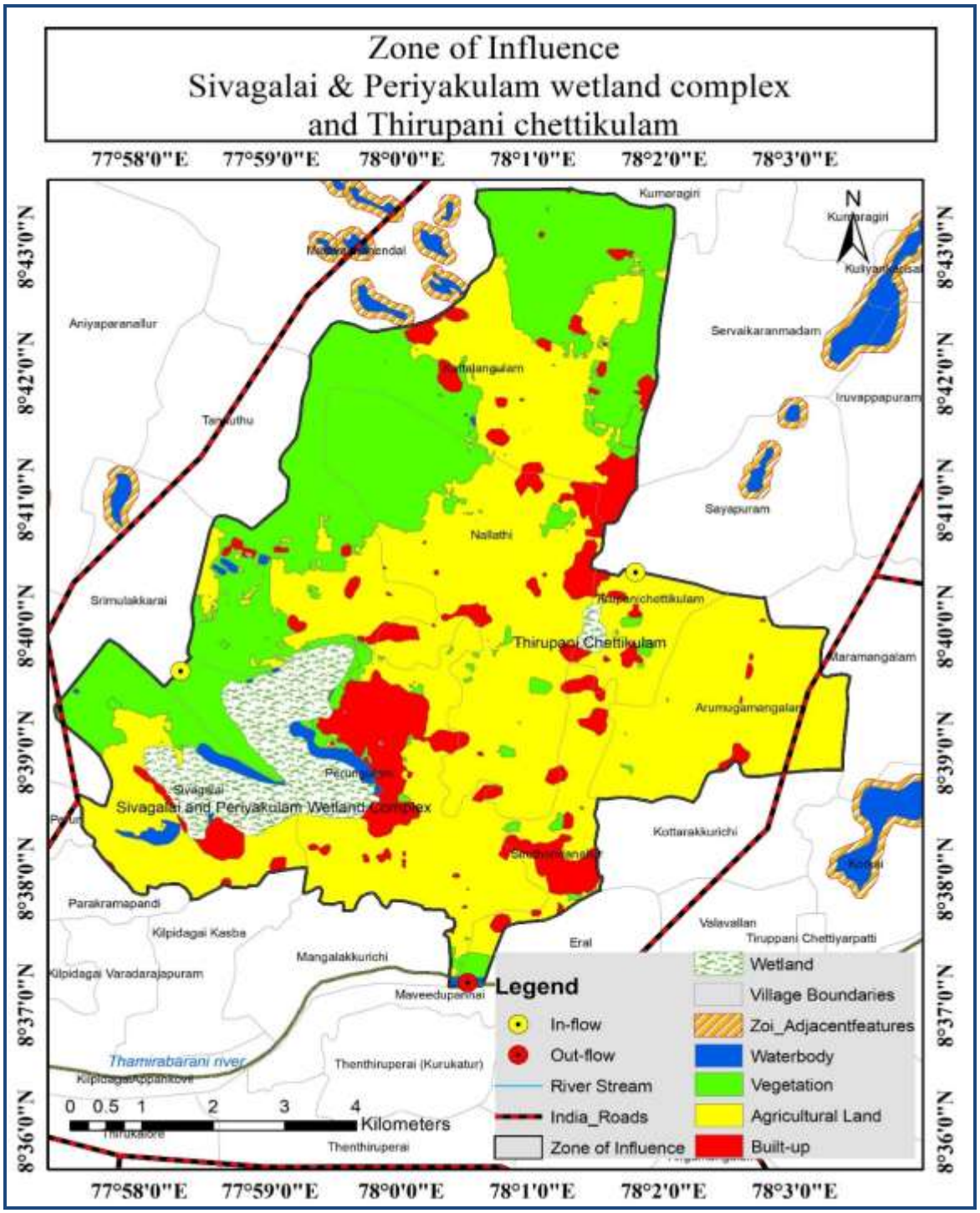


Fig 3.55.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Thirupanichettikulam

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

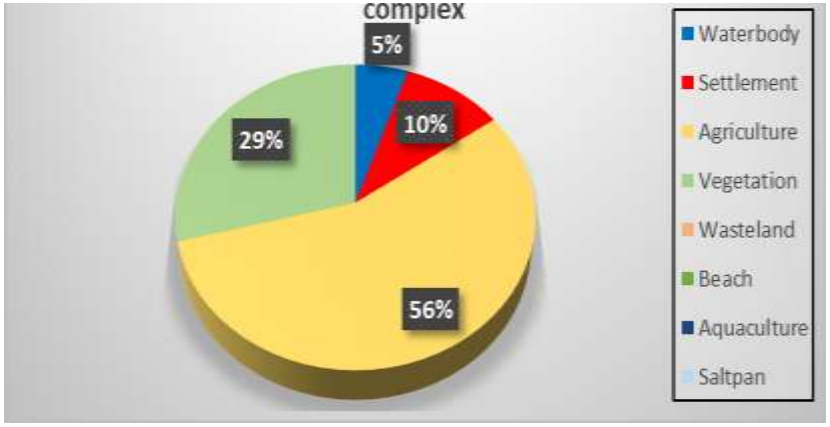


Table 3.55.1. IUCN Status of Floral Species in Thirupanichettikulam Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
9.	*Albizia saman*	Mimosaceae	Rain tree	Tree	LC
10.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
11.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Borassus flabellifer*	Arecaceae	Panai Maram	Tree	LC
14.	*Brachiaria ramosa*	Poaceae		Grass	NE
15.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
16.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
17.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
18.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
19.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
20.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
21.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
22.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
23.	*Cyperus iria*	Cyperaceae		Sedge	NE
24.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
25.	*Digitaria abludens*	Poaceae		Grass	NE
26.	*Digitaria ciliaris*	Poaceae		Grass	NE

27.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
28.	*Hyptis suaveolens*	Labiatae		Shrub	NE
29.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
30.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
31.	*Isachne miliacea*	Poaceae	-	Grass	LC
32.	*Ischaemum indicum*	Poaceae	-	Grass	LC
33.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
34.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
35.	*Justicia prostrata*	Acanthaceae		Herb	NE
36.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
37.	*Leptochloa fusca*	Poaceae	Mandaipul	Grass	LC
38.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
39.	*Ludwigia adscendens*	Onagraceae		Herb	NE
40.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
41.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
42.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
43.	*Nymphaea pubescens*	Nymphaeaceae		Herb	LC
44.	*Ottelia alismoides*	Hydrocharitaceae		Herb	LC
45.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
46.	*Prosopis juliflora*	Fabaceae	Karuvel	Tree	NE
47.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
48.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
49.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
50.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
51.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
52.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
53.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE

54.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
55.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
56.	*Trachys muricata*	Poaceae	-	Grass	LC
57.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
58.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
59.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
60.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
61.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC
62.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
63.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.55.2. IUCN Status of Selected Fauna Species in Thirupanichettikulam Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	
2.	*Ptyas mucosa*	Colubridae	Oriental Rat Snake	LC	
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	
6.	*Sitana ponticeriana*	Agamidae	Fan-throated	LC	

			lizard		
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC	
C. Amphibian					
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	NE	*
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	LC	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	NE	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	LC	*
10.	*Junonia almana*	Nymphalidae	Peacock	LC	*

			pansy		
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*

LC – Least Concern; * - Yes

Table 3.55.3. IUCN Status of Bird Species in Thirupanichettikulam Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	D	LC	*
3.	*Alauda gulgula*	Oriental Skylark	T	LC	
4.	*Alcedo atthis*	Common Kingfisher	T	LC	*
5.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
6.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
7.	*Anastomus oscitans*	Asian Openbill	A	LC	
8.	*Anhinga melanogaster*	Darter	A	LC	
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Ardea cinerea*	Grey Heron	A	LC	*
11.	*Ardea purpurea*	Purple Heron	A	LC	
12.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
13.	*Bubulcus ibis*	Cattle Egret	D	LC	*
14.	*Casmerodius albus*	Great Egret	A	LC	
15.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
16.	*Charadrius dubius*	Little Ringed Plover	A	LC	
17.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
18.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
19.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
20.	*Columba livia*	Rock Pigeon	T	LC	
21.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
22.	*Coracias benghalensis*	Indian Roller	T	LC	*
23.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
24.	*Corvus splendens*	House Crow	T	LC	*
25.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
26.	*Dicrurus adsimilis*	Black Drongo	T	LC	*

27.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
28.	*Dupetor flavicollis*	Black Bittern	A	LC	
29.	*Egretta garzetta*	Little Egret	A	LC	*
30.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	
31.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
32.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
33.	*Falco tinnunculus*	Common Kestrel	T	LC	
34.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
35.	*Fulica atra*	Coot	A	LC	
36.	*Gallicrex cinerea*	Watercock	A	LC	
37.	*Gallinula chloropus*	Common Moorhen	A	LC	*
38.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
39.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
40.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
41.	*Haliastur indus*	Brahminy Kite	T	LC	*
42.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
43.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
44.	*Hirundo rustica*	Barn Swallow	T	LC	
45.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
46.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
47.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
48.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
49.	*Limosa limosa*	Black-tailed Godwit	A	LC	
50.	*Lonchura Malacca*	Black-headed Munia	D	LC	
51.	*Merops orientalis*	Green Bee-eater	T	LC	*
52.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
53.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
54.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
55.	*Milvus migrans*	Black Kite	T	LC	*
56.	*Motacilla flava*	Yellow Wagtail	D	LC	

57.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
58.	*Mycteria leucocophala*	Painted stork	A	NT	
59.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
60.	*Nettapus coromandelianus*	Cotton Pygmy Goose	A	LC	
61.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
62.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
63.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
64.	*Passer domesticus*	House Sparrow	T	LC	*
65.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
66.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
67.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
68.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
69.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
70.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
71.	*Ploceus manyar*	Streaked Weaver	T	LC	
72.	*Pluvialis squatarola*	Grey Plover	A	LC	
73.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
74.	*Prinia inornata*	Plain Prinia	T	LC	
75.	*Prinia socialis*	Ashy Prinia	T	LC	*
76.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
77.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
78.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
79.	*Sarkidiornis melanotos*	Comb Duck			
80.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
81.	*Sterna aurantia*	River Tern	A	LC	
82.	*Sternula albifrons*	Little Tern	A	LC	*
83.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
84.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
85.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
86.	*Tringa glareola*	Wood Sandpiper	A	LC	*

87.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
88.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
89.	*Zoothera citrine*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.55.4. IUCN Status of major plant invasive alien species in Thirupanichettikulam Wetland

S. No.	Species	Family	Tamil Name
1.	*Albizia saman*	Mimosaceae	Rain tree
2.	*Alternanthera pungens*	Amaranthaceae	
3.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
4.	*Ipomoea carnea*	Convolvulaceae	
5.	*Lantana camara*	Verbenaceae	Unnichedi
6.	*Prosopis juliflora*	Fabaceae	Karuvel
7.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
8.	*Typha angustifolia*	Typhaceae	Sambu
9.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.55.5. IUCN Status of major medicinal plant species in Thirupanichettikulam Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Borassus flabellifer*	Arecaceae	Panai Maram	Tree
7.	*Brachiaria ramosa*	Poaceae		Grass
8.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub

9.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
10.	*Leucas aspera*	Labiatae	Thumbai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Pontederia vaginalis*	Pontederiaceae	Karung kuvalai	Tree
13.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
14.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
15.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
16.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
17.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.56. KEELPULIYANKULAM WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**
  - Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
  - Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
  - Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Keelpuliyankulam

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Srimulakkarai, Srivaikuntam

1.3 *Name of the District (s) in which Wetlands complex located:* Thoothukudi

1.4 *Geographical coordinates:*

- Latitude: 8˚40’2.4924” N
- Longitude: 78˚1’29.9928” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 16.12 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological systems

❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 0

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ❒ Others, please specify:
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 30.4

b) Temperature (°C): Minimum 28.75 ; Maximum 36.3

c) Humidity (%) Minimum 69.4 ; Maximum 77.3

2.7 *Area of zone of influence (in ha):* 8806.68 ha (with an irregular radius of 5.3 km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	65%
Agriculture	:	25%
Settlements (Rural)	:	5%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.56 (Fig. 3.56.1-3.56.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 61 species. (refer to Table 56.1 in Annexure 56).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 123 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 94 bird species, and 11 species of butterflies (refer to Table 56.2-56.3 in Annexure 56).

3.3 *Species of conservation significance:* Highlighted in Table 56.1-56.3

3.4 *Major plant invasive alien species:* The Wetland supports 10 plant invasive species (refer to Table 56.4 in Annexure 56).

3.5 *Major animal invasive alien species:* Not Available

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water is drawn from the outlet for agricultural activities
Fisheries	✓ Yes ❒ No	Fishing is done by localates
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.56.5 in Annexure 3.56
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Significant runoff from the surrounding catchment area
Has significant cultural and religious values	✓ Yes ❒ No	There is a temple on the bund of Wetland.
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variants of amphibians were observed
Mining	✓ Yes ❒ No	Found the trace for mining while field visit
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Fishing under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Agriculture or horticulture within Wetland	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Grazing	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Grazing has been observed while field visit
Religious practices	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	There is a Temple on the bund

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	✓ Yes ❒ No	❒ Yes ❒ No ❒ Not assessed	Water is drawn from the outlet for agricultural activities
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ✓ Low	❒ Present ✓ Potential	Found the trace for mining while field visit
Siltation	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	significant runoff from the surrounding catchment area
Encroachment	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	❒ Present ✓ Potential	Listed in Table 56.4-56.5 in Annexure 56
Noise pollution	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Noise pollution from nearby quarries may disrupt the biodiversity

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	❒ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary of Wetland		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary			

		❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Ahmad, N. (1980). Some aspects of economic resources of Sunderbans mangrove forests of Bangladesh. In P. Soepadmo (Ed.), *Mangrove Environment: Research and Management. Report on UNESCO Asian Symposium, held at University of Malaya, Kuala Lumpur, Malaysia, 25-29 August 1980* (pp. 50–51).
2. Anonymous. (1991). *India 1990: A reference annual*. Research and Reference Division, Ministry of Information and Broadcasting, Govt. of India.
3. Anonymous. (1993). *Directory of Indian Wetlands*. World Wildlife Federation, New Delhi.
4. Anonymous. (1994). *World development report*. World Bank Development Report. Chopra, R. (1985). *The State of India's Environment*. Ambassador Press, New Delhi.

5. Choudhury, B. C. (2000). Conserving Wetlands: Emerging scenario. In R. Bhardwaj, B. M. Rathore, & B. Badola (Eds.), *Proceedings of the workshop on 'Conserving biodiversity in the 21st century, through integrated conservation and development planning on a regional scale'* (pp. 131-138). LBSNA Mussorie and WII Dehradun.
6. Das, S., Behera, S. C., Kar, A., Narendra, P., & Guha, S. (1997). Hydrogeomorphological mapping in groundwater exploration using remotely sensed data – A case study in Keonjhar District, Orissa. *Journal of the Indian Society of Remote Sensing, 25*, 247–250.
7. Das, K. K., Prasad, S. N., Roy, P. S., & Bhan, S. K. (1994). Mapping of potential crane habitat in Etawah and Mainpuri Districts (U.P.) using satellite remote sensing techniques. *A Project Report*: Indian Institute of Remote Sensing, Dehradun, and Salim Ali Centre for Ornithology and Natural History, Kalampalayam, Coimbatore.

ANNEXURE 3.56

Fig 3.56.1. Zone of Influence of Keelpuliyankulam Wetland

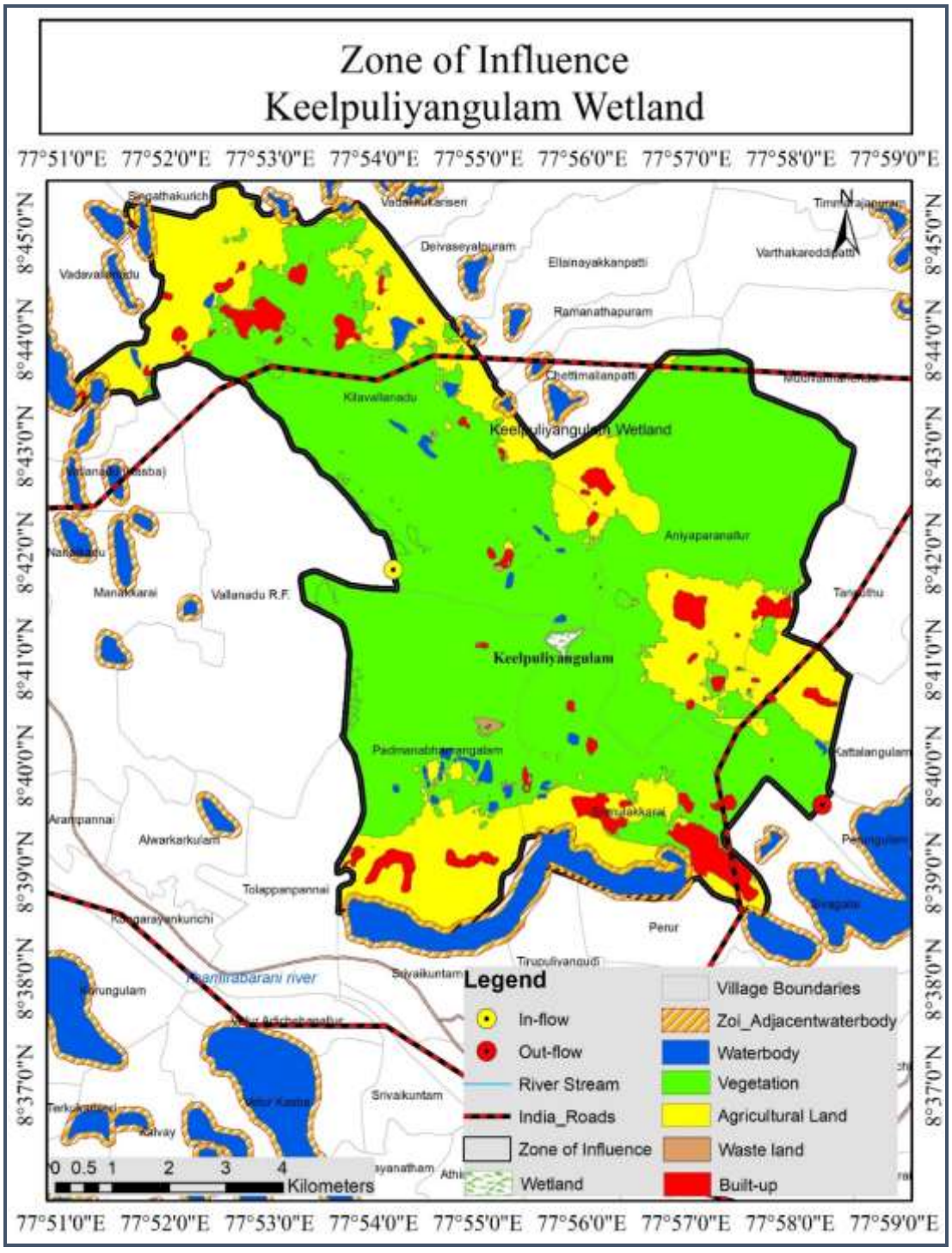


Fig 3.56.2. Map (2004 *vs*. 2024) and Land Use/ Land Cover of Keelpuliyankulam Wetland

Map of the Wetland in 2004



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

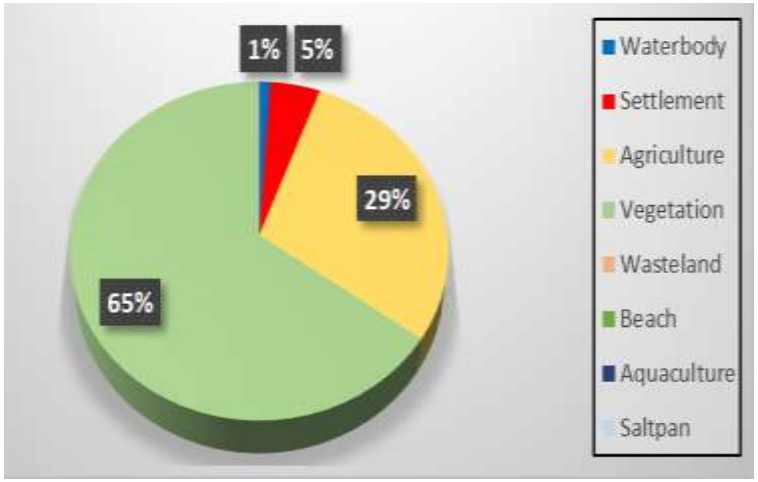


Table 3.56.1. IUCN Status of Floral Species in Keelpuliyankulam Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
9.	*Albizia saman*	Mimosaceae	Rain tree	Tree	LC
10.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
11.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Borassus flabellifer*	Arecaceae	Panai Maram	Tree	LC
14.	*Brachiaria ramosa*	Poaceae		Grass	NE
15.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
16.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
17.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
18.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
19.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
20.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
21.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
22.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
23.	*Cyperus iria*	Cyperaceae		Sedge	NE
24.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
25.	*Digitaria abludens*	Poaceae		Grass	NE
26.	*Digitaria ciliaris*	Poaceae		Grass	NE

27.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
28.	*Hyptis suaveolens*	Labiatae		Shrub	NE
29.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
30.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
31.	*Isachne miliacea*	Poaceae	-	Grass	LC
32.	*Ischaemum indicum*	Poaceae	-	Grass	LC
33.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
34.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
35.	*Justicia prostrata*	Acanthaceae		Herb	NE
36.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
37.	*Leptochloa fusca*	Poaceae	Mandaipul	Grass	LC
38.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
39.	*Ludwigia adscendens*	Onagraceae		Herb	NE
40.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
41.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
42.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
43.	*Nymphaea pubescens*	Nymphaeaceae		Herb	LC
44.	*Ottelia alismoides*	Hydrocharitaceae		Herb	LC
45.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
46.	*Prosopis juliflora*	Fabaceae	Karuvel	Tree	NE
47.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
48.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
49.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
50.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
51.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
52.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
53.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE

54.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
55.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
56.	*Trachys muricata*	Poaceae	-	Grass	LC
57.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
58.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
59.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
60.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
61.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.56.2. IUCN Status of Selected Fauna Species in Keelpuliyankulam Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	
2.	*Ptyas mucosa*	Colubridae	Oriental Rat Snake	LC	
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	
6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC	

C. Amphibian					
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
1.	*Euploea core*	Common crow	Nymphalidae	LC	PS
2.	*Catopsilia Pomona*	Common Emigrant	Pieridae	NE	*
3.	*Melanitis leda*	Common evening brown	Nymphalidae	LC	*
4.	*Eurema hecabe*	Common grass yellow	Pieridae	LC	*
5.	*Papilio demoleus*	Common lime	Papilionidae	NE	*
6.	*Papilio polytes*	Common mormon	Papilionidae	NE	*
7.	*Junonia lemonias*	Lemon pansy	Nymphalidae	NE	*
8.	*Catopsilia pyranthe*	Mottled Emigrant	Pieridae	NE	*
9.	*Pseudozizeeria maha*	Pale Grass Blue	Lycaenidae	NE	*
10.	*Junonia almana*	Peacock pansy	Nymphalidae	LC	*

LC – Least Concern; * - Yes

Table 3.56.3. IUCN Status of Bird Species in Keelpuliyankulam Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	D	LC	*
3.	*Alauda gulgula*	Oriental Skylark	T	LC	
4.	*Alcedo atthis*	Common Kingfisher	T	LC	*
5.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
6.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
7.	*Anastomus oscitans*	Asian Openbill	A	LC	
8.	*Anhinga melanogaster*	Darter	A	LC	
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Ardea cinerea*	Grey Heron	A	LC	*
11.	*Ardea purpurea*	Purple Heron	A	LC	
12.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
13.	*Bubulcus ibis*	Cattle Egret	D	LC	*
14.	*Casmerodius albus*	Great Egret	A	LC	
15.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
16.	*Charadrius dubius*	Little Ringed Plover	A	LC	
17.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
18.	*Circus macrourus*	Pallid Harrier	T	LC	
19.	*Circus melanoleucos*	Pied Harrier	T	LC	
20.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
21.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
22.	*Columba livia*	Rock Pigeon	T	LC	
23.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
24.	*Coracias benghalensis*	Indian Roller	T	LC	*
25.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
26.	*Corvus splendens*	House Crow	T	LC	*
27.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
28.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
29.	*Dicrurus adsimilis*	Black Drongo	T	LC	*

30.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
31.	*Dupetor flavicollis*	Black Bittern	A	LC	
32.	*Egretta garzetta*	Little Egret	A	LC	*
33.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	
34.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
35.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
36.	*Falco tinnunculus*	Common Kestrel	T	LC	
37.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
38.	*Fulica atra*	Coot	A	LC	
39.	*Gallicrex cinerea*	Watercock	A	LC	
40.	*Gallinula chloropus*	Common Moorhen	A	LC	*
41.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
42.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
43.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
44.	*Haliastur indus*	Brahminy Kite	T	LC	*
45.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
46.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
47.	*Hirundo rustica*	Barn Swallow	T	LC	
48.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
49.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
50.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
51.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
52.	*Limosa limosa*	Black-tailed Godwit	A	LC	
53.	*Lonchura malacca*	Black-headed Munia	D	LC	
54.	*Merops orientalis*	Green Bee-eater	T	LC	*
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
57.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Motacilla flava*	Yellow Wagtail	D	LC	
60.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	

61.	*Mycteria leucocophala*	Painted stork	A	NT	
62.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
63.	*Nettapus coromandelianus*	Cotton Pygmy Goose	A	LC	
64.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
65.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
66.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
67.	*Passer domesticus*	House Sparrow	T	LC	*
68.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
69.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
70.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
71.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
72.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
73.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
74.	*Ploceus manyar*	Streaked Weaver	T	LC	
75.	*Pluvialis squatarola*	Grey Plover	A	LC	
76.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
77.	*Prinia inornata*	Plain Prinia	T	LC	
78.	*Prinia socialis*	Ashy Prinia	T	LC	*
79.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
80.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
81.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
82.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
83.	*Sarkidiornis melanotos*	Comb Duck			
84.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
85.	*Sterna aurantia*	River Tern	A	LC	
86.	*Sternula albifrons*	Little Tern	A	LC	*
87.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
88.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
89.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
90.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
91.	*Tringa glareola*	Wood Sandpiper	A	LC	*

92.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
93.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
94.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.56.4. IUCN Status of major plant invasive alien species in Keelpuliyankulam Wetland

S. No.	Species	Family	Tamil Name
1.	*Albizia saman*	Mimosaceae	Rain tree
2.	*Alternanthera pungens*	Amaranthaceae	
3.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
4.	*Ipomoea carnea*	Convolvulaceae	
5.	*Lantana camara*	Verbenaceae	Unnichedi
6.	*Prosopis juliflora*	Fabaceae	Karuvel
7.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
8.	*Senna tora*	Caesalpiniaceae	Oosithagarai
9.	*Typha angustifolia*	Typhaceae	Sambu
10.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.56.5. IUCN Status of major medicinal plant species in Keelpuliyankulam Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Borassus flabellifer*	Arecaceae	Panai Maram	Tree
7.	*Brachiaria ramosa*	Poaceae		Grass
8.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub

9.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
10.	*Leucas aspera*	Labiatae	Thumbai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Pontederia vaginalis*	Pontederiaceae	Karung kuvalai	Tree
13.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
14.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
15.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
16.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
17.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.57. PUNNAKAYAL & PALAYAKAYAL COMPLEX

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Punnakayal Complex Wetland

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Punnakayal, Srivaikuntam

1.3 *Name of the District (s) in which Wetlands complex located:* Thoothukudi

1.4 *Geographical coordinates:*

- ► Latitude: 8˚40’2.4924” N
- ► Longitude: 78˚1’29.9928” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 49.01 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological systems

✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reef
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 Depth (m): Average - 3; Maximum - 4.5

2.4 Elevation (m above mean sea level): 8

2.5 Water regimes

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Punnakkayal Lake is one of the sources of water & Backwater received from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 Climatic setting

a) Annual rainfall/ Snowfall (mm): 30.4

a) Temperature (°C) Minimum 28.75 ; Maximum 36.3

b) Humidity (%) Minimum 69.4 ; Maximum 77.3

2.7 Area of zone of influence (in ha): 7269.1 ha (with an irregular radius of 3.14 km)

2.8 Major land use within zone of influence

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	20%
Agriculture	:	13%
Settlements (Rural)	:	11%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	7%
Saltpan	:	15%
Aquaculture	:	34%

2.9 Map of Wetland complex and zone of influence: Enclosed as Annexure 3.57 (Fig. 3.57.1-3.57.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 51 species. (refer to Table 57.1 in Annexure 57).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 148 recorded species. This includes 6 mammal species, 21 reptile species, 9 amphibian species, 96 bird species, and 16 species of butterflies (refer to Table 57.2-57.3 in Annexure 57).

3.3 *Species of conservation significance:* Highlighted in Table 57.1-57.3

3.4 *Major plant invasive alien species:* The Wetland supports 7 plant invasive species (refer to Table 57.4 in Annexure 57).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 57.5 in Annexure 57)

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.57.6 (Annexure 3.57)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	✓ Yes ❒ No	There is a church around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	
Aquaculture	✓ Yes ❒ No	Aquaculture plants were observed while ground-truthing
Saltpan	✓ Yes ❒ No	Saltpans were observed while ground-truthing
Mangrove	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No	

		❒Not assessed	
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is a church around the embankment of the Wetland
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for agriculture or fisheries	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Aquaculture and Saltpan	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Aquaculture and Saltpans were observed while ground-truthing

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ❒Low	❒Present ❒Potential	
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium	❒Present ❒Potential	

	❒ Low		
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.57.4-3.57.5 in Annexure 3.57
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary			

		❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Abhisheka, K., David, J. P., Prashanth, M. B., Seshadri, K. S., & Ganesh, T. (2013). First detailed survey of waterbirds in Tirunelveli and Tuticorin districts, Tamil Nadu, India.

Journal of Threatened Taxa, 5(12), 4641–4652. https://doi.org/10.11609/JoTT.o3125.4641-52

2. Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). A checklist of reptiles of India (Version 3.0). 35 pp. Online publication available at www.zsi.gov.in (Last update: May 2018).
3. Ali, S. (2002). *The book of Indian birds* (13th Revised ed.). Oxford University Press.
4. Bibby, C. J., Burgess, N. D., & Hill, D. A. (1993). *Bird census techniques*. Academic Press.
5. Gamble, J. S., & Fischer, C. E. C. (1915-1935). *Flora of Presidency of Madras*. Adlard and Son.
6. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press.
7. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India. Series 1: Analysis* (Vol. III). Botanical Survey of India.
8. K. Ratnam. (n.d.). *Birds of Tamil Nadu*.
9. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
10. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
11. Mathew, K. M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
12. Mathew, K. M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press.
13. Mathew, K. M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press.
14. Mathew, K. M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press.
15. Nair, N. C., & Henry, A. N. (1983). *Flora of Tamil Nadu, India. Series 1* (Vol. 1). Botanical Survey of India, Southern Circle.

ANNEXURE 3.57

Fig 3.57.1. Zone of Influence of Punnakayal Complex Wetland

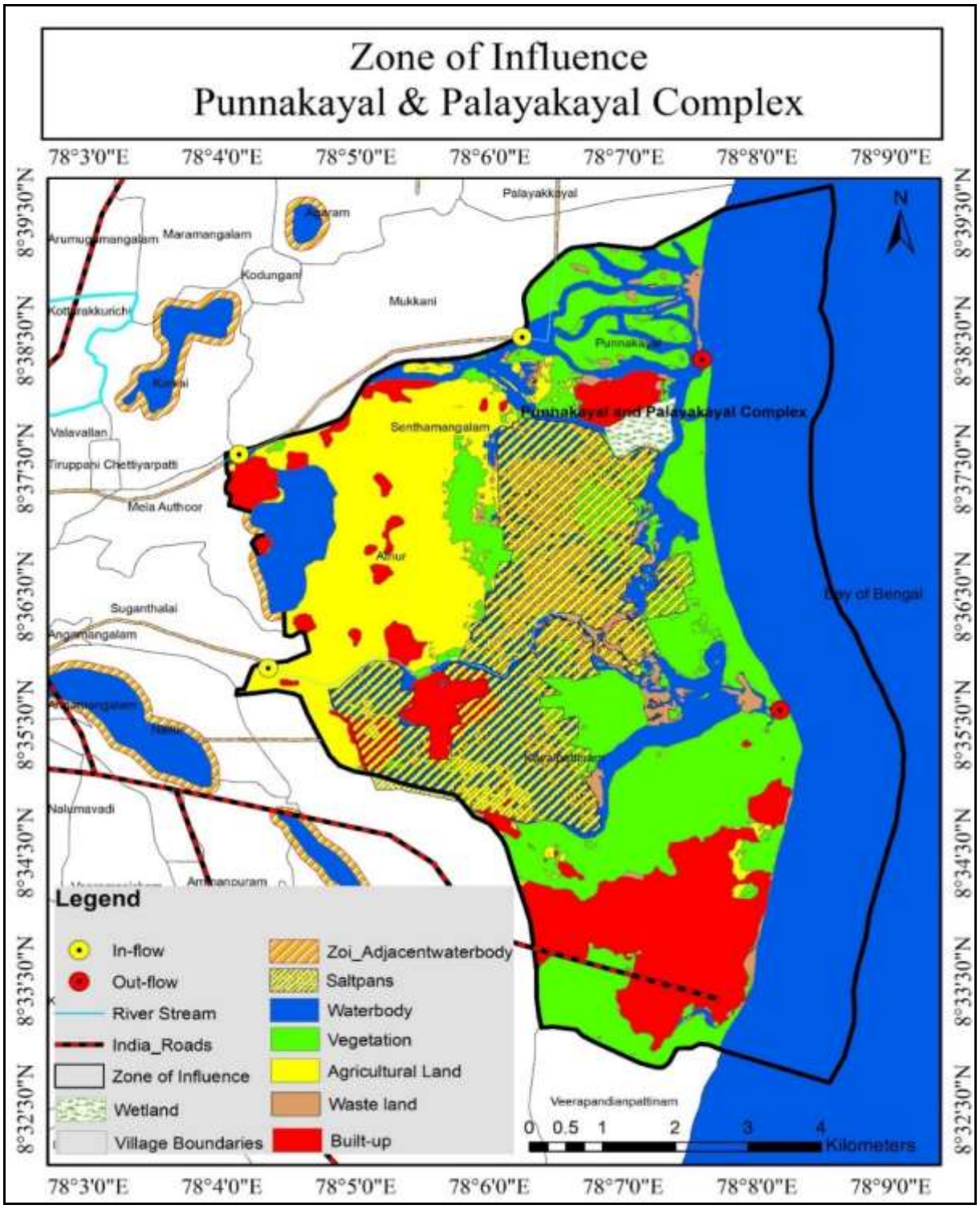


Fig. 3.57.2. Map (2004 *vs*. 2024) and Land Use/ Land Cover of Punnakayal Complex Wetland

Map of the Wetland in 2004



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

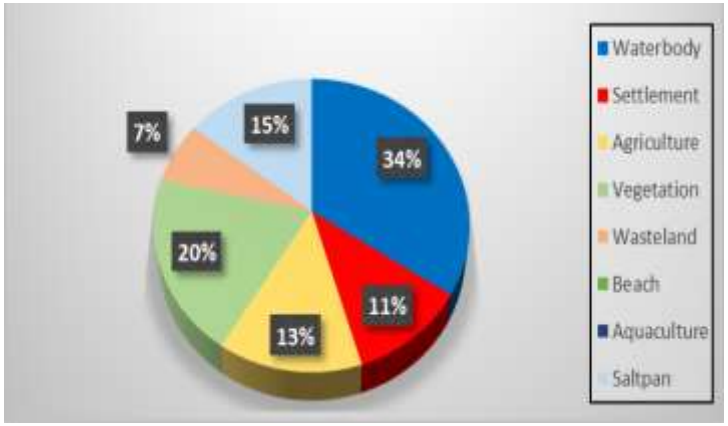


Table 3.57.1. IUCN Status of Floral Species in Punnakayal Complex Wetland

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthus illicifolius*	Acanthaceae	Kozhimulli	Shrub	LC
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
8.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
9.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
10.	*Avicennia officinalis*	Acanthaceae	Upattha	Tree	LC
11.	*Argemone mexicana*	Papaveraceae	Nai Kadugu	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Brachiaria mutica*	Poaceae		Grass	NE
14.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
15.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
16.	*Ceriops decandra*	Rhizophoraceae	Chiru kandal	Tree	LC
17.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
18.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
19.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
20.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
21.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
22.	*Digitaria ciliaris*	Poaceae		Grass	NE
23.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
24.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
25.	*Ischaemum indicum*	Poaceae	-	Grass	LC
26.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE

27.	*Justicia prostrata*	Acanthaceae		Herb	NE
28.	*Launaea bellidifolia*	Asteraceae		Herb	LC
29.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
30.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
31.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
32.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
33.	*Pedalium murex*	Pedaliaceae		Herb	NE
34.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
35.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
36.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
37.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
38.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
39.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
40.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
41.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
42.	*Rhizophora mucronata*	Rhizophoraceae		Tree	LC
43.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
44.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
45.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
46.	*Trachys muricata*	Poaceae	-	Grass	LC
47.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
48.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
49.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
50.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
51.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.57.2. IUCN Status of Selected Fauna Species in Punnakayal Complex Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A.	*Mammal*				
1.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC	
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
3.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
4.	Rattus rattus	Muridae	House rat	LC	*
5.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
6.	*Canis aureus*	Canidae	Jackal	LC	
B.	*Reptile*				
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	*
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	*
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	*
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	*
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	*
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	*
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	

19.	*Vipera russelli*	Viperidae	Russell's viper	LC	
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
D. Butterfly					
1.	Common crow	*Euploea core*	Nymphalidae	LC	*
2.	Common Emigrant	*Catopsilia Pomona*	Pieridae	NE	*
3.	Common evening brown	*Melanitis leda*	Nymphalidae	LC	*
4.	Common grass yellow	*Eurema hecabe*	Pieridae	LC	*
5.	Common lime	*Papilio demoleus*	Papilionidae	NE	*
6.	Common mormon	*Papilio polytes*	Papilionidae	NE	*
7.	Lemon pansy	*Junonia lemonias*	Nymphalidae	NE	*
8.	Mottled Emigrant	*Catopsilia pyranthe*	Pieridae	NE	*
9.	Pale Grass Blue	*Pseudozizeeria maha*	Lycaenidae	NE	*
10.	Peacock pansy	*Junonia almanac*	Nymphalidae	LC	*
11.	Plain tiger	*Danaus chrysippus*	Nymphalidae	LC	*
12.	Tawny coster	*Acraea violae*	Nymphalidae	LC	*
13.	Common Rose	*Pachliopta aristolochiae*	Papilionidae	NE	*
14.	Yellow Pansy	*Junonia hierta*	Nymphalidae	LC	*

15.	Lime butterfly	*Papilio demoleus*	Papilionidae	LC	*
16.	Common evening brown	*Melanitis leda*	Nymphalidae	LC	*

Table 3.57.3. IUCN Status of Bird Species in Punnakayal Complex Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Alauda gulgula*	Oriental Skylark	T	LC	*
6.	*Alcedo atthis*	Common Kingfisher	T	LC	*
7.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
8.	*Anastomus oscitans*	Asian Openbill	A	LC	*
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Apus affinis*	House Swift	T	LC	
11.	*Ardea cinerea*	Grey Heron	A	LC	*
12.	*Ardea purpurea*	Purple Heron	A	LC	
13.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
14.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
15.	*Athene brama*	Spotted Owlet	T	LC	
16.	*Athene brama*	Spoted Owlet	T	LC	
17.	*Bubulcus ibis*	Cattle Egret	D	LC	*
18.	*Calidris pugnax*	Ruf	A	LC	
19.	*Calidris minuta*	Little Stint	A	LC	*
20.	*Calidris temminckii*	Temminck's stint	A	LC	
21.	*Casmerodius albus*	Great Egret	A	LC	
22.	*Centropus sinensis*	Greater Coucal	T	LC	
23.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
24.	*Charadrius alexandrinus*	Kentsh Plover	A	LC	
25.	*Charadrius dubius*	Little Ringed Plover	A	LC	
26.	*Charadrius mongolus*	Lesser Sand Plover	A	LC	

27.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
28.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
29.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
30.	*Cypsiurus balasiensis*	Asian Palm-swif	T	LC	*
31.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
32.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
33.	*Columba livia*	Rock Pigeon	T	LC	
34.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
35.	*Coracias benghalensis*	Indian Roller	T	LC	*
36.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
37.	*Corvus splendens*	House Crow	T	LC	*
38.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
39.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
40.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
41.	*Egretta garzetta*	Little Egret	A	LC	*
42.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
43.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
44.	*Falco tinnunculus*	Common Kestrel	T	LC	
45.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
46.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
47.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
48.	*Haliastur indus*	Brahminy Kite	T	LC	*
49.	*Hieraaetus pennatus*	Booted Eagle	T	LC	*
50.	*Hirundo rustica*	Barn Swallow	T	LC	*
51.	*Hydroprogne caspia*	Caspian Tern	A	LC	
52.	*Lanius cristatus*	Brown Shrike	T	LC	
53.	*Lanius vitatus*	Bay-backed Shrike	T	LC	
54.	*Limosa limosa*	Black-tailed Godwit	A	LC	
55.	*Merops orientalis*	Green Bee-eater	T	LC	*
56.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
57.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	

58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Mycteria leucocephala*	Painted Stork	A	NT	*
60.	*Numenius phaeopus*	Eurasian whimbrel	A	LC	*
61.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
62.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
63.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
64.	*Pandion haliaetus*	Osprey	T	LC	*
65.	*Passer domesticus*	House Sparrow	T	LC	*
66.	*Pernis ptlorhynchus*	Oriental Honey Buzzard	T	LC	*
67.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
68.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
69.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
70.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	*
71.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
72.	*Pluvialis squatarola*	Grey Plover	A	LC	
73.	*Prinia inornate*	Plain Prinia	T	LC	*
74.	*Prinia socialis*	Ashy Prinia	T	LC	*
75.	*Pseudibis papillosa*	Red-naped Ibis	T	LC	*
76.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
77.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
78.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
79.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
80.	*Sterna albifrons*	Little Tern	A	LC	*
81.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
82.	*Streptopelia decaocto*	Eurasian Collared-Dove	T	LC	*
83.	*Spilopelia senegalensis*	Laughing Dove	T	LC	*
84.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
85.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
86.	*Thalasseus bengalensis*	Lesser Crested Tern	A	LC	
87.	*Thalasseus bergii*	Greater Crested Tern	A	LC	
88.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*

89.	*Tringa glareola*	Wood Sandpiper	A	LC	*
90.	*Tringa nebularia*	Common Greenshank	A	LC	*
91.	*Tringa totanus*	Common Redshank	A	LC	*
92.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
93.	*Upupa epops*	Hoopoe	T	LC	
94.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
95.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
96.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.57.4. IUCN Status of major plant invasive alien species in Punnakkayal Wetland

S. No.	Species	Family	Tamil Name
1.	*Lantana camara*	Verbenaceae	Unnichedi
2.	*Martynia annua*	Martyniaceae	Thael Kodukku
3.	*Prosopis julifera*	Fabaceae	Semai karuvel
4.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
5.	*Senna tora*	Caesalpiniaceae	Oosithagarai
6.	*Typha angustifolia*	Typhaceae	Sambu
7.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.57.5. IUCN Status of major animal invasive alien species in Punnakkayal Wetland

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 57.6. IUCN Status of major medicinal plant species in Punnakkayal Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb

3.	*Acanthospermum hispidum*	Compositae		Herb
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
6.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb
7.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Pedalium murex*	Pedaliaceae		Herb
11.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
12.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
13.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
14.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.58. SIVAGALAI & PERIYAKUALM WETLAND COMPLEX

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Sivagalai & Periyakulam Wetland Complex

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Sevalai, Sivagalai, Srivaikuntam, Periyakulam

1.3 *Name of the District (s) in which Wetlands complex located:* Thoothukudi

1.4 *Geographical coordinates:*

► Latitude: 8˚38’50.0136” N

► Longitude: 77˚58’40.3752” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 427.07 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	✓ Permanent lakes
	❒ Seasonal/ intermittent lakes
	❒ Permanent streams/ creeks
	❒ Seasonal/ intermittent streams/ creeks
	❒ Oxbow
	❒ River floodplain
	❒ Permanent freshwater marshes
	❒ Seasonal/ intermittent freshwater marshes
	❒ Shrub-dominated Wetlands
	❒ Tree-dominated Wetlands
	❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reef
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2; Maximum - 3.5

2.4 *Elevation (m above mean sea level):* 34

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Punnakkayal Lake is one of the sources of water
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water
- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 Climatic setting

a) Annual rainfall/ Snowfall (mm): 30.4

b) Temperature (°C) Minimum 28.75 ; Maximum 36.3

c) Humidity (%) Minimum 69.4 ; Maximum 77.3

2.7 Area of zone of influence (in ha): 6058.31 ha (with an irregular radius of 3.14 km)

2.8 Major land use within zone of influence
- ► Agriculture - 56%
- ► Vegetation - 26%
- ► Settlements (Rural) - 10%
- ► Waterbodies - 5%

2.9 Map of Wetland complex and zone of influence: Enclosed as Annexure 3.58 (Fig. 3.58.1-3.58.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 63 species. (refer to Table 58.1 in Annexure 58).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 160 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 94 bird species, and 48 species of butterflies (refer to Table 58.2-58.3 in Annexure 58).

3.3 *Species of conservation significance:* Highlighted in Table 58.1-58.3

3.4 *Major plant invasive alien species:* The Wetland supports 9 plant invasive species (refer to Table 58.4 in Annexure 58).

3.5 *Major animal invasive alien species:* Not Available

Section 4: Ecosystem Services

Importance	**Relevance**	**Details**
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water has been drawn from outflow for agricultural activities
Fisheries	✓ Yes ❒ No	Subsistence Fishing is happening

Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.58.6 (Annexure 3.58)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	significant runoff from the surrounding catchment area
Has significant cultural and religious values	✓ Yes ❒ No	There is more number of temples around the bund of Wetland.
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variety of amphibians were surviving
Mining	❒ Yes ✓ No	

Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for thesite	Does this negatively impact the Wetland's ecological health?	Brief description
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Subsistence Fishing is happening
Fishing under lease from government department	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing is observed while field investigation
Religious practices	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	There is more number of temples around the bund of Wetland.
Withdrawal of water for domestic use	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	✓Yes ❒ No	❒Yes ❒No ❒Not assessed	Water has been drawn from outflow for agricultural activities
Bathing or wallowing of domestic animals	✓Yes ❒ No	❒Yes ❒No ❒Not assessed	Wallowing of cattle were observed
Plying of boats	❒Yes ❒ ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ❒ ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒ Medium ✓Low	✓Present ❒Potential	Municipal solid wastes has been dumped around bund
Unsustainable harvest of biological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒ Medium ✓Low	✓Present ❒Potential	Substantial water flow from the surrounding watershed

Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.58.4-3.58.5 in Annexure 3.58
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of	Upto the boundary is well		

		influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Gamble, J.S. and C.E.C. Fischer. 1915-1935. Flora of Presidency of Madras, Adlard and Son, London. pp. 1-3.
2. Mathew, K. M. 1981. The Material for the Flora of the Tamilnadu Carnatic, Madras, India.
3. Matthew, K. M. 1982. Illustrations on the Flora of the Tamilnadu Carnatic. Vol. II. The Diocesan press, Madras, India.
4. Matthew, K. M. 1983. The Flora of Tamilnadu Carnatic. Vol. III. The Diocesan press, Madras, India.
5. Matthew, K. M. 1988. Further Illustrations on the Flora of the Tamilnadu Carnatic. Vol. IV. The Diocesan press, Madras, India.
6. Nair, N.C. and A.N. Henry. 1983. Flora of Tamil Nadu, India.Series 1, Vol. 1, Botanical Survey of India, Southern Circle, Coimbatore. 1-184.
7. Henry, A.N., Chithra, V.N. and Balakrishnan, P. (1989) Flora of Tamil Nadu India. Series 1: Analysis. Vol. III. Botanical Survey of India, Coimbatore.
8. Ali, S. (2002). The Book of Indian Birds (13th Revised Edition). Oxford University Press, New Delhi, 326pp.
9. *K. Ratnam* Bird of Tamil Nadu, Kehimkar I. The Book of Indian Butterflies. Bombay Natural History Society, 2008, 497.
10. Kamalakannan, M.& P.O.Nameer (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa 11(8): 13992–14009; https://doi.org/10.11609/jott.4705.11.8.13992–14009.
11. Aengals, R., Sathish Kumar, V.M., Palot, M.J. & Ganesh, S.R. (2018). A Checklist of Reptiles of India. 35 pp. Version 3.0. Online publication is available at www.zsi.gov.in (Last update: May 2018)
12. Bibby, C.J., N.D. Burgess & D.A. Hill (1993). Bird Census Techniques. Academic Press Limited, London, 257pp.
13. Grimmet, R., C. Inskipp & T. Inskipp (2000). Pocket Guide to the Birds of the Indian Subcontinent. Oxford University Press, New York, 384pp.
14. Abhisheka, K., J.P. David, M.B. Prashanth, K.S. Seshadri & T. Ganesh (2013). First detailed survey of waterbirds in Tirunelveli and Tuticorin districts, Tamil Nadu, India. *Journal of Threatened Taxa* 5(12): 4641–4652; http://dx.doi.org/10.11609/JoTT.o3125.4641-52

ANNEXURE 3.58

Fig 3.58.1. Zone of Influence of Sivagalai &Periyakualm Wetland Complex

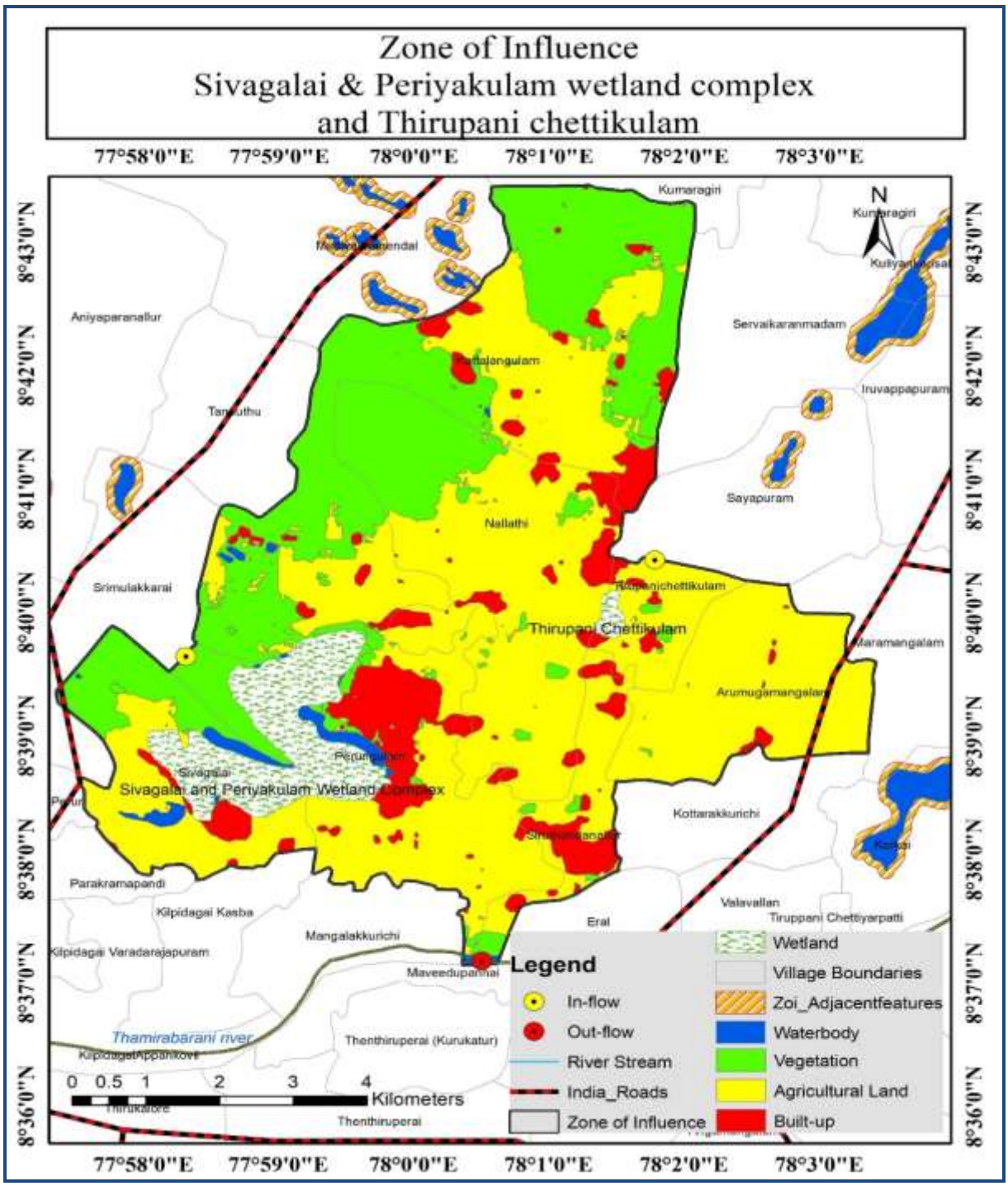


Fig 3.58.2. Map (2010 *vs.* 2024) and Land Use/ Land Cover of Sivagalai &Periyakualm Wetland Complex

Map of the Wetland in 2010



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

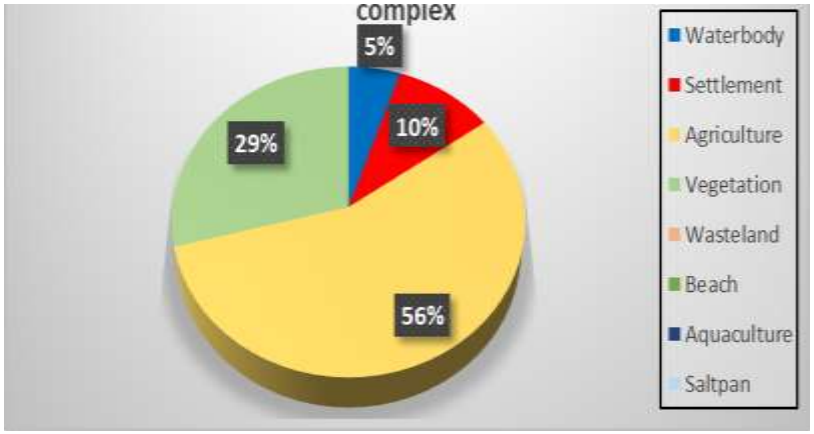


Table 3.58.1.IUCN Status of Floral Species in Sivagalai &Periyakualm Wetland Complex

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
9.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
10.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
11.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Borassus flabellifer*	Arecaceae	Panai Maram	Tree	LC
14.	*Brachiaria ramosa*	Poaceae		Grass	NE
15.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
16.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
17.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
18.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
19.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
20.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
21.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
22.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
23.	*Cyperus iria*	Cyperaceae		Sedge	NE

24.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
25.	*Digitaria abludens*	Poaceae		Grass	NE
26.	*Digitaria ciliaris*	Poaceae		Grass	NE
27.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
28.	*Ficus benghalensis*	Moraceae	Allamaram	Tree	LC
29.	*Hyptis suaveolens*	Labiatae		Shrub	NE
30.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
31.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
32.	*Isachne miliacea*	Poaceae	-	Grass	LC
33.	*Ischaemum indicum*	Poaceae	-	Grass	LC
34.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
35.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
36.	*Justicia prostrata*	Acanthaceae		Herb	NE
37.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
38.	*Leptochloa fusca*	Poaceae	Mandaipul	Grass	LC
39.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
40.	*Ludwigia adscendens*	Onagraceae		Herb	NE
41.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
42.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
43.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
44.	*Nymphaea pubescens*	Nymphaeaceae		Herb	LC
45.	*Ottelia alismoides*	Hydrocharitaceae		Herb	LC
46.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
47.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
48.	*Pontederia vaginalis*	Pontederiaceae	Karung kuvalai	Tree	LC

49.	*Prosopis juliflora*	Fabaceae	Karuvel	Tree	NE
50.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
51.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
52.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
53.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
54.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
55.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
56.	*Terminalia arjuna*	Combretaceae	Marutham	Tree	LC
57.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
58.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
59.	*Trachys muricata*	Poaceae	-	Grass	LC
60.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
61.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
62.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
63.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC

Table 3.58.2. IUCN Status of Selected Fauna Species in Sivagalai &Periyakualm Wetland Complex

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present Study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden	LC	*

			lizard		
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	*
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	
6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC	
C. Amphibian					
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
1.	*Acraea terpsicore*	Nymphalidae	Tawny Caster		
2.	*Ariadne ariadne*	,,	Angled Castor		
3.	*Ariadne merione*	,,	Common Caster		
4.	*Danaus chrysippus*		Plain Tiger		
5.	*Danaus genutia*	,,	Striped Tiger		

6.	*Euploea core*	,,	Common Indian Crow		
7.	*Euthalia nais*	,,	Baronet		
8.	*Hypolimnas bolina*	,,	Great Egg Fly		
9.	*Junonia almana*	,,	Peacock Pansy		
10.	*Junonia hierta*	,,	Yellow Pansy		
11.	*Junonia iphita*	,,	Chocolate Pansy		
12.	*Junonia lemonias*	,,	Lemon Pansy		
13.	*Junonia orithya*	,,	Blue Pansy		
14.	*Melanitis leda*	,,	Common Evening Brown		
15.	*Neptis hylas*	,,	Common Sailor		
16.	*Phalanta phalantha*	,,	Common Leopard		
17.	*Tirumala limniace*	,,	Blue Tiger		
18.	*Appias albino*	Pieridae	Common Albatross		
19.	*Belenois aurota*	,,	Pioneer		
20.	*Ixias marianne*		White Orange Tip		
21.	*Catopsilia pomona*	,,	Common Emigrant		
22.	*Catopsilia pyranthe*	,,	Mottled Emigrant		
23.	*Cepora nerissa*	,,	Common Gull		
24.	*Colisa croceus*	,,	Dark Clouded Yellow		
25.	*Colotis danae*		Crimson Tip		
26.	*Colotis etrida*	,,	Small Orange Tip		
27.	*Eurema hecabe*	,,	Common Grass Yellow		
28.	*Delias eucharis*	,,	Common Jezebel		

29.	*Leptosia nina*	,,	Psyche		
30.	*Castalius rosimon*	Lycaenidae	Common Pierrot		
31.	*Chilades parrhasius*	,,	Indian Cupid		
32.	*Euchrysops cnejus*	,,	Gram Blue		
33.	*Freyeria trochylus*	,,	Grass Jewel		
34.	*Jamides celeno*	,,	Common Cerulin		
35.	*Zizeeria knysna*	,,	Tiny Grass Blue		
36.	*Zizina otis*	,,	Lesser Grass Blue		
37.	*Atrophaneura aristolochiae*	Papilionidae	Common Rose		
38.	*Atrophaneura hector*	,,	Crimson Rose		
39.	*Graphium agamemnon*	,,	Tailed Jay		
40.	*Graphium sarpedon*		Common Bluebottle		
41.	*Papilio demoleus*	,,	Lime Butterflies		
42.	*Papilio polytes*	,,	Common Mormon		
43.	*Papilio polymnestor*	,,	Blue Mormon		
44.	*Troides minos*	,,	Southern Bird Wing		
45.	*Borbo cinnara*	Hesperiidae	Rice Swift		
46.	*Sarangesa purendra*	,,	Spotted Small Flat		
47.	*Spialia galba*	,,	Indian Skipper		
48.	*Suastus gremius*	,,	Indian Palm Bob		

LC – Least Concern; * - Yes

Table 3.58.3. IUCN Status of Bird Species in Sivagalai &Periyakualm Wetland Complex

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Acridotheres tristis*	Common Myna	T	LC	*
2.	*Actitis hypoleucos*	Common Sandpiper	D	LC	*
3.	*Alauda gulgula*	Oriental Skylark	T	LC	
4.	*Alcedo atthis*	Common Kingfisher	T	LC	*
5.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
6.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
7.	*Anastomus oscitans*	Asian Openbill	A	LC	
8.	*Anhinga melanogaster*	Darter	A	LC	
9.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
10.	*Ardea cinerea*	Grey Heron	A	LC	*
11.	*Ardea purpurea*	Purple Heron	A	LC	
12.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
13.	*Bubulcus ibis*	Cattle Egret	D	LC	*
14.	*Casmerodius albus*	Great Egret	A	LC	
15.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
16.	*Charadrius dubius*	Little Ringed Plover	A	LC	
17.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
18.	*Circus macrourus*	Pallid Harrier	T	LC	
19.	*Circus melanoleucos*	Pied Harrier	T	LC	
20.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
21.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
22.	*Columba livia*	Rock Pigeon	T	LC	
23.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
24.	*Coracias benghalensis*	Indian Roller	T	LC	*
25.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
26.	*Corvus splendens*	House Crow	T	LC	*
27.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*

28.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
29.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
30.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
31.	*Dupetor flavicollis*	Black Bittern	A	LC	
32.	*Egretta garzetta*	Little Egret	A	LC	*
33.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
34.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
35.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
36.	*Falco tinnunculus*	Common Kestrel	T	LC	
37.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
38.	*Fulica atra*	Coot	A	LC	
39.	*Gallicrex cinerea*	Watercock	A	LC	
40.	*Gallinula chloropus*	Common Moorhen	A	LC	*
41.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
42.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
43.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
44.	*Haliastur indus*	Brahminy Kite	T	LC	*
45.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
46.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
47.	*Hirundo rustica*	Barn Swallow	T	LC	
48.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
49.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
50.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
51.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
52.	*Limosa limosa*	Black-tailed Godwit	A	LC	
53.	*Lonchura Malacca*	Black-headed Munia	D	LC	
54.	*Merops orientalis*	Green Bee-eater	T	LC	*
55.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	

56.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
57.	*Metrpidius indicus*	Bronze- Winged Jacana	A	LC	
58.	*Milvus migrans*	Black Kite	T	LC	*
59.	*Motacilla flava*	Yellow Wagtail	D	LC	
60.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
61.	*Mycteria leucocophala*	Painted stork	A	NT	
62.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
63.	*Nettapus coromandelianus*	Cotton Pygmy Goose	A	LC	
64.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
65.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
66.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
67.	*Passer domesticus*	House Sparrow	T	LC	*
68.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
69.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
70.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
71.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
72.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
73.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
74.	*Ploceus manyar*	Streaked Weaver	T	LC	
75.	*Pluvialis squatarola*	Grey Plover	A	LC	
76.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
77.	*Prinia inornata*	Plain Prinia	T	LC	
78.	*Prinia socialis*	Ashy Prinia	T	LC	*
79.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
80.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
81.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
82.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
83.	*Sarkidiornis melanotos*	Comb Duck			

84.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
85.	*Sterna aurantia*	River Tern	A	LC	
86.	*Sternula albifrons*	Little Tern	A	LC	*
87.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
88.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
89.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
90.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
91.	*Tringa glareola*	Wood Sandpiper	A	LC	*
92.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
93.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
94.	*Zoothera citrine*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.58.4. IUCN Status of major plant invasive alien species in Sivagalai &Periyakualm Wetland Complex

S. No.	Species	Family	Tamil Name
1.	*Albizia saman*	Fabaceae	Rain tree
2.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
3.	*Ipomoea carnea*	Convolvulaceae	
4.	*Lantana camara*	Verbenaceae	Unnichedi
5.	*Prosopis juliflora*	Fabaceae	Karuvel
6.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
7.	*Senna tora*	Caesalpiniaceae	Oosithagarai
8.	*Typha angustifolia*	Typhaceae	Sambu
9.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.58.5. IUCN Status of major medicinal plant species in Sivagalai &Periyakualm Wetland Complex

S. No.	Species	Family	Tamil Name	Habit
1	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4	*Acanthospermum hispidum*	Compositae		Herb
5	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6	*Borassus flabellifer*	Arecaceae	Panai Maram	Tree
7	*Brachiaria ramosa*	Poaceae		Grass
8	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub
9	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
10	*Leucas aspera*	Labiatae	Thumbai	Herb
11	*Mukia leiosperma*	Cucurbitaceae		Climber
12	*Pontederia vaginalis*	Pontederiaceae	Karung kuvalai	Tree
13	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
14	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
15	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
16	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
17	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities

- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.59. KOONTHANKULAM BIRD SANCTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

- Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.
- Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Koonthankulam Bird Sanctuary

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Kadankulam-Thirumangalam, Nanguneri, Koonthankulam, Kadankulam, Silayam, Arumuganeri

1.3 *Name of the District (s) in which Wetlands complex located:* Tirunelveli

1.4 *Geographical coordinates:*

- Latitude: 8˚29’45.8874” N
- Longitude: 77˚45’19.2954” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 61.04 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes ✓ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands ❒ Karst and other subterranean hydrological

	systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 Depth (m): Average - 1.5; Maximum - 2.5

2.4 Elevation (m above mean sea level): 63

2.5 Water regimes

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Marimutharu dam is one of the sources of water
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ✓ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water
- ✓ Eutrophic
- ❒ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 Climatic setting

a) Annual rainfall/ Snowfall (mm): 54.5

b) Temperature (°C) Minimum 28.75 ; Maximum 36.3

c) Humidity (%) Minimum 69.4 ; Maximum 77.3

2.7 Area of zone of influence (in ha): 3056.25 ha (with an irregular radius of 3.14 km)

2.8 Major land use within zone of influence

Land Use		**Percentage**
Forest	:	0%
Vegetation (Plantation)	:	0%
Agriculture	:	76%
Settlements (Rural)	:	5%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	13%
Waste Land	:	6%

2.9 Map of Wetland complex and zone of influence: Enclosed as Annexure 3.59 (Fig. 3.59.1-3.59.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 52 species (refer to Table 3.59.1 in Annexure 3.59).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 173 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 142bird species, and 13 species of butterflies (refer to Table 3.59.2-3.59.3 in Annexure 3.59).

3.3 *Species of conservation significance:* Highlighted in Table 3.59.1-3.59.3

3.4 *Major plant invasive alien species:* The Wetland supports 6 plant invasive species (refer to Table 3.59.4 in Annexure 3.59).

3.5 *Major animal invasive alien species:* The Wetland supports 1 animal invasive species (refer to Table 3.59.5 in Annexure 3.59).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	When it reaches its Full Supply level (FSL), the water may withdrawn for agriculture
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.59.6 (Annexure 3.59)
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts & Bird watching
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	✓ Yes ❒ No	There is more temple around the embankment of the Wetland
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Any others	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒No	❒Yes ❒No ✓Not assessed	Grazing activity is done by cattle & Observed more in numbers
Religious practices	✓Yes ❒No	❒Yes ❒No ✓Not assessed	There is a temple around the embankment of the Wetland

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Substantial water flow from the surrounding watershed
Encroachment	❒ High ❒ Medium	❒ Present ❒ Potential	

	❒ Low		
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 59.4-59.5 in Annexure 59
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well & Observed more in numbers		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Abhisheka, K., David, J. P., Prashanth, M. B., Seshadri, K. S., & Ganesh, T. (2013). First detailed survey of waterbirds in Tirunelveli and Tuticorin districts, Tamil Nadu, India. *Journal of Threatened Taxa, 5*(12), 4641–4652. https://doi.org/10.11609/JoTT.o3125.4641-52
2. Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). A checklist of reptiles of India (Version 3.0). 35 pp. Online publication available at www.zsi.gov.in (Last update: May 2018).
3. Ali, S. (2002). *The book of Indian birds* (13th revised ed.). Oxford University Press.
4. Bibby, C. J., Burgess, N. D., & Hill, D. A. (1993). *Bird census techniques*. Academic Press.

5. Gamble, J. S., & Fischer, C. E. C. (1915-1935). *Flora of Presidency of Madras*. Adlard and Son.
6. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press.
7. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India. Series 1: Analysis* (Vol. III). Botanical Survey of India.
8. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
9. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
10. K. Ratnam. (n.d.). *Birds of Tamil Nadu*.
11. Mathew, K. M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
12. Mathew, K. M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press.
13. Mathew, K. M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press.
14. Mathew, K. M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press.
15. Nair, N. C., & Henry, A. N. (1983). *Flora of Tamil Nadu, India. Series 1* (Vol. 1). Botanical Survey of India, Southern Circle.
16. Rajakumari, M., Paramanantha Swami Doss, D., Balamurugan, S., Nivetha, S., & Suthakar Isaac, S. (2021). Bird community of Koonthankulam bird sanctuary, Tamil Nadu, India. *International Journal of Zoology and Applied Biosciences, 6*(3), 168-177.

ANNEXURE 3.59

Fig. 3.59.1 Zone of Influence of Koonthankulam Bird Sanctuary

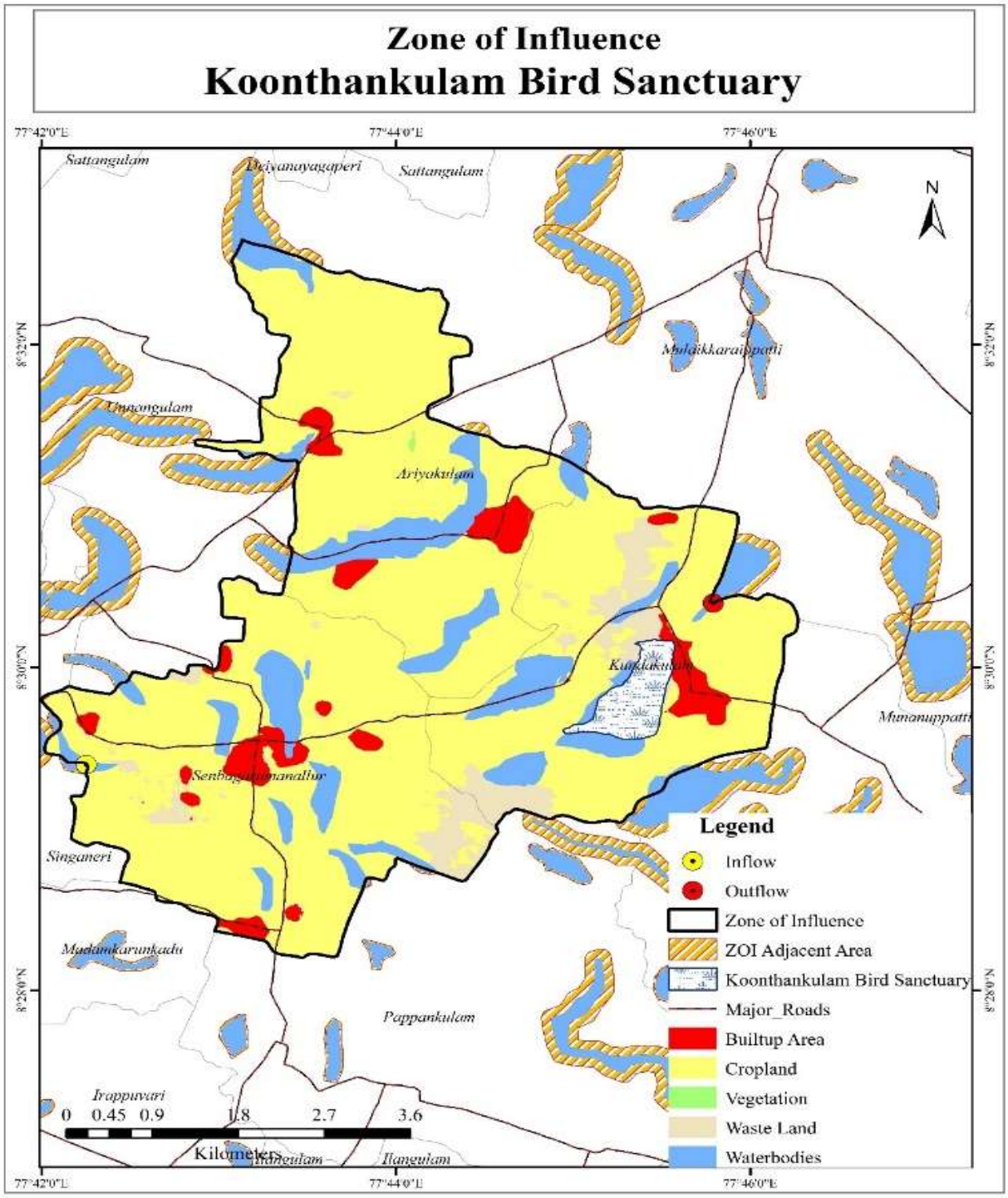


Fig 3.59.2. Map (2010 *vs.* 2024) and Land Use/ Land Cover of Koonthankulam Bird Sanctuary

Map of the Wetland in 2010



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

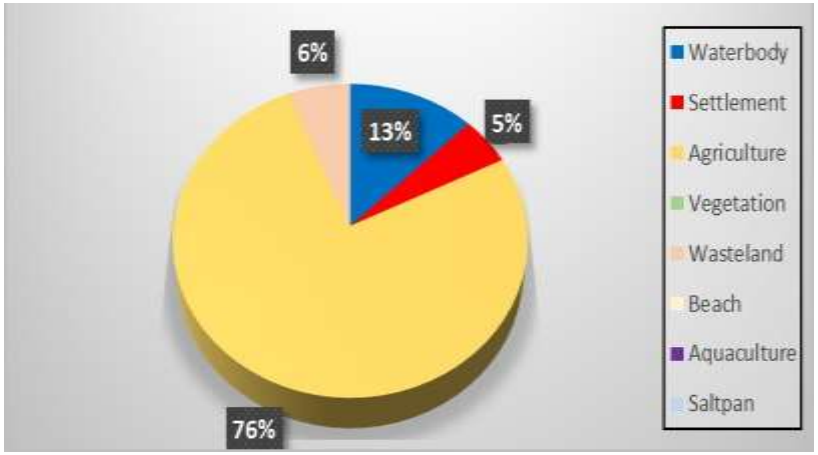


Table 3.59.1. IUCN Status of Floral Species in Koonthankulam Bird Sanctuary

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
9.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
10.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
11.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
14.	*Brachiaria ramosa*	Poaceae		Grass	NE
15.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
16.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
17.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
18.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
19.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
20.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
21.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
22.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
23.	*Digitaria abludens*	Poaceae		Grass	NE
24.	*Digitaria ciliaris*	Poaceae		Grass	NE
25.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
26.	*Hyptis suaveolens*	Labiatae		Shrub	NE
27.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
28.	*Ischaemum indicum*	Poaceae	-	Grass	LC

29.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
30.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
31.	*Justicia prostrata*	Acanthaceae		Herb	NE
32.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
33.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
34.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
35.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
36.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
37.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
38.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
39.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
40.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
41.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
42.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
43.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
44.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
45.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
46.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
47.	*Trachys muricata*	Poaceae	-	Grass	LC
48.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
49.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
50.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
51.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
52.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.59.2. IUCN Status of Selected Fauna Species in Koonthankulam Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	*
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	*
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	
6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC	
C. Amphibian					
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC	*
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*

8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
1.	Common crow	Nymphalidae	Nymphalidae	LC	*
2.	Common Emigrant	Pieridae	Pieridae	NE	*
3.	Common evening brown	Nymphalidae	Nymphalidae	LC	*
4.	Common grass yellow	Pieridae	Pieridae	LC	*
5.	Common lime	Papilionidae	Papilionidae	NE	*
6.	Common Mormon	Papilionidae	Papilionidae	NE	*
7.	Lemon pansy	Nymphalidae	Nymphalidae	NE	*
8.	Mottled Emigrant	Pieridae	Pieridae	NE	*
9.	Pale Grass Blue	Lycaenidae	Lycaenidae	NE	*
10.	Peacock pansy	Nymphalidae	Nymphalidae	LC	*
11.	Plain tiger	Nymphalidae			
12.	Blue Tiger	Nymphalidae	Nymphalidae	LC	*
13.	Gram Blue	Lycaenidae	Nymphalidae	LC	*

LC – Least Concern; * - Yes

Table 3.59.3. IUCN Status of Bird Species in Koonthankulam Bird Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Aegithina tiphia*	Common Iora	T	LC	*
6.	*Alauda gulgula*	Oriental Skylark	T	LC	
7.	*Alcedo atthis*	Common Kingfisher	T	LC	*
8.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
9.	*Anas acuta*	Northern Pintail	A	LC	
10.	*Anas clypeata*	Northern Shoveller	A	LC	
11.	*Anas crecca*	CommonTeal	A	LC	*

12.	*Anas indicus*	Bar-headed Goose	A	LC	
13.	*Anas Penelope*	EurasianWigeon	A	LC	
14.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
15.	*Anas querquedula*	Garganey	A	LC	
16.	*Anastomus oscitans*	Asian Openbill	A	LC	*
17.	*Anhinga melanogaster*	Darter	A	LC	
18.	*Anthus richardi*	Richard's Pipit	D	LC	
19.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
20.	*Apus affinis*	House Swift	T	LC	
21.	*Ardea cinerea*	Grey Heron	A	LC	*
22.	*Ardea purpurea*	Purple Heron	A	LC	
23.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
24.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
25.	*Athene brama*	Spotted Owlet	T	LC	
26.	*Bubulcus ibis*	Cattle Egret	D	LC	*
27.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
28.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
29.	*Burhinus oedicnemus*	Stone Curlew	A	LC	
30.	*Butas turteesa*	White-eyed Buzzard	T	LC	
31.	*Buteo buteo*	Common Buzzard	T	LC	
32.	*Butorides striatus*	Little Green Heron	A	LC	
33.	*Cacomantis passerines*	Indian Plaintive Cuckoo	T	LC	
34.	*Calidris ferruginea*	Curlew sandpiper	A	LC	
35.	*Calidris pugnax*	Ruf	A	LC	
36.	*Calidris minuta*	Little Stint	A	LC	*
37.	*Calidris temminckii*	Temminck's stint	A	LC	
38.	*Caprimulgus indicus*	Indian Jungle Nightjar	T	LC	
39.	*Casmerodius albus*	Great Egret	A	LC	
40.	*Centropus sinensis*	Greater Coucal	T	LC	
41.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
42.	*Charadrius alexandrinus*	Kentish Plover	A	LC	

43.	*Charadrius dubius*	Little Ringed Plover	A	LC	
44.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
45.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
46.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
47.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
48.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
49.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
50.	*Circus macrourus*	Pallid Harrier	T	LC	
51.	*Circus melanoleucos*	Pied Harrier	T	LC	
52.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
53.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
54.	*Columba livia*	Rock Pigeon	T	LC	
55.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
56.	*Coracias benghalensis*	Indian Roller	T	LC	*
57.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
58.	*Corvus splendens*	House Crow	T	LC	*
59.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
60.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
61.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
62.	*Dupetor flavicollis*	Black Bittern	A	LC	
63.	*Egretta garzetta*	Little Egret	A	LC	*
64.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
65.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
66.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
67.	*Falco tinnunculus*	Common Kestrel	T	LC	
68.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
69.	*Fulica atra*	Coot	A	LC	
70.	*Gallinago stenura*	Pintail Snipe	A	LC	
71.	*Gallicrex cinerea*	Watercock	A	LC	
72.	*Gallinula chloropus*	Common Moorhen	A	LC	*

73.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
74.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
75.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
76.	*Haliastur indus*	Brahminy Kite	T	LC	*
77.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
78.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
79.	*Hirundo rustica*	Barn Swallow	T	LC	
80.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
81.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
82.	*Icthyophaga leucogaster*	White-bellied sea eagle	T	LC	
83.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
84.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
85.	*Limosa limosa*	Black-tailed Godwit	A	LC	
86.	*Lonchura Malacca*	Black-headed Munia	D	LC	
87.	*Merops orientalis*	Green Bee-eater	T	LC	*
88.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
89.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
90.	*Milvus migrans*	Black Kite	T	LC	*
91.	*Motacilla flava*	Yellow Wagtail	D	LC	
92.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
93.	*Mycteria leucocephala*	Painted Stork	A	NT	*
94.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
95.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
96.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
97.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
98.	*Pavo cristatus*	Indian Peafowl	T	LC	*
99.	*Passer domesticus*	House Sparrow	T	LC	*
100.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	*
101.	*Phalacrocorax carbo*	Great Cormorant	A	LC	

102.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
103.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
104.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
105.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
106.	*Phaenicophaeus tristis*	Green-billed Malkoha	T	LC	
107.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
108.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
109.	*Ploceus manyar*	Streaked Weaver	T	LC	
110.	*Pluvialis squatarola*	Grey Plover	A	LC	
111.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
112.	*Prinia inornata*	Plain Prinia	T	LC	*
113.	*Prinia socialis*	Ashy Prinia	T	LC	*
114.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	*
115.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
116.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
117.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
118.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
119.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
120.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
121.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC	
122.	*Sterna albifrons*	Little Tern	A	LC	*
123.	*Sterna anaethetus*	Bridled Tern	A	LC	
124.	*Sterna aurantia*	River Tern	A	LC	*
125.	*Sterna caspia*	CaspianTern	A	LC	
126.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
127.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
128.	*Tachybaptus ruficollis*	Little Grebe	A	LC	*
129.	*Tachymarptis melba*	Alpine Swift	T	LC	
130.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC	
131.	*Terpsiphone paradise*	AsianParadise-Flycatcher	T	LC	

132.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC	
133.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
134.	*Tringa ochropus*	Green Sandpiper	A	LC	*
135.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
136.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
137.	*Turnix suscitator*	Common Buttonquail	T	LC	
138.	*Tyto alba*	Barn Owl	T	LC	*
139.	*Upupa epops*	Hoopoe	T	LC	
140.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
141.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
142.	*Zoothera citrine*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.59.4. IUCN Status of major plant invasive alien species in Koonthankulam Bird Sanctuary

S. No.	Species	Family	Tamil Name
1.	*Albizia saman*	Fabaceae	Rain tree
2.	*Alternanthera pungens*	Amaranthaceae	
3.	*Ipomoea carnea*	Convolvulaceae	
4.	*Lantana camara*	Verbenaceae	Unnichedi
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.59.5. IUCN Status of major animal invasive alien species in Koonthankulam Bird Sanctuary

S. No.	Species	Family	Common name	IUCN
A. Fish				
1.	*Clarias gariepinus*	Clariidae	African Catfish	LC

Table 3.59.6. IUCN Status of major medicinal plant species in Koonthankulam Bird Sanctuary

S. No.	Species	Family	Tamil Name	Habit
7.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
8.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
9.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
10.	*Acanthospermum hispidum*	Compositae		Herb
11.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
12.	*Aerva lanata*	Amaranthaceae	Peelai	Herb
13.	*Borassus flabellifer*	Arecaceae	Panai	Tree
14.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
15.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
16.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb
17.	*Mukia leiosperma*	Cucurbitaceae		Climber
18.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
19.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
20.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
21.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
22.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge

- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.60. NANJARAYAN TANK BIRD SANCTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Nanjarayan Tank Bird Sanctuary or Sarkar Periyapalayam Reservoir

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Neruperichal and Sarkar Periyapalayam

1.3 *Name of the District (s) in which Wetlands complex located:* Tiruppur

1.4 *Geographical coordinates:*

► Latitude: 11˚8’2.6196” N

► Longitude: 77˚23’17.736” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 103.66 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	✓ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 2.5

2.4 *Elevation (m above mean sea level):* 290

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ✓ Direct/ indirect inflow from river: Noyyal River Basin is the source of water
- ❒ Others, please specify
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 72.9

b) Temperature (°C) Minimum 13.05 ; Maximum 18.95

c) Humidity (%) Minimum 81.7 ; Maximum 88.4

2.7 *Area of zone of influence (in ha):* 3217.09 ha (with an irregular radius of 3.25 km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	0%
Agriculture	:	21%
Settlements (Rural)	:	71%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	2%
Waste Land	:	6%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.60 (Fig. 3.60.1-3.60.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 62 species. (refer to Table 3.60.1 in Annexure 3.60).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 183 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 144 bird species, and 21 species of butterflies (refer to Table 3.60.2-3.60.3 in Annexure 3.60).

3.3 *Species of conservation significance:* Highlighted in Table 3.60.1-3.60.3

3.4 *Major plant invasive alien species:* The Wetland supports 3 plant invasive species (refer to Table 3.60.4 in Annexure 3.60).

3.5 *Major animal invasive alien species:* The Wetland supports 1 animal invasive species (refer to Table 3.60.5 in Annexure 3.60).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water has been drawn from outflow for agricultural activities
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Listed in Table 3.60.6 (Annexure 3.60)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	Substantial water flow from the surrounding watershed
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for the site**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Fishing under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants (without any lease or permission from government department)	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Harvest of plants under lease from government department	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Agriculture or horticulture within Wetland	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Grazing	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Religious practices	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No	

		❒ Not assessed	
Withdrawal of water for agriculture or fisheries	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Water has been drawn from outflow for agricultural activities
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Unauthorized sewage disposal
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Substantial water flow from the surrounding watershed
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.60.4-3.60.5 in Annexure 3.60
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules and Regulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater	Prohibited	✓ Wetland/ Wetland complex boundary ❒ Zone of influence			Unauthorized sewage disposal

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). A checklist of reptiles of India (Version 3.0). 35 pp. Online publication available at www.zsi.gov.in (Last update: May 2018).
2. Ali, S. (2002). *The book of Indian birds* (13th revised ed.). Oxford University Press.
3. Bibby, C. J., Burgess, N. D., & Hill, D. A. (1993). *Bird census techniques*. Academic Press.
4. Gamble, J. S., & Fischer, C. E. C. (1915-1935). *Flora of Presidency of Madras*. Adlard and Son.
5. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press.

6. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India. Series 1: Analysis* (Vol. III). Botanical Survey of India.
7. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
8. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
9. K. Ratnam. (n.d.). *Birds of Tamil Nadu*.
10. Mathew, K. M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
11. Mathew, K. M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press.
12. Mathew, K. M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press.
13. Mathew, K. M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press.
14. Nair, N. C., & Henry, A. N. (1983). *Flora of Tamil Nadu, India. Series 1* (Vol. 1). Botanical Survey of India, Southern Circle.

ANNEXURE 3.60

Fig 3.60.1. Zone of Influence of Nanjarayan Tank Bird Sanctuary

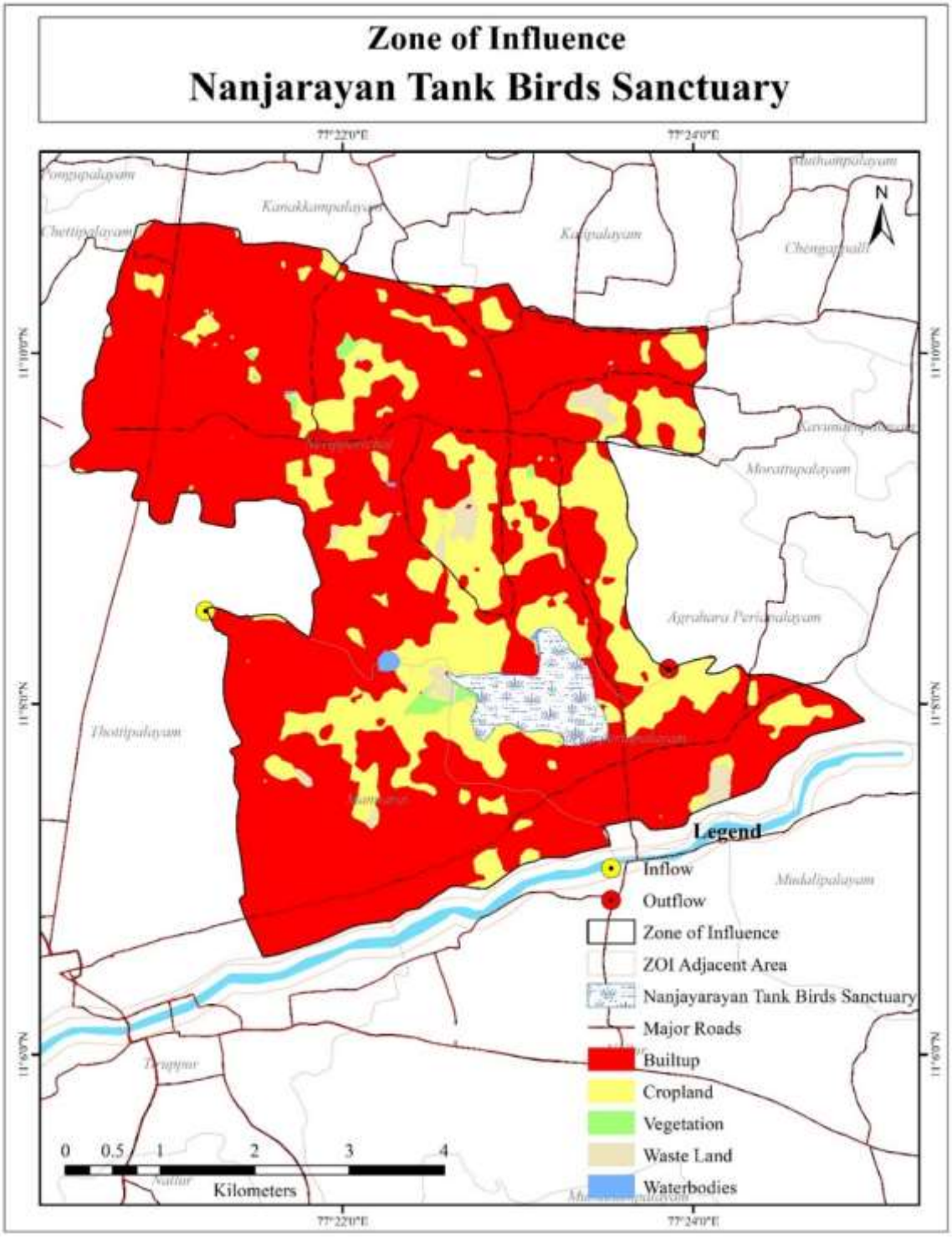


Fig 3.60.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Nanjarayan Tank Bird Sanctuary

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

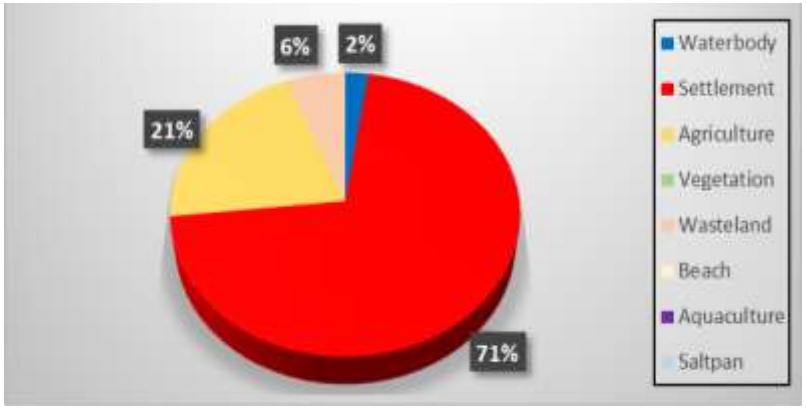


Table 3.60.1. IUCN Status of Floral Species in Nanjarayan Tank Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Alangium salvifolium*	Alangiaceae	Azhinjil	Tree	LC
9.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
10.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
11.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
12.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
13.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
14.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
15.	*Brachiaria ramosa*	Poaceae		Grass	NE
16.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
17.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
18.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
19.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
20.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
21.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
22.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
23.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
24.	*Digitaria abludens*	Poaceae		Grass	NE
25.	*Digitaria ciliaris*	Poaceae		Grass	NE
26.	*Eragrostis viscosa*	Poaceae	-	Grass	LC

27.	*Ficus benghalensis*	Moraceae	Aal	Tree	LC
28.	*Ficus hispida*	Moraceae	Peyatthi	Tree	LC
29.	*Ficus racemosa*	Moraceae	Atthi	Tree	LC
30.	*Ficus religiosa*	Moraceae	Arasu	Tree	LC
31.	*Hyptis suaveolens*	Labiatae		Shrub	NE
32.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
33.	*Ischaemum indicum*	Poaceae	-	Grass	LC
34.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
35.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
36.	*Justicia prostrata*	Acanthaceae		Herb	NE
37.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
38.	*Lansium parasiticum*	Meliaceae	Ootuuni maram	Tree	LC
39.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
40.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
41.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
42.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
43.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
44.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
45.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
46.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
47.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
48.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
49.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
50.	*Streblus asper*	Moraceae	Kuruvipala	Tree	LC
51.	*Syzygium cumini*	Myrtaceae	Naval	Tree	LC
52.	*Terminalia arujuna*	Combretaceae		Tree	LC
53.	*Terminalia catappa*	Combretaceae	Naattu Badaam	Tree	NE

54.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
55.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
56.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
57.	*Trachys muricata*	Poaceae	-	Grass	LC
58.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
59.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
60.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
61.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
62.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.60.2. IUCN Status of Selected Fauna Species in Nanjarayan Tank Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN
A. Mammal				
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC
3.	*Rattus argentiventer*	Muridae	Field Rat	LC
B. Reptile				
1.	*Cnemaspis yercaudensis*	Gekkonidae		LC
2.	*Cnemaspis mysoriensis*	Gekkonidae		LC
3.	*Cyrtodactylus speciosus*	Gekkonidae	Forest spotted gecko	LC
4.	*Hemidactylus graniticolus*	Gekkonidae		LC
5.	*Calotes versicolor*	Agamidae	Oriental garden lizard	LC
6.	*Eutropis allapallensis*	Scincidae		LC
7.	*Uropeltis dindigalensis*	Uropeltidae		LC
C. Amphibian				
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC

2.	*Duttaphrynus melanostictus*	Bufonidae	Common indian toad	LC
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC
D. Butterfly				
1.	*Euthalia nais*	Nymphalidae	Baronet	LC
2.	*Tirumala limniace*	Nymphalidae	Blue Tiger	LC
3.	*Euploea core*	Nymphalidae	Common crow	LC
4.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE
5.	*Melanitis leda*	Nymphalidae	Common evening brown	LC
6.	*Eurema hecabe*	Pieridae	Common grass yellow	LC
7.	*Delias eucharis*	Pieridae	Common jezebel	LC
8.	*Phalanta phalantha*	Nymphalidae	Common leopard	LC
9.	*Papilio demoleus*	Papilionidae	Common lime	NE
10.	*Papilio polytes*	Papilionidae	Common mormon	NE
11.	*Atrophaneura hector*	Papilionidae	Crimson rose	LC
12.	*Hypolimnas misippus*	Nymphalidae	Danaid eggfly	LC
13.	*Euchrysops cnejus*	Lycaenidae	Gram Blue	LC
14.	*Hypolimnas bolina*	Nymphalidae	Great eggfly	LC
15.	*Junonia atlites*	Nymphalidae	Grey pansy	LC
16.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE
17.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE
18.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE

19.	*Junonia almana*	Nymphalidae	Peacock pansy	LC
20.	*Belenoisaurota*	Pieridae	Pioneer	LC
21.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC

LC – Least Concern; * - Yes

Table 3.60.3. IUCN Status of Bird Species in Nanjarayan Tank Bird Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	Status
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Aegithina tiphia*	Common Iora	T	LC	*
6.	*Alauda gulgula*	Oriental Skylark	T	LC	
7.	*Alcedo atthis*	Common Kingfisher	T	LC	*
8.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
9.	*Anas acuta*	Northern Pintail	A	LC	
10.	*Anas clypeata*	Northern Shoveller	A	LC	
11.	*Anas crecca*	CommonTeal	A	LC	*
12.	*Anas indicus*	Bar-headed Goose	A	LC	
13.	*Anas penelope*	EurasianWigeon	A	LC	
14.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
15.	*Anas querquedula*	Garganey	A	LC	
16.	*Anastomus oscitans*	Asian Openbill	A	LC	*
17.	*Anhinga melanogaster*	Darter	A	LC	
18.	*Anthus richardi*	Richard's Pipit	D	LC	
19.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
20.	*Apus affinis*	House Swift	T	LC	
21.	*Ardea cinerea*	Grey Heron	A	LC	*
22.	*Ardea purpurea*	Purple Heron	A	LC	
23.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
24.	*Artamus fuscus*	Ashy Woodswallow	T	LC	

25.	*Athene brama*	Spotted Owlet	T	LC	
26.	*Bubulcus ibis*	Cattle Egret	D	LC	*
27.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
28.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
29.	*Burhinus oedicnemus*	Stone Curlew	A	LC	
30.	*Butas turteesa*	White-eyed Buzzard	T	LC	
31.	*Buteo buteo*	Common Buzzard	T	LC	
32.	*Butorides striatus*	Little Green Heron	A	LC	
33.	*Cacomantis passerinus*	Indian Plaintive Cuckoo	T	LC	
34.	*Calidris ferruginea*	Curlew sandpiper	A	LC	
35.	*Calidris pugnax*	Ruf	A	LC	
36.	*Calidris minuta*	Little Stint	A	LC	*
37.	*Calidris temminckii*	Temminck's stint	A	LC	
38.	*Caprimulgus indicus*	Indian Jungle Nightjar	T	LC	
39.	*Casmerodius albus*	Great Egret	A	LC	
40.	*Centropus sinensis*	Greater Coucal	T	LC	
41.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
42.	*Charadrius alexandrinus*	Kentish Plover	A	LC	
43.	*Charadrius dubius*	Little Ringed Plover	A	LC	
44.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
45.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
46.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
47.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
48.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
49.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
50.	*Circus macrourus*	Pallid Harrier	T	LC	
51.	*Circus melanoleucos*	Pied Harrier	T	LC	
52.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
53.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
54.	*Columba livia*	Rock Pigeon	T	LC	

55.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
56.	*Coracias benghalensis*	Indian Roller	T	LC	*
57.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
58.	*Corvus splendens*	House Crow	T	LC	*
59.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
60.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
61.	*Dicaeum erythrorhynchos*	Pale-billed Flowerpecker	T	LC	*
62.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
63.	*Dupetor flavicollis*	Black Bittern	A	LC	
64.	*Egretta garzetta*	Little Egret	A	LC	*
65.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
66.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
67.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
68.	*Falco tinnunculus*	Common Kestrel	T	LC	
69.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
70.	*Fulica atra*	Coot	A	LC	
71.	*Gallinago stenura*	Pintail Snipe	A	LC	
72.	*Gallicrex cinerea*	Watercock	A	LC	
73.	*Gallinula chloropus*	Common Moorhen	A	LC	*
74.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
75.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
76.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
77.	*Haliastur indus*	Brahminy Kite	T	LC	*
78.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
79.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
80.	*Hirundo rustica*	Barn Swallow	T	LC	
81.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
82.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	

83.	*Icthyophaga leucogaster*	White-bellied sea eagle	T	LC	
84.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
85.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
86.	*Limosa limosa*	Black-tailed Godwit	A	LC	
87.	*Lonchura malacca*	Black-headed Munia	D	LC	
88.	*Merops orientalis*	Green Bee-eater	T	LC	*
89.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
90.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
91.	*Milvus migrans*	Black Kite	T	LC	*
92.	*Mirafra affinis*	Jerdon's Bushlark	T	LC	*
93.	*Motacilla flava*	Yellow Wagtail	D	LC	
94.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
95.	*Mycteria leucocephala*	Painted Stork	A	NT	*
96.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
97.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
98.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
99.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
100.	*Pavo cristatus*	Indian Peafowl	T	LC	*
101.	*Passer domesticus*	House Sparrow	T	LC	*
102.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	*
103.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
104.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
105.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
106.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
107.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
108.	*Phaenicophaeus tristis*	Green-billed Malkoha	T	LC	
109.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
110.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
111.	*Ploceus manyar*	Streaked Weaver	T	LC	
112.	*Pluvialis squatarola*	Grey Plover	A	LC	

113.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
114.	*Prinia inornata*	Plain Prinia	T	LC	*
115.	*Prinia socialis*	Ashy Prinia	T	LC	*
116.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	*
117.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
118.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
119.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
120.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
121.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
122.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
123.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC	
124.	*Sterna albifrons*	Little Tern	A	LC	*
125.	*Sterna anaethetus*	Bridled Tern	A	LC	
126.	*Sterna aurantia*	River Tern	A	LC	*
127.	*Sterna caspia*	CaspianTern	A	LC	
128.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
129.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
130.	*Tachybaptus ruficollis*	Little Grebe	A	LC	*
131.	*Tachymarptis melba*	Alpine Swift	T	LC	
132.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC	
133.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
134.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC	
135.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
136.	*Tringa ochropus*	Green Sandpiper	A	LC	*
137.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
138.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
139.	*Turnix suscitator*	Common Buttonquail	T	LC	
140.	*Tyto alba*	Barn Owl	T	LC	*
141.	*Upupa epops*	Hoopoe	T	LC	
142.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*

143.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
144.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.60.4. IUCN Status of major plant invasive alien species in Nanjarayan Tank Bird Sanctuary

S. No.	Species	Family	Tamil Name
1.	*Albizia saman*	Fabaceae	Rain tree
2.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
3.	*Hyptis suaveolens*	Labiatae	
4.	*Ipomoea carnea*	Convolvulaceae	
5.	*Lantana camara*	Verbenaceae	Unnichedi
6.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
7.	*Thevetia peruviana*	Apocynaceae	Ponnarali
8.	*Typha angustifolia*	Typhaceae	Sambu
9.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.60.5. IUCN Status of major animal invasive alien species in Nanjarayan Tank Bird Sanctuary

S.No	Species	Family	Common name	IUCN
A. Fish				
1.	*Clarias gariepinus*	Clariidae	African Catfish	LC

Table 3.60.6. IUCN Status of major medicinal plant species in Nanjarayan Tank Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Cassia fistula*	Caesalpiniaceae		Tree	LC
2.	*Caryota urens*	Arecaceae	Koonthapanai	Tree	LC

3.	*Corallocarpus epigaeus*	Cucurbitaceae	Akasha karuden	Climber	Lc
4.	*Drosera burmannii*	Droseracae	Alukanni	Herb	LC
5.	*Drymaria cordata*	Caryophyllaceae	Puliarai	Herb	LC
6.	*Ruta graveolans*	Rutaceae	Aruvathampatch	Shrub	LC
7.	*Terminalia chebula*	Combretaceae		Tree	LC
8.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
9.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
10.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.61. ENNORE CREEK

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Ennore Creek

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Ennore, Madhavaram, Ernavoor, Periya Kuppam, and Puzhudhivakkam

1.3 *Name of the District (s) in which Wetlands complex located:* Tiruvallur

1.4 *Geographical coordinates:*

► Latitude: 13˚13’57.49” N

► Longitude: 80˚19’34.37” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 766.24 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2; Maximum - 4

2.4 *Elevation (m above mean sea level):* 0

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ✓ Direct/ indirect inflow from the river: Kosasthalaiyar River
- ✓ Others, please specify the water: Backwaters from Bay of Bengal
- ✓ Name of River/ Canal System: Buckingham Canal

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ✓ Circumneutral (5.5-7.4)
- ❒ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 302
b) Temperature (°C) Minimum 24.6 ; Maximum 39.25
c) Humidity (%) Minimum 64.7 ; Maximum 70.9

2.7 *Area of zone of influence (in ha):* 28552.93 ha (with an irregular radius of 9.6 km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	0%
Agriculture	:	23%
Settlements (Rural)	:	0%
Settlements (Urban)	:	36%
Industrial	:	0%
Waterbody	:	25%
Waste Land	:	1%
Beach	:	15%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.61 (Fig. 3.61.1-3.61.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 47 species. (refer to Table 3.61.1 in Annexure 3.61).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 151 recorded species. This includes 8 mammal species, 21 reptile species, 9 amphibian species, 101 bird species, and 12 species of butterflies (refer to Table 3.61.2-3.61.3 in Annexure 3.61).

3.3 *Species of conservation significance:* Highlighted in Table 3.61.1-3.61.3

3.4 *Major plant invasive alien species:* The Wetland supports 7 plant invasive species (refer to Table 3.61.4 in Annexure 3.61).

3.5 *Major animal invasive alien species:* The Wetland supports 3 animal invasive species (refer to Table 3.61.5 in Annexure 3.61).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland.
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Mangroves	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing & Export activity
Fishing under lease from government department	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Religious practices	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓ No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	For fishing & exporting
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Spread of invasive species	❒ High ❒ Medium	✓ Present ❒ Potential	Listed in Table 3.61.4-3.61.5 in

	✓ Low		Annexure 3.61
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundar ❒ Zone of influence			
Industrial Pollution	Regulated	❒ Wetland/ Wetland complex boundary ✓ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	Relevance	Within Wetlands or zoneof influence	Additional info.
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Anbazhagan, S., & Somasundaram, S. (2011). Geomorphological and hydrological characteristics of Ennore Creek, Chennai, India. *Journal of Coastal Research, 27*(4), 640-648. https://doi.org/10.2112/JCOASTRES-D-10-00091.1
2. Balasubramanian, K., & Kumar, R. (2012). Assessment of water quality in Ennore Creek, Chennai: A case study. *International Journal of Environmental Sciences, 2*(4), 245-258. https://doi.org/10.6088/ijes.20120404
3. Chandrasekar, N., & Arunachalam, V. (2013). Impact of industrial activities on the sediment quality of Ennore Creek, Chennai. *Marine Pollution Bulletin, 72*(1), 145-152. https://doi.org/10.1016/j.marpolbul.2013.04.023
4. Dhanarajan, S., & Rajagopalan, S. (2014). Coastal zone management and Ennore Creek: Challenges and strategies. *Journal of Environmental Management, 146*, 249-257. https://doi.org/10.1016/j.jenvman.2014.07.027

5. Gopalkrishnan, K., & Prasad, R. (2015). Sediment contamination and ecological risk assessment in Ennore Creek, Chennai. *Environmental Monitoring and Assessment, 187*(1), 1-12. https://doi.org/10.1007/s10661-014-3965-8
6. Jaganathan, K., & Rajendran, R. (2016). Seasonal variations in the water quality of Ennore Creek, Chennai. *Water Science & Technology, 74*(2), 451-459. https://doi.org/10.2166/wst.2016.241
7. Kamatchi, S., & Subramanian, K. (2017). Assessment of heavy metal pollution in Ennore Creek using geochemical indices. *Journal of Environmental Sciences, 60*, 40-50. https://doi.org/10.1016/j.jes.2017.01.017
8. Kumar, P., & Venkatesh, A. (2018). The impact of urbanization on water quality and biodiversity in Ennore Creek, Chennai. *Ecological Indicators, 85*, 263-272. https://doi.org/10.1016/j.ecolind.2017.10.047
9. Lakshmanan, K., & Sathia Raj, S. (2019). Shoreline changes and their implications for Ennore Creek, Chennai. *Journal of Coastal Research, 35*(3), 621-630. https://doi.org/10.2112/JCOASTRES-D-18-00015.1
10. Muthuswamy, R., & Rajendran, S. (2020). Impact of wastewater discharge on the health of Ennore Creek: A review. *Journal of Hazardous Materials, 388*, 121698. https://doi.org/10.1016/j.jhazmat.2019.121698
11. Nair, S., & Sinha, S. (2021). Assessment of biodiversity in Ennore Creek: A study of macroinvertebrate communities. *Aquatic Ecosystem Health & Management, 24*(2), 154-165. https://doi.org/10.1080/14634988.2021.1873368
12. Pandian, V., & Srinivasan, R. (2022). Influence of sediment characteristics on the distribution of pollutants in Ennore Creek. *Environmental Earth Sciences, 81*(4), 132. https://doi.org/10.1007/s12665-021-09931-0
13. Rajasekaran, M., & Mani, K. (2023). Hydrodynamics and pollutant transport in Ennore Creek: A numerical modeling approach. *Environmental Fluid Mechanics, 23*(2), 235-250. https://doi.org/10.1007/s10652-022-09765-4
14. Ramesh, K., & Reddy, K. (2024). Climate change impacts on Ennore Creek ecosystems: A synthesis of recent findings. *Climate Change Research, 40*(1), 1-15. https://doi.org/10.1007/s10584-024-02001-3
15. Subashini, S., & Kumaravel, M. (2024). Effect of land use changes on the water quality of Ennore Creek, Chennai. *Land Use Policy, 125*, 106236. https://doi.org/10.1016/j.landusepol.2022.106236

ANNEXURE 3.61

Fig 3.61.1 Zone of Influence of Ennore Creek Wetland

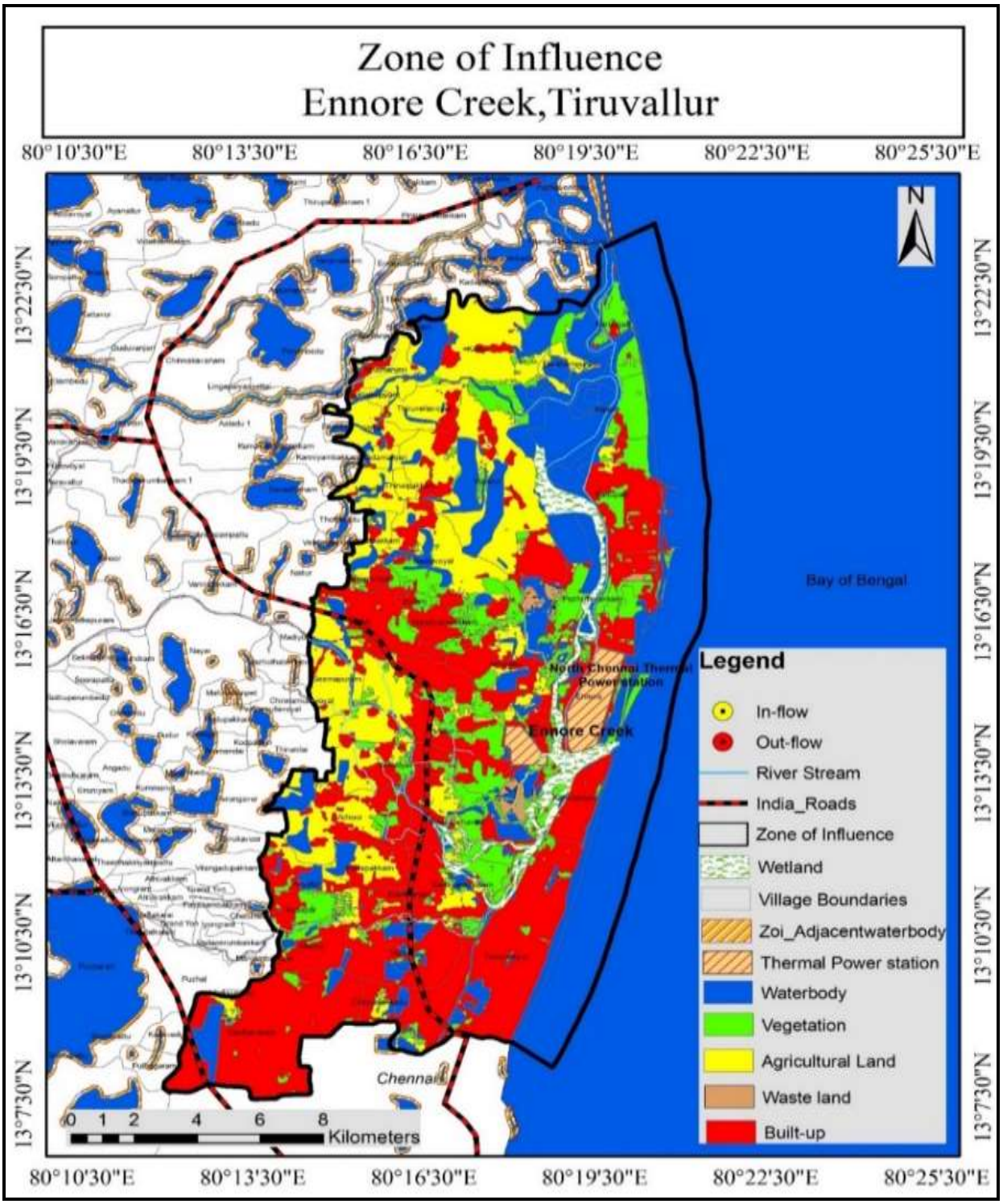


Fig 3.61.2. Map (2004 *vs*. 2024) and Land Use/ Land Cover Ennore Creek Wetland

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

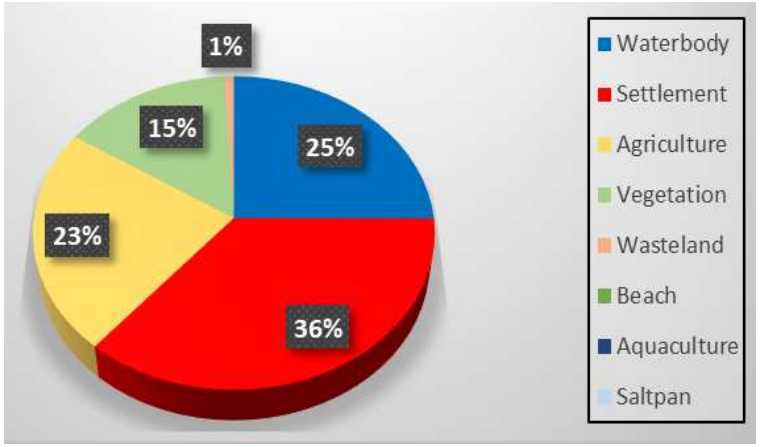


Table 3.61.1. IUCN Status of Floral Species in Ennore Creek

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
2.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
3.	*Acanthospermum hispidum*	Compositae		Herb	NE
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
6.	*Alternanthera pungens*	Amaranthaceae		Herb	NE
7.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
8.	*Avicennia marina*	Acanthaceae	Venkandan	Tree	LC
9.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
10.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
11.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
12.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
13.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
14.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
15.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
16.	*Digitaria ciliaris*	Poaceae		Grass	NE
17.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
18.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
19.	*Ischaemum indicum*	Poaceae	-	Grass	LC
20.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
21.	*Justicia prostrata*	Acanthaceae		Herb	NE
22.	*Launaea bellidifolia*	Asteraceae		Herb	LC
23.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
24.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
25.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
26.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
27.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
28.	*Pedalium murex*	Pedaliaceae		Herb	NE
29.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC

30.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
31.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
32.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
33.	*Senna siamea*	Fabaceae		Tree	LC
34.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
35.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
36.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
37.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
38.	*Rhizophora apiculata*	Rhizophoraceae		Tree	LC
39.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
40.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
41.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
42.	*Trachys muricata*	Poaceae	-	Grass	LC
43.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
44.	*Tridax procumbens*	Compositae	Vettukkaayachedi	Herb	LC
45.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
46.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
47.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.61.2. IUCN Status of Selected Fauna Species in Ennore Creek

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Axis axis*	Cervidae	Spotted deer	LC	
2.	*Macaca radiata*	Cercopithecidae	Bonnet macaque		*
3.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC	
4.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
5.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	

6.	Rattus rattus	Muridae	House rat	LC	*
7.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
8.	*Canis aureus*	Canidae	Jackal	LC	
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	*

21.	*Lissemys punctata*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*		Tree frog	LC	
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	*
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC	*
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC	*

LC – Least Concern; * - Yes

Table 3.61.3. IUCN Status of Bird Species in Ennore Creek

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Alauda gulgula*	Oriental Skylark	T	LC	
5.	*Alcedo atthis*	Common Kingfisher	T	LC	*
6.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
7.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
8.	*Anastomus oscitans*	Asian Openbill	A	LC	
9.	*Anthus richardi*	Richard's Pipit	D	LC	
10.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
11.	*Apus affinis*	House Swift	T	LC	
12.	*Ardea cinerea*	Grey Heron	A	LC	*
13.	*Ardea purpurea*	Purple Heron	A	LC	
14.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
15.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
16.	*Athene brama*	Spotted Owlet	T	LC	
17.	*Bubulcus ibis*	Cattle Egret	D	LC	*
18.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
19.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
20.	*Casmerodius albus*	Great Egret	A	LC	
21.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
22.	*Charadrius dubius*	Little Ringed Plover	A	LC	
23.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
24.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
25.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
26.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
27.	*Circus macrourus*	Pallid Harrier	T	LC	
28.	*Circus melanoleucos*	Pied Harrier	T	LC	
29.	*Cisticola juncidis*	Zitting Cisticola	T	LC	

30.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
31.	*Columba livia*	Rock Pigeon	T	LC	
32.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
33.	*Coracias benghalensis*	Indian Roller	T	LC	*
34.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
35.	*Corvus splendens*	House Crow	T	LC	*
36.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
37.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
38.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
39.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
40.	*Dupetor flavicollis*	Black Bittern	A	LC	
41.	*Egretta garzetta*	Little Egret	A	LC	*
42.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
43.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
44.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
45.	*Falco tinnunculus*	Common Kestrel	T	LC	
46.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
47.	*Fulica atra*	Coot	A	LC	
48.	*Gallicrex cinerea*	Watercock	A	LC	
49.	*Gallinula chloropus*	Common Moorhen	A	LC	*
50.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
51.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
52.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
53.	*Haliastur indus*	Brahminy Kite	T	LC	*
54.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
55.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
56.	*Hirundo rustica*	Barn Swallow	T	LC	
57.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
58.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
59.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	

60.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
61.	*Limosa limosa*	Black-tailed Godwit	A	LC	
62.	*Lonchura malacca*	Black-headed Munia	D	LC	
63.	*Merops orientalis*	Green Bee-eater	T	LC	*
64.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
65.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
66.	*Milvus migrans*	Black Kite	T	LC	*
67.	*Motacilla flava*	Yellow Wagtail	D	LC	
68.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
69.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
70.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
71.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
72.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
73.	*Passer domesticus*	House Sparrow	T	LC	*
74.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
75.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
76.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
77.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
78.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
79.	*Ploceus manyar*	Streaked Weaver	T	LC	
80.	*Pluvialis squatarola*	Grey Plover	A	LC	
81.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
82.	*Prinia inornata*	Plain Prinia	T	LC	
83.	*Prinia socialis*	Ashy Prinia	T	LC	*
84.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
85.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
86.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
87.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
88.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
89.	*Sterna aurantia*	River Tern	A	LC	

90.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
91.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
92.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
93.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
94.	*Tringa glareola*	Wood Sandpiper	A	LC	*
95.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
96.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
97.	*Tyto alba*	Barn Owl	T	LC	
98.	*Upupa epops*	Hoopoe	T	LC	
99.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
100.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
101.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.61.4. IUCN Status of major plant invasive alien species in Ennore Creek

S. No.	Species	Family	Tamil Name
1.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
2.	*Hyptis suaveolens*	Labiatae	
3.	*Lantana camara*	Verbenaceae	Unnichedi
4.	*Prosopis juliflora*	Fabaceae	Seemaikaruvai
5.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
6.	*Typha angustifolia*	Typhaceae	Sambu
7.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.61.5. IUCN Status of major animal invasive alien species in Ennore Creek

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC
C. Mussels				
3.	*Mytella strigata*	Mytilidae	Charru Mussels	NE

Table 3.61.6. IUCN Status of major medicinal plant species in Ennore Creek

S.No	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
7.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
8.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Mukia leiosperma*	Cucurbitaceae		Climber
11.	*Pedalium murex*	Pedaliaceae		Herb
12.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
13.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
14.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
15.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb
16.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
17.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.62. ODIYUR LAGOON

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Odiyur Lagoon or Cheyyur Lagoon

1.1 *Name of the Village (s), Tehsil (s), Municipal area (s):* Cheyyur, Mudaliyarkuppam, Paramankeni, Kadapakkam

1.2 *Name of the District (s) in which Wetlands complex located:* Villupuram

1.3 *Geographical coordinates:*

► Latitude: 12˚20’55.59” N

► Longitude: 80˚2’18.9708” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 1614.31 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
✓ Natural (Coastal)	✓ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2; Maximum - 3.5

2.4 *Elevation (m above mean sea level):* 0

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: Backwater received from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 252.7

b) Temperature (°C) Minimum 26.1 ; Maximum 38.2

c) Humidity (%) Minimum 63.2 ; Maximum 70.2

2.7 *Area of zone of influence (in ha):* 7850.21 ha (with an irregular radius of 9.66 km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	29%
Agriculture	:	20%
Settlements (Rural)	:	15%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	34%
Waste Land	:	2%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.62 (Fig. 3.62.1-3.62.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 64 species. (refer to Table 3.62.1 in Annexure 3.62).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 205 recorded species. This includes 9 mammal species, 21 reptile species, 9 amphibian species, 153 bird species, and 13 species of butterflies (refer to Table 3.62.2-3. 62.3 in Annexure 3.62).

3.3 *Species of conservation significance:* Highlighted in Table 3.62.1-3.62.3.

3.4 *Major plant invasive alien species:* The Wetland supports 3 plant invasive species (refer to Table 3.62.4 in Annexure 3.62).

3.5 *Major animal invasive alien species:* he Wetland supports 2 animal invasive species (refer to Table 3.62.5 in Annexure 3.62).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.62.6 in Annexure 3.62
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	✓ Yes ❒ No	Results into purification
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	
Mangroves	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing activity is done by cattle
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Boating is there for fishing
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High ❒ Medium	❒ Present ❒ Potential	

	❒ Low		
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.62.4-3.62.5 in Annexure 3.62
Any others	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary			

		❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any others		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Abhisheka, K., David, J. P., Prashanth, M. B., Seshadri, K. S., & Ganesh, T. (2013). First detailed survey of waterbirds in Tirunelveli and Tuticorin districts, Tamil Nadu, India. *Journal of Threatened Taxa*, *5*(62), 4641–4652. http://dx.doi.org/10.16209/JoTT.o3625.4641-52
2. Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). A checklist of reptiles of India (Version 3.0). *Zoological Survey of India*. Online publication available at www.zsi.gov.in
3. Ali, S. (2002). *The Book of Indian birds* (13th revised ed.). Oxford University Press.

4. Bibby, C. J., Burgess, N. D., & Hill, D. A. (1993). *Bird census techniques*. Academic Press.
5. Gamble, J. S., & Fischer, C. E. C. (1915–1935). *Flora of the Presidency of Madras* (pp. 1–3). Adlard and Son.
6. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian Subcontinent*. Oxford University Press.
7. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India. Series 1: Analysis* (Vol. III). Botanical Survey of India.
8. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.16209/jott.4705.11.8.13992–14009
9. K. Ratnam, I. Kehimkar, & M. B. Prashanth. (2008). *The Book of Indian Butterflies*. Bombay Natural History Society.
10. Matthew, K. M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
11. Matthew, K. M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press.
12. Matthew, K. M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press.
13. Matthew, K. M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press.
14. Nair, N. C., & Henry, A. N. (1983). *Flora of Tamil Nadu, India. Series 1, Vol. 1*. Botanical Survey of India.
15. Rajakumari, M., Swami Doss, P., Balamurugan, S., Nivetha, S., & Isaac, S. S. (2021). Bird community of Koonthankulam bird sanctuary, Tamil Nadu, India. *International Journal of Zoology and Applied Biosciences, 6*(3), 628-177.

ANNEXURE 3.62

Fig 3.62.1. Zone of Influence of Odiyur Lagoon

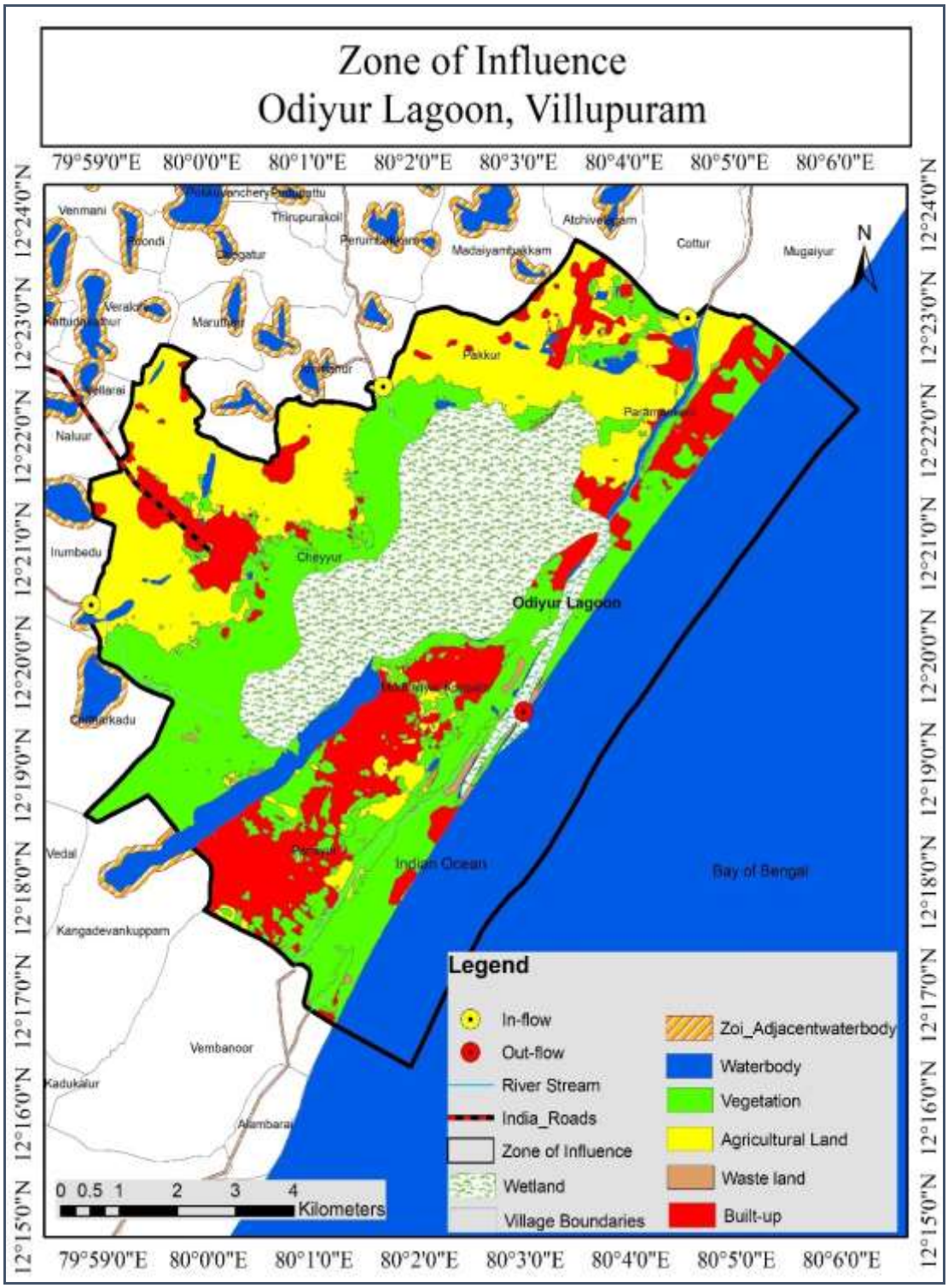


Fig 3.62.2. Map (2014 *vs*. 2024) and Land Use/ Land Cover of Odiyur Lagoon

Map of the Wetland in 2014



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

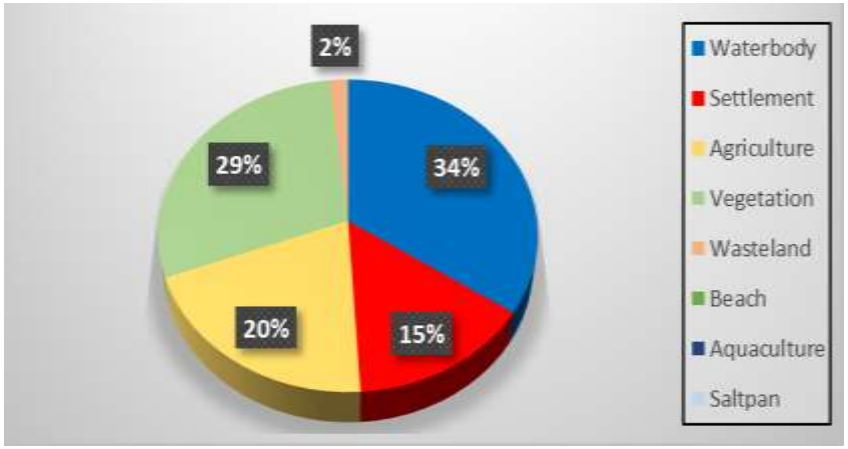


Table 3.62.1. IUCN Status of Floral Species in Odiyur Lagoon

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Aeluropus lagopoides*	Poaceae	Kadal Arugampullu	Grass	NE
9.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Cyperus squarrosus*	Cyperaceae		Sedge	NE
20.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
21.	*Digitaria ciliaris*	Poaceae		Grass	NE
22.	*Emilia sonchifolia*	Astereceae	Muyalccevi	Herb	NE
23.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
24.	*Geniosporum tenuiflorum*	Laminaceae	Nallathulasi	Herb	NE
25.	*Gisekia pharnaceoides*	Gisekiaceae	Kolikkirai	Herb	NE
26.	*Glinus lotoides*	Molluginaceae	Cerupattai	Herb	NE

27.	*Glinus oppositifolius*	Molluginaceae	Thurapundu	Herb	NE
28.	*Heliotropium curassavicum*	Boraginaceae		Herb	LC
29.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
30.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
31.	*Ischaemum indicum*	Poaceae	-	Grass	LC
32.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
33.	*Justicia prostrata*	Acanthaceae		Herb	NE
34.	*Launaea bellidifolia*	Asteraceae		Herb	LC
35.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
36.	*Lepisanthes tetraphylla*	Sapindaceae	Neykkoddaan	Tree	LC
37.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
38.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
39.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
40.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
41.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
42.	*Pedalium murex*	Pedaliaceae		Herb	NE
43.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
44.	*Prosopis cineraria*	Fabaceae	Vani	Tree	LC
45.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
46.	*Salacia chinensis*	Celastraceae		Tree	LC
47.	*Salvadora persica*	Salvodaraceae	Peruvilla	Tree	LC
48.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
49.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
50.	*Senna siamea*	Fabaceae		Tree	LC
51.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
52.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
53.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE

54.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
55.	*Suaeda maritima*	Amaranthaceae		Herb	LC
56.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
57.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
58.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
59.	*Trachys muricata*	Poaceae	-	Grass	LC
60.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
61.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
62.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
63.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
64.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.62.2. IUCN Status of Selected Fauna Species in Odiyur Lagoon

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Status
A. Mammal					
1.	*Antilope cervicapra*	Bovidae	Blackbuck	NT	*****
2.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
3.	*Canis aureus*	Canidae	Golden Jackal	LC	
4.	*Canis aureus*	Canidae	Jackal	LC	
5.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
6.	*Macaca radiata*	Cercopithecidae	Bonnet macaque	LC	*
7.	*Pipistrellus coromandra*	Vespertilionidae	Indian pipistrelle	LC	
8.	*Rattus rattus*	Muridae	House rat	LC	*
9.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*

2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	*
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	*
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	
21.	*Lissemys punctate*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	

5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegate*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Papilionidae	LC	
2.	*Catopsilia pomona*	Pieridae	Papilionidae	NE	
3.	*Melanitis leda*	Nymphalidae	Papilionidae	LC	
4.	*Eurema hecabe*	Pieridae	Papilionidae	LC	
5.	*Papilio demoleus*	Papilionidae	Papilionidae	NE	
6.	*Papilio polytes*	Papilionidae	Peridae	NE	
7.	*Junonia lemonias*	Nymphalidae	Peridae	NE	
8.	*Catopsilia pyranthe*	Pieridae	Peridae	NE	
9.	*Pseudozizeeria maha*	Lycaenidae	Peridae	NE	
10.	*Junonia almana*	Nymphalidae	Peridae	LC	
11.	*Danaus chrysippus*	Nymphalidae	Peridae	LC	
12.	*Acraea violae*	Nymphalidae	Peridae	LC	
13.	*Pachliopta aristolochiae*	Papilionidae	Lycaenidae	NE	

LC – Least Concern; * - Yes

Table 3.62.3. IUCN Status of Bird Species in Odiyur Lagoon

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	Status
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	
5.	*Aegithina tiphia*	Common Iora	T	LC	
6.	*Alauda gulgula*	Oriental Skylark	T	LC	
7.	*Alcedo atthis*	Common Kingfisher	T	LC	*

8.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
9.	*Anas acuta*	Northern Pintail	A	LC	
10.	*Anas clypeata*	Northern Shoveller	A	LC	
11.	*Anas crecca*	CommonTeal	A	LC	*
12.	*Anas Penelope*	EurasianWigeon	A	LC	
13.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
14.	*Anas querquedula*	Garganey	A	LC	
15.	*Anastomus oscitans*	Asian Openbill	A	LC	*
16.	*Anous tenuirostris*	Lesser noddy	A	LC	
17.	*Anhinga melanogaster*	Darter	A	LC	
18.	*Anthus godlewskii*	Blyth's Pipit	T	LC	
19.	*Anthus richardi*	Richard's Pipit	D	LC	
20.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
21.	*Apus affinis*	House Swift	T	LC	
22.	*Arenaria interpres*	Ruddy turn stone	A	LC	
23.	*Ardea cinerea*	Grey Heron	A	LC	*
24.	*Ardea purpurea*	Purple Heron	A	LC	
25.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
26.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
27.	*Athene brama*	Spotted Owlet	T	LC	*
28.	*Bubulcus ibis*	Cattle Egret	D	LC	*
29.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
30.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
31.	*Burhinus oedicnemus*	Stone Curlew	A	LC	
32.	*Butas turteesa*	White-eyed Buzzard	T	LC	
33.	*Buteo buteo*	Common Buzzard	T	LC	
34.	*Butorides striatus*	Little Green Heron	A	LC	
35.	*Cacomantis passerinus*	Indian Plaintive Cuckoo	T	LC	
36.	*Calidris acuminata*	Sharp-tailed sandpiper	A	LC	
37.	*Calidris alpina*	Dunlin	A	LC	

38.	*Calidris canutus*	Red knot	A	LC	
39.	*Calidris ferruginea*	Curlew sandpiper	A	LC	
40.	*Calidris pugnax*	Ruf	A	LC	
41.	*Calidris melanotos*	Pectoral sandpiper	A	LC	
42.	*Calidris minuta*	Little Stint	A	LC	*
43.	*Calidris tenuirostris*	Great Knot	A	LC	
44.	*Calidris temminckii*	Temminck's stint	A	LC	
45.	*Caprimulgus indicus*	Indian Jungle Nightjar	T	LC	
46.	*Casmerodius albus*	Great Egret	A	LC	
47.	*Centropus sinensis*	Greater Coucal	T	LC	
48.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
49.	*Charadrius alexandrinus*	Kentish Plover	A	LC	
50.	*Charadrius dubius*	Little Ringed Plover	A	LC	
51.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
52.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
53.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
54.	*Chroicocephalus genei*	Slender-billed Gull	T	LC	
55.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
56.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
57.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
58.	*Circus macrourus*	Pallid Harrier	T	LC	
59.	*Circus melanoleucos*	Pied Harrier	T	LC	
60.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
61.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
62.	*Columba livia*	Rock Pigeon	T	LC	
63.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
64.	*Coracias benghalensis*	Indian Roller	T	LC	*
65.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
66.	*Corvus splendens*	House Crow	T	LC	*
67.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*

68.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
69.	*Dendronanthus indicus*	Forest Wagtail	T	LC	
70.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
71.	*Dupetor flavicollis*	Black Bittern	A	LC	
72.	*Egretta garzetta*	Little Egret	A	LC	*
73.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
74.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
75.	*Esacus recurvirostris*	Great stone-curlew	A	LC	
76.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
77.	*Falco tinnunculus*	Common Kestrel	T	LC	
78.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
79.	*Fulica atra*	Coot	A	LC	
80.	*Glareola lactea*	Small pratincole	T	LC	
81.	*Gallicrex cinerea*	Watercock	A	LC	
82.	*Gallinula chloropus*	Common Moorhen	A	LC	*
83.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
84.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
85.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
86.	*Haliastur indus*	Brahminy Kite	T	LC	*
87.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
88.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
89.	*Hirundo rustica*	Barn Swallow	T	LC	
90.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
91.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
92.	*Icthyophaga leucogaster*	White-bellied sea eagle	T	LC	
93.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
94.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
95.	*Limosa limosa*	Black-tailed Godwit	A	LC	
96.	*Lonchura malacca*	Black-headed Munia	D	LC	
97.	*Merops orientalis*	Green Bee-eater	T	LC	*

98.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
99.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
100.	*Milvus migrans*	Black Kite	T	LC	*
101.	*Motacilla flava*	Yellow Wagtail	D	LC	
102.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
103.	*Mycteria leucocephala*	Painted Stork	A	NT	*
104.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
105.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
106.	*Numenius minutus*	Little curlew	A	LC	
107.	*Numenius phaeopus*	Whimbrel	A	LC	
108.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
109.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
110.	*Passer domesticus*	House Sparrow	T	LC	*
111.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	*
112.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
113.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
114.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
115.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
116.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
117.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
118.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
119.	*Ploceus manyar*	Streaked Weaver	T	LC	
120.	*Pluvialis squatarola*	Grey Plover	A	LC	
121.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
122.	*Prinia inornata*	Plain Prinia	T	LC	*
123.	*Prinia socialis*	Ashy Prinia	T	LC	*
124.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	*
125.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
126.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
127.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	

128.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
129.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
130.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
131.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC	
132.	*Sterna albifrons*	Little Tern	A	LC	*
133.	*Sterna anaethetus*	Bridled Tern	A	LC	
134.	*Sterna aurantia*	River Tern	A	LC	*
135.	*Sterna caspia*	CaspianTern	A	LC	
136.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
137.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*
138.	*Tachybaptus ruficollis*	Little Grebe	A	LC	*
139.	*Tachymarptis melba*	Alpine Swift	T	LC	
140.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC	
141.	*Terpsiphone paradisi*	AsianParadise-Flycatcher	T	LC	
142.	*Thalasseus sandvicensis*	Sandwich Tern	A	LC	
143.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC	
144.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
145.	*Tringa ochropus*	Green Sandpiper	A	LC	*
146.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
147.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
148.	*Turnix suscitator*	Common Buttonquail	T	LC	
149.	*Tyto alba*	Barn Owl	T	LC	*
150.	*Upupa epops*	Hoopoe	T	LC	
151.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
152.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
153.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.62.4. IUCN Status of major plant invasive alien species in Odiyur Lagoon

S. No.	Species	Family	Tamil Name
1.	*Argemone mexicana*	Papaveraceae	Nai Kadugu
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Parthenium hysterophorus*	Compositae	Vishachedi
5.	*Prosopis julifera*	Fabaceae	Semai karuvel
6.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
7.	*Senna siamea*	Fabaceae	
8.	*Typha angustifolia*	Typhaceae	Sambu
9.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.62.5. IUCN Status of major animal invasive alien species in Odiyur Lagoon

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.62.6. IUCN Status of major medicinal plant species in Odiyur Lagoon

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
5.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
6.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
7.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
8.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
9.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE

10.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
11.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
12.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
13.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
14.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
15.	*Pedalium murex*	Pedaliaceae		Herb	NE
16.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
17.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
18.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
19.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
20.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.63. YEDAYANTHITTU ESTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Yedayathittu Estuary

1.1 *Name of the Village (s), Tehsil (s), Municipal area (s):* Kottaikadu village, Tindivanam, Marakanam, Mudaliarkuppam, Kadapakkam, Cheyyur

1.2 *Name of the District (s) in which Wetlands complex located:* Villupuram

1.3 *Geographical coordinates:*

► Latitude: 11˚44’8.4804” N

► Longitude: 79˚47’2.2668” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 994.19 ha

2.2 *Wetland type*:

Category	Subcategory
❒ Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
✓ Natural (Coastal)	❒ Coastal lagoon ✓ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reef
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 3; Maximum - 4.5

2.4 *Elevation (m above mean sea level):* 0

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ❒ Catchment runoff
- ✓ Direct/ indirect inflow from the river: Sankarabarani River is one of the sources of water
- ✓ Others, please specify: Backwaters from Bay of Bengal
- ❒ Name of River/ Canal System

b) Water performance

- ✓ Mostly permanent
- ❒ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ❒ Brackish (0.5-30 g/l)
- ✓ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 252.7

b) Temperature (°C) Minimum 26.1 ; Maximum 38.2

c) Humidity (%) Minimum 63.2 ; Maximum 70.2

2.7 *Area of zone of influence (in ha):* 12439.64 ha (with an irregular radius of 0.65 km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	23%
Agriculture	:	25%
Settlements (Rural)	:	18%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	33%
Beach	:	1%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.63 (Fig. 3.63.1-3.63.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 64 species (refer to Table 3.63.1 in Annexure 3.63).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 161 recorded species. This includes 5 mammal species, 21 reptile species, 9 amphibian species, 114 bird species, and 12 species of butterflies (refer to Table 3.63.2 in Annexure 3.63).

3.3 *Species of conservation significance:* Highlighted in Table 3.63.1-3.63.3

3.4 *Major plant invasive alien species:* The Wetland supports 10 plant invasive species (refer to Table 3.63.4 in Annexure 3.63).

3.5 *Major animal invasive alien species:* The Wetland supports 2 animal invasive species (refer to Table 3.63.5 in Annexure 3.63).

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	❒ Yes ✓ No	
Fisheries	✓ Yes ❒ No	Communal fishing is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.63.6 (Annexure 3.63)
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	✓ Yes ❒ No	Mangroves act as buffering agent from extreme events as floods and storms
Groundwater recharge	❒ Yes ✓ No	
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variants of amphibians has been surviving
Mining	❒ Yes ✓ No	
Mangroves	✓ Yes ❒ No	Mangroves are essential for Carbon sequestration.

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Communal fishing is happening
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing activity is done by cattle
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ✓ Not assessed	Boating is there for fishing
Any other	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest of biological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Encroachment	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.63.4-3.63.5 in Annexure 3.63
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary is well		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary			

		❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Ali, S. (2002). The Book of Indian Birds (13th Revised Edition). Oxford University Press, New Delhi, 326pp.
2. Balachandran S (1994) Some interesting bird records from Kaliveli Lake near Pondicherry. J Bombay Nat Hist Soc 91:317–318.
3. Bhalla RS, Prasadm KVD (2009) Landscape assessment of the Kaliveli basin, Midterm project report, p 46.
4. Gamble, J.S. and C.E.C. Fischer. 1915-1935. Flora of Presidency of Madras, Adlard and Son, London. pp. 1-3.
5. Henry, A.N., Chithra, V.N. and Balakrishnan, P. (1989) Flora of Tamil Nadu India. Series 1: Analysis. Vol. III. Botanical Survey of India, Coimbatore.

6. *K. Ratnam* Bird of Tamil Nadu
7. Kamalakannan, M.& P.O.Nameer (2019). A checklist of mammals of Tamil Nadu, India. Journal of Threatened Taxa 11(8): 13992–14009; https://doi.org/10.11609/jott.4705.11.8.13992–14009.
8. Kehimkar I. The Book of Indian Butterflies. Bombay Natural History Society, 2008, 497.
9. Mathew, K. M. 1981. The Material for the Flora of the Tamilnadu Carnatic, Madras, India.
10. Matthew, K. M. 1982. Illustrations on the Flora of the Tamilnadu Carnatic. Vol. II. The Diocesan press, Madras, India.
11. Matthew, K. M. 1983. The Flora of Tamilnadu Carnatic. Vol. III. The Diocesan press, Madras, India.
12. Matthew, K. M. 1988. Further Illustrations on the Flora of the Tamilnadu Carnatic. Vol. IV. The Diocesan press, Madras, India.
13. Nair, N.C. and A.N. Henry. 1983. Flora of Tamil Nadu, India.Series 1, Vol. 1, Botanical Survey of India, Southern Circle, Coimbatore. 1-184.
14. Pieter (1987) Kaliveli tank and Yedayanthittu Estuary – a little known Wetland habitat in Tamil Nadu. J Bombay Nat Hist Soc 84:210–214

ANNEXURE 3.63

Fig 3.63.1. Zone of Influence of Yedayanthittu Estuary

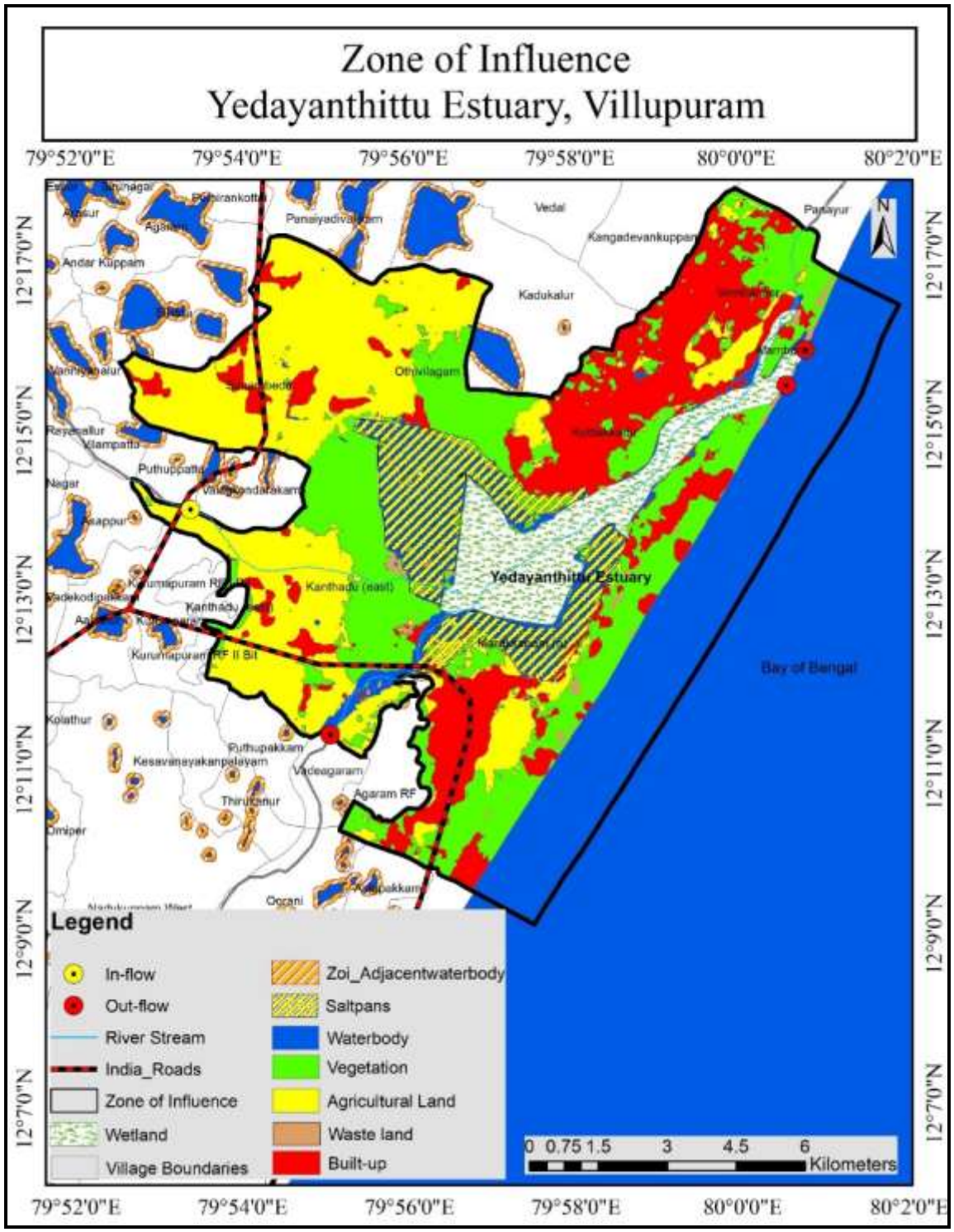


Fig 3.63.2. Map (2011 *vs.* 2024) and Land Use/ Land Cover of Yedayanthittu Estuary

Map of the Wetland in 2011



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

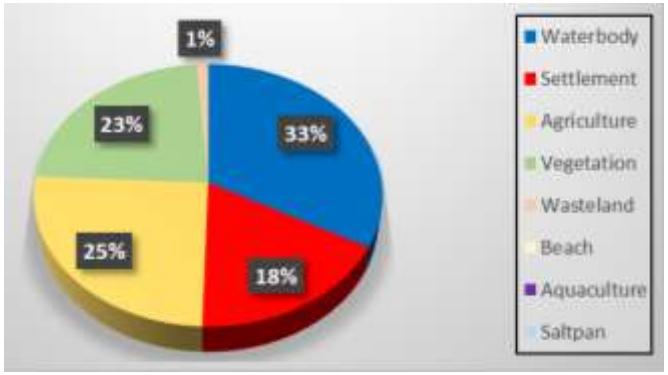


Table 3.63.1. IUCN Status of Floral Species in Yedayanthittu Estuary

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Aeluropus lagopoides*	Poaceae	Kadal Arugampullu	Grass	NE
9.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Cyperus squarrosus*	Cyperaceae		Sedge	NE
20.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
21.	*Digitaria ciliaris*	Poaceae		Grass	NE
22.	*Emilia sonchifolia*	Astereceae	Muyalccevi	Herb	NE
23.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
24.	*Geniosporum tenuiflorum*	Laminaceae	Nallathulasi	Herb	NE
25.	*Gisekia pharnaceoides*	Gisekiaceae	Kolikkirai	Herb	NE

26.	*Glinus lotoides*	Molluginaceae	Cerupattai	Herb	NE
27.	*Glinus oppositifolius*	Molluginaceae	Thurapundu	Herb	NE
28.	*Heliotropium curassavicum*	Boraginaceae		Herb	LC
29.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
30.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
31.	*Ischaemum indicum*	Poaceae	-	Grass	LC
32.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
33.	*Justicia prostrata*	Acanthaceae		Herb	NE
34.	*Launaea bellidifolia*	Asteraceae		Herb	LC
35.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
36.	*Lepisanthes tetraphylla*	Sapindaceae	Neykkoddaan	Tree	LC
37.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
38.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
39.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
40.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
41.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
42.	*Pedalium murex*	Pedaliaceae		Herb	NE
43.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
44.	*Prosopis cineraria*	Fabaceae	Vani	Tree	LC
45.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
46.	*Salacia chinensis*	Celastraceae		Tree	LC
47.	*Salvadora persica*	Salvodaraceae	Peruvilla	Tree	LC
48.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
49.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
50.	*Senna siamea*	Fabaceae		Tree	LC
51.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
52.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE

53.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
54.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
55.	*Suaeda maritima*	Amaranthaceae		Herb	LC
56.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
57.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
58.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
59.	*Trachys muricata*	Poaceae	-	Grass	LC
60.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
61.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
62.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
63.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
64.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.63.2. IUCN Status of Selected Fauna Species in Yedayanthittu Estuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Macaca radiata*	Cercopithecidae	Bonnet macaque		*
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
3.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
4.	*Rattus rattus*	Muridae	House rat	LC	*
5.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	*
4.	*Lygosoma punctata*	Scincidae	Garden skink	LC	

5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	*
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	
11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	*
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	*
21.	*Lissemys punctata*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*

7.	*Ramanella variegata*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*		Common tree frog	LC	
D. Butterfly					
1.	*Euploea core*	Nymphalidae	Common crow	LC	*
2.	*Catopsilia pomona*	Pieridae	Common Emigrant	NE	*
3.	*Melanitis leda*	Nymphalidae	Common evening brown	LC	*
4.	*Eurema hecabe*	Pieridae	Common grass yellow	LC	*
5.	*Papilio demoleus*	Papilionidae	Common lime	NE	*
6.	*Papilio polytes*	Papilionidae	Common mormon	NE	*
7.	*Junonia lemonias*	Nymphalidae	Lemon pansy	NE	*
8.	*Catopsilia pyranthe*	Pieridae	Mottled Emigrant	NE	*
9.	*Pseudozizeeria maha*	Lycaenidae	Pale Grass Blue	NE	*
10.	*Junonia almana*	Nymphalidae	Peacock pansy	LC	*
11.	*Danaus chrysippus*	Nymphalidae	Plain tiger	LC	*
12.	*Acraea violae*	Nymphalidae	Tawny coster	LC	*

LC – Least Concern; * - Yes

Table 3.63.3. IUCN Status of Bird Species in Yedayanthittu Estuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Alauda gulgula*	Oriental Skylark	T	LC	
5.	*Alcedo atthis*	Common Kingfisher	T	LC	*
6.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
7.	*Anas acuta*	Northeren Pintail	A	LC	

8.	*Anas clypeata*	Northern shoveler	A	LC	
9.	*Anas penelope*	Wigeon	A	LC	
10.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
11.	*Anas querquedula*	Garganey	A	LC	
12.	*Anastomus oscitans*	Asian Openbill	A	LC	
13.	*Anthus richardi*	Richard's Pipit	D	LC	
14.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
15.	*Apus affinis*	House Swift	T	LC	
16.	*Ardea cinerea*	Grey Heron	A	LC	*
17.	*Ardea purpurea*	Purple Heron	A	LC	
18.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
19.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
20.	*Athene brama*	Spotted Owlet	T	LC	
21.	*Bubulcus ibis*	Cattle Egret	D	LC	*
22.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
23.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
24.	*Casmerodius albus*	Great Egret	A	LC	
25.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
26.	*Charadrius dubius*	Little Ringed Plover	A	LC	
27.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
28.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
29.	*Ciconia ciconia*	White Stork	A	LC	
30.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
31.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
32.	*Circus macrourus*	Pallid Harrier	T	LC	
33.	*Circus melanoleucos*	Pied Harrier	T	LC	
34.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
35.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
36.	*Columba livia*	Rock Pigeon	T	LC	
37.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
38.	*Coracias benghalensis*	Indian Roller	T	LC	*

39.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
40.	*Corvus splendens*	House Crow	T	LC	*
41.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
42.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
43.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
44.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
45.	*Dupetor flavicollis*	Black Bittern	A	LC	
46.	*Egretta gularis*	Western reef heron	A	LC	
47.	*Egretta garzetta*	Little Egret	A	LC	*
48.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
49.	*Ephippiorhynchus asiaticus*	Black Necked Stork	A	LC	
50.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
51.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
52.	*Falco tinnunculus*	Common Kestrel	T	LC	
53.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
54.	*Fulica atra*	Coot	A	LC	
55.	*Gallicrex cinerea*	Watercock	A	LC	
56.	*Gallinula chloropus*	Common Moorhen	A	LC	*
57.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
58.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
59.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
60.	*Haliastur indus*	Brahminy Kite	T	LC	*
61.	*Hieraaetus pennatus*	Booted eagle	T	LC	
62.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
63.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
64.	*Hirundo rustica*	Barn Swallow	T	LC	
65.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
66.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
67.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
68.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	

69.	*Limosa limosa*	Black-tailed Godwit	A	LC	
70.	*Lonchura malacca*	Black-headed Munia	D	LC	
71.	*Merops orientalis*	Green Bee-eater	T	LC	*
72.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
73.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
74.	*Milvus migrans*	Black Kite	T	LC	*
75.	*Motacilla flava*	Yellow Wagtail	D	LC	
76.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
77.	*Mycteria leucocephala*	Painted stork	A	LC	
78.	*Nectarinia lotenia*	Loten's Sunbird	T	LC	
79.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	
80.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
81.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
82.	*Passer domesticus*	House Sparrow	T	LC	*
83.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
84.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
85.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
86.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
87.	*Phoenicopterus roseus*	Flamingo	A	LC	
88.	*Phoeniconaias minor*	Lesser Flamingo	A	NT	
89.	*Platalea leucorodia*	Spoonbill	A	LC	
90.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
91.	*Ploceus manyar*	Streaked Weaver	T	LC	
92.	*Pluvialis squatarola*	Grey Plover	A	LC	
93.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
94.	*Prinia inornata*	Plain Prinia	T	LC	
95.	*Prinia socialis*	Ashy Prinia	T	LC	*
96.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
97.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
98.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	

99.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
100.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
101.	*Sterna aurantia*	River Tern	A	LC	
102.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
103.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
104.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
105.	*Tadorna ferruginea*	Ruddy Shelduck	A	LC	
106.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
107.	*Tringa glareola*	Wood Sandpiper	A	LC	*
108.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
109.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
110.	*Tyto alba*	Barn Owl	T	LC	
111.	*Upupa epops*	Hoopoe	T	LC	
112.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
113.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
114.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.63.4. IUCN Status of major plant invasive alien species in Yedayanthitu Wetland

S. No.	Species	Family	Tamil Name
1.	*Ipomoea carnea*	Convolvulaceae	
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Martynia annua*	Martyniaceae	Thael Kodukku
4.	*Parthenium hysterophorus*	Compositae	Vishachedi
5.	*Pedalium murex*	Pedaliaceae	
6.	*Prosopis julifera*	Fabaceae	Semai karuvel
7.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
8.	*Senna siamea*	Fabaceae	
9.	*Typha angustifolia*	Typhaceae	Sambu
10.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.63.5. IUCN Status of major animal invasive alien species in Yedayanthitu Wetland

S. No.	Species	Family	Common name	IUCN
A. Mammal				
1.	*Rattus rattus*	Muridae	House Rat	LC
B. Reptile				
2.	*Hemidactylus Frenatus*	Gekkonidae	House gecko	LC

Table 3.63.6. IUCN Status of major medicinal plant species in Yedayanthitu Wetland

S. No.	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb
7.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
8.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Mukia leiosperma*	Cucurbitaceae		Climber
11.	*Pedalium murex*	Pedaliaceae		Herb
12.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
13.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
14.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
15.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb
16.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber
17.	*Typha angustifolia*	Typhaceae	Sambu	Herb

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map

- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.64. OUSSUDU LAKE BIRDS SANCTUARY

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**
  - Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.
  - Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25
  - Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Oussudu Wetland Bird Sanctuary Wetland or Oussudu Lake or Oosteri Lake or Oosudu Lake

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Vanur, Putturai, Vazhudhayur, Oussudu, Aishwarya Nagar, Pathukannu,

1.3 *Name of the District (s) in which Wetlands complex located:* Villupuram

1.4 *Geographical coordinates:*

- Latitude: 11˚56'19.51" N
- Longitude: 79˚44'7.27" E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 775.73 ha

2.2 *Wetland type*:

Category	Subcategory
✓ Natural (Inland)	❒ Permanent lakes
	✓ Seasonal/ intermittent lakes
	❒ Permanent streams/ creeks
	❒ Seasonal/ intermittent streams/ creeks
	❒ Oxbow
	❒ River floodplain
	❒ Permanent freshwater marshes
	❒ Seasonal/ intermittent freshwater marshes
	❒ Shrub-dominated Wetlands
	❒ Tree-dominated Wetlands
	❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
❒ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ❒ Mangroves ❒ Coral reef
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 2.5; Maximum - 4

2.4 *Elevation (m above mean sea level):* 16

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from the river
- ✓ Others, please specify: Sankarabarani River is one of the sources of water
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ✓ Eutrophic
- ❒ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 241.5

b) Temperature (°C) Minimum 26.1 ; Maximum 38.2

c) Humidity (%) Minimum 63.2 ; Maximum 70.2

2.7 *Area of zone of influence (in ha):* 4949.61 ha (with an irregular radius of 4.27 km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	17%
Agriculture	:	48%
Settlements (Rural)	:	30%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	5%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 3.64 (Fig. 64.1-64.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 58 species. (refer to Table 3.64.1 in Annexure 64).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 173 recorded species. This includes 3 mammal species, 7 reptile species, 8 amphibian species, 142 bird species, and 13 species of butterflies (refer to Table 3.64.2-3.64.3 in Annexure 64).

3.3 *Species of conservation significance:* Highlighted in Table 3.64.1-3.64.3.

3.4 *Major plant invasive alien species:* The Wetland supports 5 plant invasive species (refer to Table 3.64.4 in Annexure 3.64).

3.5 *Major animal invasive alien species:* Not available.

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Surpluses from the Wetland and then supplied to the fields, only when it reaches full supply level (FSL)
Fisheries	❒ Yes ✓ No	
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland. Which is listed in Table 3.64.5 (Annexure 3.64)
Is a recreational site	✓ Yes ❒ No	Receives a good population of nature enthusiasts
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	✓ Yes ❒ No	significant runoff from the surrounding catchment area
Has significant cultural and religious values	✓ Yes ❒ No	There is several temples around the Wetland
Is a site for recreation and tourism	✓ Yes ❒ No	Receives a good population of nature enthusiasts as tourists
Supports noteworthy plants species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	

Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.
Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 8 amphibian species were found
Mining	❒ Yes ✓ No	
Any other	❒ Yes ✓ No	

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Grazing	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Religious practices	✓Yes ❒No	❒Yes ❒No ✓Not assessed	There is several temples around the Wetland

Withdrawal of water for domestic use	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Withdrawal of water for agriculture or fisheries	✓ Yes ❒ No	❒ Yes ❒ No ❒ Not assessed	When it reaches the FSL
Bathing or wallowing of domestic animals	❒ Yes ✓ No	❒ Yes ❒ No ❒ Not assessed	
Plying of boats	✓ Yes ❒ No	❒ Yes ❒ No ❒ Not assessed	For recreational purpose
Any other	❒ Yes ❒ ✓ No	❒ Yes ❒ No ❒ Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Pollution	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Unsustainable harvest ofbiological resources	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Mining	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	
Siltation	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Substantial water flow from the surrounding watershed
Encroachment	❒ High	❒ Present	

	❒ Medium ❒ Low	❒ Potential	
Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.64.4-3.64.5 in Annexure 64
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary			

		❒ Zone of influence			
Construction of boat jetties, and facilities for temporary use, as pantoon bridges		✓ Wetland/ Wetland complex boundary ❒ Zone of influence			There is wooden boat jetties
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
		❒ Wetland/ Wetlands complex boundary ❒ Zone of influence	

Section 9: Listing of Available Scientific Resources Used

1. Abhisheka, K., David, J. P., Prashanth, M. B., Seshadri, K. S., & Ganesh, T. (2013). First detailed survey of waterbirds in Tirunelveli and Tuticorin districts, Tamil Nadu, India. *Journal of Threatened Taxa, 5*(12), 4641–4652. https://doi.org/10.11609/JoTT.o3125.4641-52
2. Aengals, R., Sathish Kumar, V. M., Palot, M. J., & Ganesh, S. R. (2018). A checklist of reptiles of India (Version 3.0). 35 pp. Online publication available at www.zsi.gov.in (Last update: May 2018).
3. Ali, S. (2002). *The book of Indian birds* (13th revised ed.). Oxford University Press.

4. Bibby, C. J., Burgess, N. D., & Hill, D. A. (1993). *Bird census techniques*. Academic Press.
5. Gamble, J. S., & Fischer, C. E. C. (1915-1935). *Flora of Presidency of Madras*. Adlard and Son.
6. Grimmet, R., Inskipp, C., & Inskipp, T. (2000). *Pocket guide to the birds of the Indian subcontinent*. Oxford University Press.
7. Henry, A. N., Chithra, V. N., & Balakrishnan, P. (1989). *Flora of Tamil Nadu India. Series 1: Analysis* (Vol. III). Botanical Survey of India.
8. Kamalakannan, M., & Nameer, P. O. (2019). A checklist of mammals of Tamil Nadu, India. *Journal of Threatened Taxa, 11*(8), 13992–14009. https://doi.org/10.11609/jott.4705.11.8.13992–14009
9. Kehimkar, I. (2008). *The book of Indian butterflies*. Bombay Natural History Society.
10. K. Ratnam. (n.d.). *Birds of Tamil Nadu*.
11. Mathew, K. M. (1981). *The material for the flora of the Tamilnadu Carnatic*. Madras, India.
12. Mathew, K. M. (1982). *Illustrations on the flora of the Tamilnadu Carnatic* (Vol. II). The Diocesan Press.
13. Mathew, K. M. (1983). *The flora of Tamilnadu Carnatic* (Vol. III). The Diocesan Press.
14. Mathew, K. M. (1988). *Further illustrations on the flora of the Tamilnadu Carnatic* (Vol. IV). The Diocesan Press.
15. Nair, N. C., & Henry, A. N. (1983). *Flora of Tamil Nadu, India. Series 1* (Vol. 1). Botanical Survey of India, Southern Circle.
16. Rajakumari, M., Paramanantha Swami Doss, D., Balamurugan, S., Nivetha, S., & Suthakar Isaac, S. (2021). Bird community of Koonthankulam bird sanctuary, Tamil Nadu, India. *International Journal of Zoology and Applied Biosciences, 6*(3), 168-177.

ANNEXURE 3.64

Fig. 3.64.1. Zone of Influence of Oussudu Wetland Bird Sanctuary

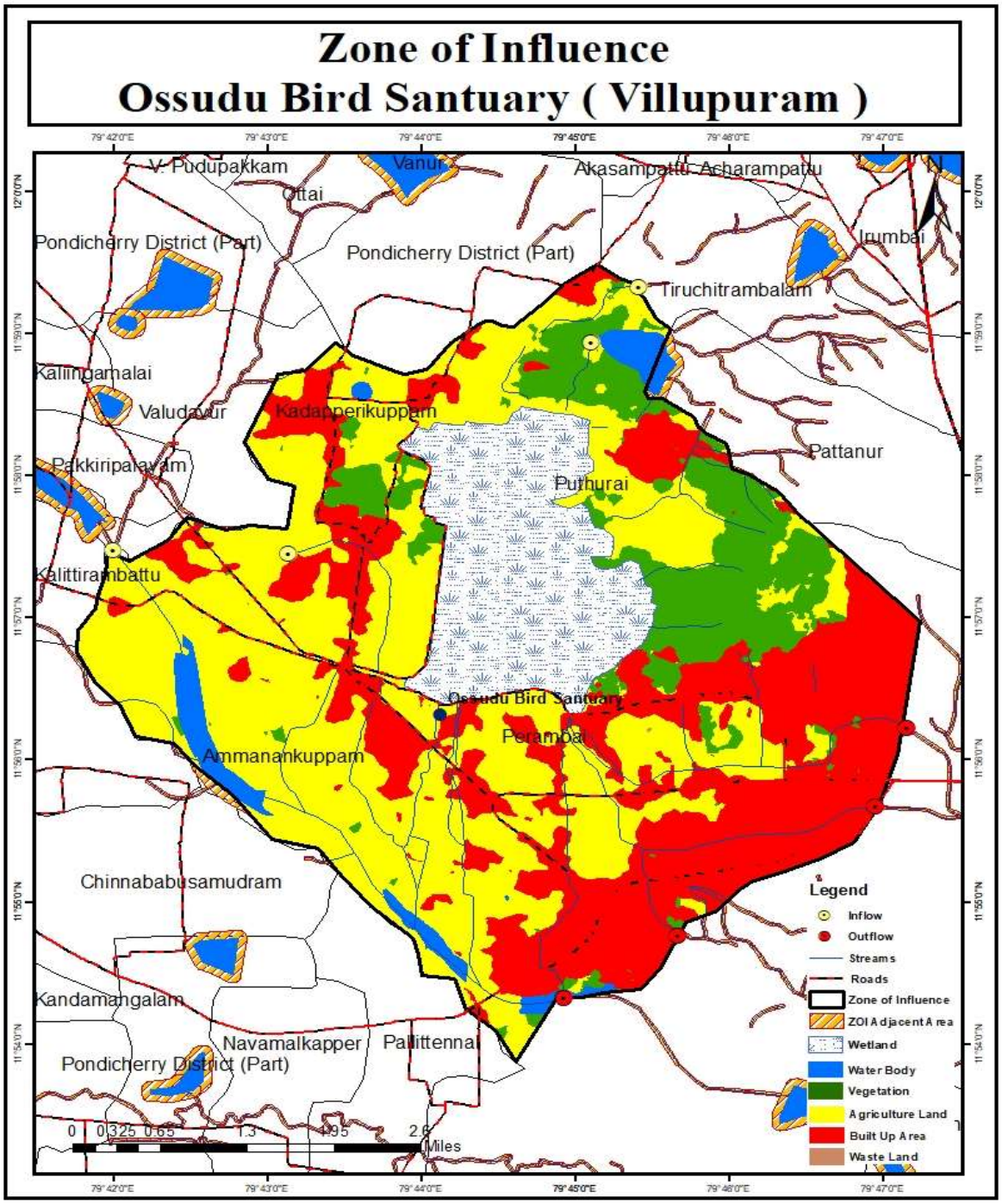


Fig. 3.64.2. Map (2004 *vs*. 2024) and Land Use/ Land Cover of Oussudu Wetland Bird Sanctuary

Map of the Wetland in 2011



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

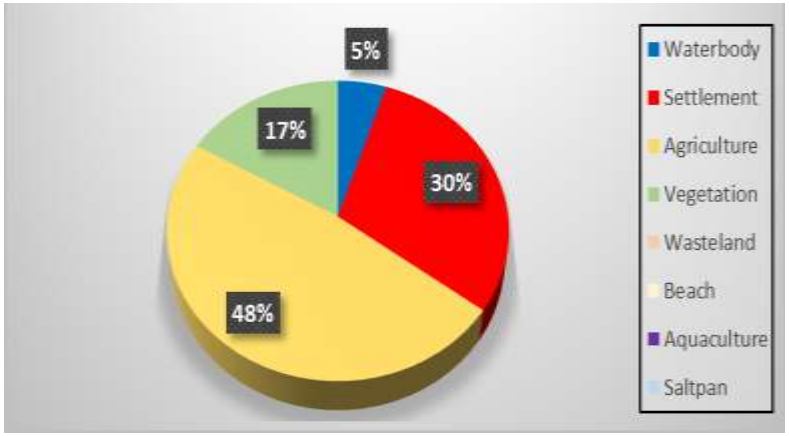


Table 3.64.1. IUCN Status of Floral Species in Oussudu Wetland Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acacia nilotica*	Fabaceae	Karuvel	Tree	LC
4.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
5.	*Acanthospermum hispidum*	Compositae		Herb	NE
6.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
7.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
8.	*Albizia lebbeck*	Mimosaceae	Vaagai	Tree	LC
9.	*Albizia saman*	Fabaceae	Rain tree	Tree	LC
10.	*Azadiracta indica*	Meliaceae	Vembu	Tree	LC
11.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
12.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
13.	*Brachiaria ramosa*	Poaceae		Grass	NE
14.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
15.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
16.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
17.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
18.	*Commelina benghalensis*	Commelinaceae	Kanaangozhai	Herb	LC
19.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
20.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
21.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
22.	*Digitaria abludens*	Poaceae		Grass	NE
23.	*Digitaria ciliaris*	Poaceae		Grass	NE
24.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
25.	*Ficus benghalensis*	Moraceae	Allamaram	Tree	LC
26.	*Ficus recemosa*	Moraceae	Cluster fig	Tree	LC

27.	*Ficus religiosa*	Moraceae	Arasamaram	Tree	LC
28.	*Hyptis suaveolens*	Labiatae		Shrub	NE
29.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
30.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
31.	*Isachne miliacea*	Poaceae	-	Grass	LC
32.	*Ischaemum indicum*	Poaceae	-	Grass	LC
33.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
34.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
35.	*Justicia prostrata*	Acanthaceae		Herb	NE
36.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
37.	*Leptochloa fusca*	Poaceae	Mandaipul	Grass	LC
38.	*Leucas aspera*	Labiatae	Thumbai	Herb	LC
39.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
40.	*Morinda tinctoria*	Rubiaceae	Manjanathi	Tree	NE
41.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
42.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
43.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
44.	*Santalum album*	Santalaceae	Chanthanam	Tree	LC
45.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
46.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
47.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
48.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
49.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
50.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
51.	*Thevetia peruviana*	Apocynaceae	Ponnarali	Shrub	NE
52.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
53.	*Trachys muricata*	Poaceae		Grass	LC

54.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
55.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb	LC
56.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
57.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
58.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.64.2. IUCN Status of Selected Fauna Species in Oussudu Wetland Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Funambulus pennantii*	Sciuridae	Five striped Palm squirrel	LC	*
2.	*Urva edwardsii*	Herpestidae	Indian grey mongoose	LC	*
3.	*Rattus argentiventer*	Muridae	Field Rat	LC	*
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Oriental Garden lizard	LC	*
2.	*Ptyas mucosa*	Colubridae	Indian Rat Snake	LC	*
3.	*Psammophilus dorsalis*	Agamidae	Peninsular Rock Agama	LC	
4.	*Xenochrophis piscator*	Colubridae	Checkered keelback	LC	
5.	*Ophisops leschenaultii*	Lacertidae	Leschenault's snake-eye	LC	
6.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
7.	*Bungarus caeruleus*	Elapidae	Common krait	LC	
C. Amphibian					
1.	*Bufo scaber*	Bufonidae	Fergusons toad	LC	*
2.	*Duttaphrynus melanostictus*	Bufonidae	Common	LC	*

			indian toad		
3.	*Kaloula taprobanica*	Microhylidae	Painted frog	LC	*
4.	*Uperodon systoma*	Microhylidae	Marbled ballon frog	LC	*
5.	*Polypedates maculatus*	Rhacophoridae	Common tree frog	LC	*
6.	*Euphlyctis cyanophlyctis*	Dicroglossidae	Indian skipper frog	LC	*
7.	*Fejervarya caperata*	Dicroglossidae	Cricket frog	LC	*
8.	*Fejervarya limnocharis*	Dicroglossidae	Paddy field frog	LC	*
D. Butterfly					
1.	Common crow	*Euploea core*	Nymphalidae	LC	
2.	Common Emigrant	*Catopsilia Pomona*	Pieridae	NE	*
3.	Common evening brown	*Melanitis leda*	Nymphalidae	LC	*
4.	Common grass yellow	*Eurema hecabe*	Pieridae	LC	*
5.	Common lime	*Papilio demoleus*	Papilionidae	NE	*
6.	Common mormon	*Papilio polytes*	Papilionidae	NE	*
7.	Lemon pansy	*Junonia lemonias*	Nymphalidae	NE	*
8.	Mottled Emigrant	*Catopsilia pyranthe*	Pieridae	NE	*
9.	Pale Grass Blue	*Pseudozizeeria maha*	Lycaenidae	NE	*
10.	Peacock pansy	*Junonia almanac*	Nymphalidae	LC	*
11.	Plain tiger	*Danaus chrysippus*	Nymphalidae	LC	*
12.	Blue Tiger	*Tirumala limniace*	Nymphalidae	LC	*
13.	Gram Blue	*Euchrysops cnejus*	Lycaenidae	LC	*

Table 3.64.3. IUCN Status of Bird Species in Oussudu Wetland Bird Sanctuary

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Actitis hypoleucos*	Common Sandpiper	A	LC	*
5.	*Aegithina tiphia*	Common Iora	T	LC	*

6.	*Alauda gulgula*	Oriental Skylark	T	LC	
7.	*Alcedo atthis*	Common Kingfisher	T	LC	*
8.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
9.	*Anas acuta*	Northern Pintail	A	LC	
10.	*Anas clypeata*	Northern Shoveller	A	LC	
11.	*Anas crecca*	CommonTeal	A	LC	*
12.	*Anas indicus*	Bar-headed Goose	A	LC	
13.	*Anas penelope*	EurasianWigeon	A	LC	
14.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
15.	*Anas querquedula*	Garganey	A	LC	
16.	*Anastomus oscitans*	Asian Openbill	A	LC	*
17.	*Anhinga melanogaster*	Darter	A	LC	
18.	*Anthus richardi*	Richard's Pipit	D	LC	
19.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
20.	*Apus affinis*	House Swift	T	LC	
21.	*Ardea cinerea*	Grey Heron	A	LC	*
22.	*Ardea purpurea*	Purple Heron	A	LC	
23.	*Ardeola grayii*	Indian Pond Heron	A	LC	*
24.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
25.	*Athene brama*	Spotted Owlet	T	LC	
26.	*Bubulcus ibis*	Cattle Egret	D	LC	*
27.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
28.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
29.	*Burhinus oedicnemus*	Stone Curlew	A	LC	
30.	*Butas turteesa*	White-eyed Buzzard	T	LC	
31.	*Buteo buteo*	Common Buzzard	T	LC	
32.	*Butorides striatus*	Little Green Heron	A	LC	
33.	*Cacomantis passerinus*	Indian Plaintive Cuckoo	T	LC	
34.	*Calidris ferruginea*	Curlew sandpiper	A	LC	
35.	*Calidris pugnax*	Ruf	A	LC	
36.	*Calidris minuta*	Little Stint	A	LC	*

37.	*Calidris temminckii*	Temminck's stint	A	LC	
38.	*Caprimulgus indicus*	Indian Jungle Nightjar	T	LC	
39.	*Casmerodius albus*	Great Egret	A	LC	
40.	*Centropus sinensis*	Greater Coucal	T	LC	
41.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
42.	*Charadrius alexandrinus*	Kentish Plover	A	LC	
43.	*Charadrius dubius*	Little Ringed Plover	A	LC	
44.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
45.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
46.	*Chroicocephalus brunnicephalus*	Brown-headed Gull	A	LC	
47.	*Chroicocephalus ridibundus*	Black-headed gull	A	LC	
48.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
49.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
50.	*Circus macrourus*	Pallid Harrier	T	LC	
51.	*Circus melanoleucos*	Pied Harrier	T	LC	
52.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
53.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
54.	*Columba livia*	Rock Pigeon	T	LC	
55.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
56.	*Coracias benghalensis*	Indian Roller	T	LC	*
57.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
58.	*Corvus splendens*	House Crow	T	LC	*
59.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
60.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
61.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
62.	*Dupetor flavicollis*	Black Bittern	A	LC	
63.	*Egretta garzetta*	Little Egret	A	LC	*
64.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
65.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
66.	*Eudynamys scolopacea*	Asian Koel	T	LC	*

67.	*Falco tinnunculus*	Common Kestrel	T	LC	
68.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
69.	*Fulica atra*	Coot	A	LC	
70.	*Gallinago stenura*	Pintail Snipe	A	LC	
71.	*Gallicrex cinerea*	Watercock	A	LC	
72.	*Gallinula chloropus*	Common Moorhen	A	LC	*
73.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
74.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
75.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
76.	*Haliastur indus*	Brahminy Kite	T	LC	*
77.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
78.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
79.	*Hirundo rustica*	Barn Swallow	T	LC	
80.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
81.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
82.	*Icthyophaga leucogaster*	White-bellied sea eagle	T	LC	
83.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
84.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
85.	*Limosa limosa*	Black-tailed Godwit	A	LC	
86.	*Lonchura malacca*	Black-headed Munia	D	LC	
87.	*Merops orientalis*	Green Bee-eater	T	LC	*
88.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
89.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
90.	*Milvus migrans*	Black Kite	T	LC	*
91.	*Motacilla flava*	Yellow Wagtail	D	LC	
92.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
93.	*Mycteria leucocephala*	Painted Stork	A	NT	*
94.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
95.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	*
96.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	

97.	*Orthotomus sutorius*	Common Tailorbird	T	LC	*
98.	*Pavo cristatus*	Indian Peafowl	T	LC	*
99.	*Passer domesticus*	House Sparrow	T	LC	*
100.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	*
101.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
102.	*Phalacrocorax fuscicollis*	Indian Shag	A	LC	*
103.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
104.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
105.	*Phoenicopterus ruber*	Greater Flamingo	A	LC	
106.	*Phaenicophaeus tristis*	Green-billed Malkoha	T	LC	
107.	*Platalea leucorodia*	Eurasian Spoonbill	A	LC	
108.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
109.	*Ploceus manyar*	Streaked Weaver	T	LC	
110.	*Pluvialis squatarola*	Grey Plover	A	LC	
111.	*Porphyrio porphyria*	Purple Swamphen	A	LC	*
112.	*Prinia inornata*	Plain Prinia	T	LC	*
113.	*Prinia socialis*	Ashy Prinia	T	LC	*
114.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	*
115.	*Psilopogon haemacephalus*	Coppersmith barbet	T	LC	*
116.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	*
117.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
118.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
119.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
120.	*Saxicoloides fulicata*	Indian Robin	T	LC	*
121.	*Spilornis cheela*	Crested Serpent-Eagle	T	LC	
122.	*Sterna albifrons*	Little Tern	A	LC	*
123.	*Sterna anaethetus*	Bridled Tern	A	LC	
124.	*Sterna aurantia*	River Tern	A	LC	*
125.	*Sterna caspia*	CaspianTern	A	LC	
126.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
127.	*Sturnus pagodarum*	Brahminy Starling	T	LC	*

128.	*Tachybaptus ruficollis*	Little Grebe	A	LC	*
129.	*Tachymarptis melba*	Alpine Swift	T	LC	
130.	*Tephrodornis pondicerianus*	Common Woodshrike	T	LC	
131.	*Terpsiphone paradise*	AsianParadise-Flycatcher	T	LC	
132.	*Threskiornis melanocephalus*	Oriental White Ibis	A	LC	
133.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
134.	*Tringa ochropus*	Green Sandpiper	A	LC	*
135.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
136.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
137.	*Turnix suscitator*	Common Buttonquail	T	LC	
138.	*Tyto alba*	Barn Owl	T	LC	*
139.	*Upupa epops*	Hoopoe	T	LC	
140.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
141.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	*
142.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.64.4. IUCN Status of major plant invasive alien species in Oussudu Wetland Bird Sanctuary

S. No.	Species	Family	Tamil Name
1.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
2.	*Lantana camara*	Verbenaceae	Unnichedi
3.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
4.	*Typha angustifolia*	Typhaceae	Sambu
5.	*Xanthium indicum*	Compositae	Marul oomatham

Table 3.64.5. IUCN Status of major medicinal plant species in Oussudu Wetland Bird Sanctuary

S. No.	Scientific Name of the Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC

3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
5.	*Aerva lanata*	Amaranthaceae	Peelai	Herb	NE
6.	*Azadiracta indica*	Meliaceae	Vembu	Tree	LC
7.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni	Herb	NE
8.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
9.	*Calotropis gigantea*	Asclepiadaceae	Erukku	Shrub	NE
10.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
11.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
12.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
13.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
14.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
15.	*Justicia procumbens*	Acanthaceae	Ottupillu	Herb	NE
16.	*Justicia prostrata*	Acanthaceae		Herb	NE
17.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
18.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
19.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
20.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
21.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
22.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
23.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
24.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE
25.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale

- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided

3.65. KAZHUVELI WETLAND

- **State / Union Territory:** Tamil Nadu
- **Name and address of person (s) compiling this information:**

► Dr. S. KANMANI, Professor and Director, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. SARANYA KUPPUSAMY, Visiting Professor, Centre for Environmental Studies, Anna University, Chennai – 25.

► Dr. A. MERLINE SHEELA, Associate Professor, Centre for Environmental Studies, Anna University, Chennai – 25

Section 1: Identification, Location and Jurisdiction

1.1 *Name of the Wetland:* Kazhuveli Bird Sanctuary

1.2 *Name of the Village (s), Tehsil (s), Municipal area (s):* Marakkanam, Vanur, Nadukuppam, Seyyankuppam, Chettikuppam, Anumandai, Urani, Keelputhupattu, Koonimedu, Thiruakkanur

1.3 *Name of the District (s) in which Wetlands complex located:* Viluppuram

1.4 *Geographical coordinates:*

► Latitude: 12˚7’24.888” N

► Longitude: 79˚52’45.102” E

1.5 *Name of the Department/ Agency which has jurisdiction over Wetland/ Wetland complex:* Forest Department

Section 2: Site Characteristics

2.1 *Area of Wetland:* 9588.14 ha

2.2 *Wetland type*:

Category	Subcategory
Natural (Inland)	❒ Permanent lakes ❒ Seasonal/ intermittent lakes ❒ Permanent streams/ creeks ❒ Seasonal/ intermittent streams/ creeks ❒ Oxbow ❒ River floodplain ❒ Permanent freshwater marshes ❒ Seasonal/ intermittent freshwater marshes ❒ Shrub-dominated Wetlands ❒ Tree-dominated Wetlands ❒ Geothermal Wetlands

	❒ Karst and other subterranean hydrological systems
✓ Natural (Coastal)	❒ Coastal lagoon ❒ Estuary ❒ Intertidal mud, sand or salt flats ✓ Mangroves ❒ Coral reefs
❒ Human-made	❒ Aquaculture pond ❒ Tank ❒ Saltpan ❒ Dam/ Reservoir

2.3 *Depth (m):* Average - 1.5; Maximum - 3.5

2.4 *Elevation (m above mean sea level):* 21

2.5 *Water regimes*

a) Main source of water

- ✓ Rainfall inflow from river
- ❒ Groundwater
- ✓ Catchment runoff
- ❒ Direct/ indirect inflow from river
- ✓ Others, please specify: Buckingham Canal is one of the sources of water
- ❒ Name of River/ Canal System

b) Water performance

- ❒ Mostly permanent
- ✓ Mostly intermittent

c) Destination of water from Wetland

- ✓ Feeds groundwater river to sea
- ❒ To downstream catchment

d) Water pH

- ❒ Acid (< 5.5)
- ❒ Circumneutral (5.5-7.4)
- ✓ Alkaline (> 7.4)

e) Water salinity

- ❒ Fresh (< 0.5 g/l)
- ✓ Brackish (0.5-30 g/l)
- ❒ Euhaline (30-40 g/l)
- ❒ Hypersaline (> 40 g/l)
- ❒ Not known

f) Nutrients in water

- ❒ Eutrophic
- ✓ Mesotrophic
- ❒ Oligotrophic
- ❒ Not known

2.6 *Climatic setting*

a) Annual rainfall/ Snowfall (mm): 252.7

b) Temperature (°C) Minimum 26.1 ; Maximum 38.2

c) Humidity (%) Minimum 63.2 ; Maximum 70.2

2.7 *Area of zone of influence (in ha):* 25501.31 ha (with an irregular radius of 1.12 km)

2.8 *Major land use within zone of influence*

Land Use		Percentage
Forest	:	0%
Vegetation (Plantation)	:	1%
Agriculture	:	33%
Settlements (Rural)	:	47%
Settlements (Urban)	:	0%
Industrial	:	0%
Waterbody	:	13%
Beach	:	2%
Aquaculture	:	4%

2.9 *Map of Wetland complex and zone of influence:* Enclosed as Annexure 65 (Fig. 3.65.1-3.65.2)

Section 3: Biodiversity

3.1 *Notable plant species present in Wetland:* The Wetland is home to a diverse range of plant species, totaling 64 species. This includes 8 tree species, 7 shrub species, 35 herb and sedge species, 6 climbers, and 8 types of grasses (refer to Table 3.65.1 in Annexure 3.65).

3.2 *Notable animal species present in Wetland*: The Wetland supports a variety of animal species, with a total of 159 recorded species. This includes 3 mammal species, 21 reptile species, 9 amphibian species, 144 bird species, and 12 species of butterflies (refer to Table 3.65.2-3.65.3 in Annexure 3.65).

3.3 *Species of conservation significance:* Highlighted in Table 3.65.1-3.65.3

3.4 *Major plant invasive alien species:* The Wetland supports 6 plant invasive species (refer to Table 3.65.4 in Annexure 3.65).

3.5 *Major animal invasive alien species:* Not Available

Section 4: Ecosystem Services

Importance	Relevance	Details
Source of drinking water for people living and around	❒ Yes ✓ No	
Source of water for agriculture	✓ Yes ❒ No	Water has been drawn from outflow for agricultural activities
Fisheries	✓ Yes ❒ No	Communal fishing activity is happening
Cultivation of aquatic food plants	❒ Yes ✓ No	
For buffalo wallowing and use of domesticated animals	❒ Yes ✓ No	
Medicinal plants	✓ Yes ❒ No	Few Medicinal plants around the Wetland.
Is a recreational site	❒ Yes ✓ No	
Buffering communities from extreme events as floods and storms	❒ Yes ✓ No	
Groundwater recharge	✓ Yes ❒ No	Major source of ground water recharge
Water purification	❒ Yes ✓ No	
Acts as a sink for sediments	❒ Yes ✓ No	
Has significant cultural and religious values	❒ Yes ✓ No	
Is a site for recreation and tourism	❒ Yes ✓ No	
Supports noteworthy plant species	❒ Yes ✓ No	
Support noteworthy animal species	❒ Yes ✓ No	
Site of high congregation of migratory water birds	✓ Yes ❒ No	Provides a suitable site for the high congregation of migratory water birds.

Supports life cycle of fish or amphibians	✓ Yes ❒ No	Almost 9 variety of amphibians were surviving
Mining	❒ Yes ✓ No	
Aquaculture activities	✓ Yes ❒ No	Aquaculture ponds has identified while field visit

Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	**Relevant for thesite**	**Does this negatively impact the Wetland's ecological health?**	**Brief description**
Community Fishing (without any lease or permission from government department)	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Illegal communal fishing activity
Fishing under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants (without any lease or permission from government department)	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Harvest of plants under lease from government department	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Agriculture or horticulture within Wetland	❒Yes ✓No	❒Yes ❒No ❒Not assessed	Water has been drawn from outflow for agricultural activities
Grazing	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing activity is done by cattle
Religious practices	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Withdrawal of water for domestic use	❒Yes ✓No	❒Yes ❒No	

		❒Not assessed	
Withdrawal of water for agriculture or fisheries	✓Yes ❒ No	❒Yes ❒No ✓Not assessed	Grazing activity is done by cattle
Bathing or wallowing of domestic animals	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Plying of boats	❒Yes ✓No	❒Yes ❒No ❒Not assessed	
Any other	❒Yes ✓No	❒Yes ❒No ❒Not assessed	

Section 6: Present and Potential Threats

Threat	**Degree**	**Present/ Potential**	**Additional info.**
Changes in water inflowand outflow	❒High ❒Medium ❒Low	❒Present ❒Potential	
Pollution	❒High ❒Medium ✓Low	❒Present ✓Potential	Solid waste and plastic dumping
Unsustainable harvest ofbiological resources	❒High ❒Medium ❒Low	❒Present ❒Potential	
Mining	❒High ❒Medium ❒Low	❒Present ❒Potential	
Siltation	❒High ❒Medium ❒Low	❒Present ❒Potential	
Encroachment	❒High ❒Medium ❒Low	❒Present ❒Potential	

Spread of invasive species	❒ High ❒ Medium ✓ Low	✓ Present ❒ Potential	Listed in Table 3.65.4-3.65.5 in Annexure 3.65
Any other, please list	❒ High ❒ Medium ❒ Low	❒ Present ❒ Potential	

Section 7: Activities Proposed to Be Prohibited (other than those listed in Rule 4 (2) of Wetlands Rules andRegulated

Activity	**Whether prohibited or regulated**	**Regulation within Wetlands zone of influence**	**If regulated indicates the level of regulation**	**Name of department/ agency responsible for regulation/ prohibition**	**Additional info.**
Withdrawal of water / impoundment/diversion or any other hydrological intervention		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Harvesting of resources (living / non-living)		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Grazing	Regulated	✓ Wetland/ Wetland complex boundary ❒ Zone of influence	Upto the boundary of Wetland		
Discharge of treated sewage/ effluent / wastewater		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Construction of boat jetties, and facilities for temporary use, as pantoon bridges		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			
Aquaculture, agriculture and horticulture activities within the Wetland boundaries.		❒ Wetland/ Wetland complex boundar ❒ Zone of influence			
Any other, please list		❒ Wetland/ Wetland complex boundary ❒ Zone of influence			

Section 8: Activities Proposed to be permitted

Activity	**Relevance**	**Within Wetlands or zoneof influence**	**Additional info.**
Withdrawal of water for agriculture		❒ Wetland/ Wetlands complex boundary ✓ Zone of influence	May permitted, since the surrounding area is rich in agriculture

Section 9: Listing of Available Scientific Resources Used

1. Ahmad, N. (1980). Some aspects of economic resources of Sunderbans mangrove forests of Bangladesh. In P. Soepadmo (Ed.), *Mangrove environment: Research and management* (pp. 50-51). Report on UNESCO Asian Symposium, held at University of Malaya, Kuala Lumpur, Malaysia, 25-29 August 1980.
2. Anonymous. (1991). *India 1990: A reference annual*. Research and Reference Division, Ministry of Information and Broadcasting, Govt. of India.
3. Anonymous. (1993). *Directory of Indian Wetlands*. World Wildlife Federation.
4. Anonymous. (1994). *World development report*. World Bank.
5. Bhardwaj, R., Badola, R., & Rathore, B. M. (Eds.). (2000). Conserving Wetlands: Emerging scenario. In *Proceedings of the workshop on the 'Conserving biodiversity in*

the 21st century, through integrated conservation and development planning on a regional scale' (pp. 131-138). LBSNA Mussoorie & WII Dehradun.

6. Chopra, R. (1985). *The state of India's environment*. Ambassador Press.
7. Choudhury, B. C. (2000). Conserving Wetlands: Emerging scenario. In R. Bhardwaj, R. Badola, & B. M. Rathore (Eds.), *Proceedings of the workshop on the 'Conserving biodiversity in the 21st century, through integrated conservation and development planning on a regional scale'* (pp. 131-138). LBSNA Mussoorie & WII Dehradun.
8. Das, S., Behera, S. C., Kar, A., Narendra, P., & Guha, S. (1997). Hydrogeomorphological mapping in groundwater exploration using remotely sensed data – A case study in Keonjhar District, Orissa. *Journal of the Indian Society of Remote Sensing, 25*, 247-250.
9. Das, K. K., Prasad, S. N., Roy, P. S., & Bhan, S. K. (1994). Mapping of potential crane habitat in Etawah and Mainpuri districts (U.P.) using satellite remote sensing techniques. A project report. Indian Institute of Remote Sensing, Dehradun & Salim Ali Centre for Ornithology and Natural History, Kalampalayam, Coimbatore.

ANNEXURE 3.65

Fig 3.65.1 Zone of Influence of Kazhuveli Bird Sanctuary

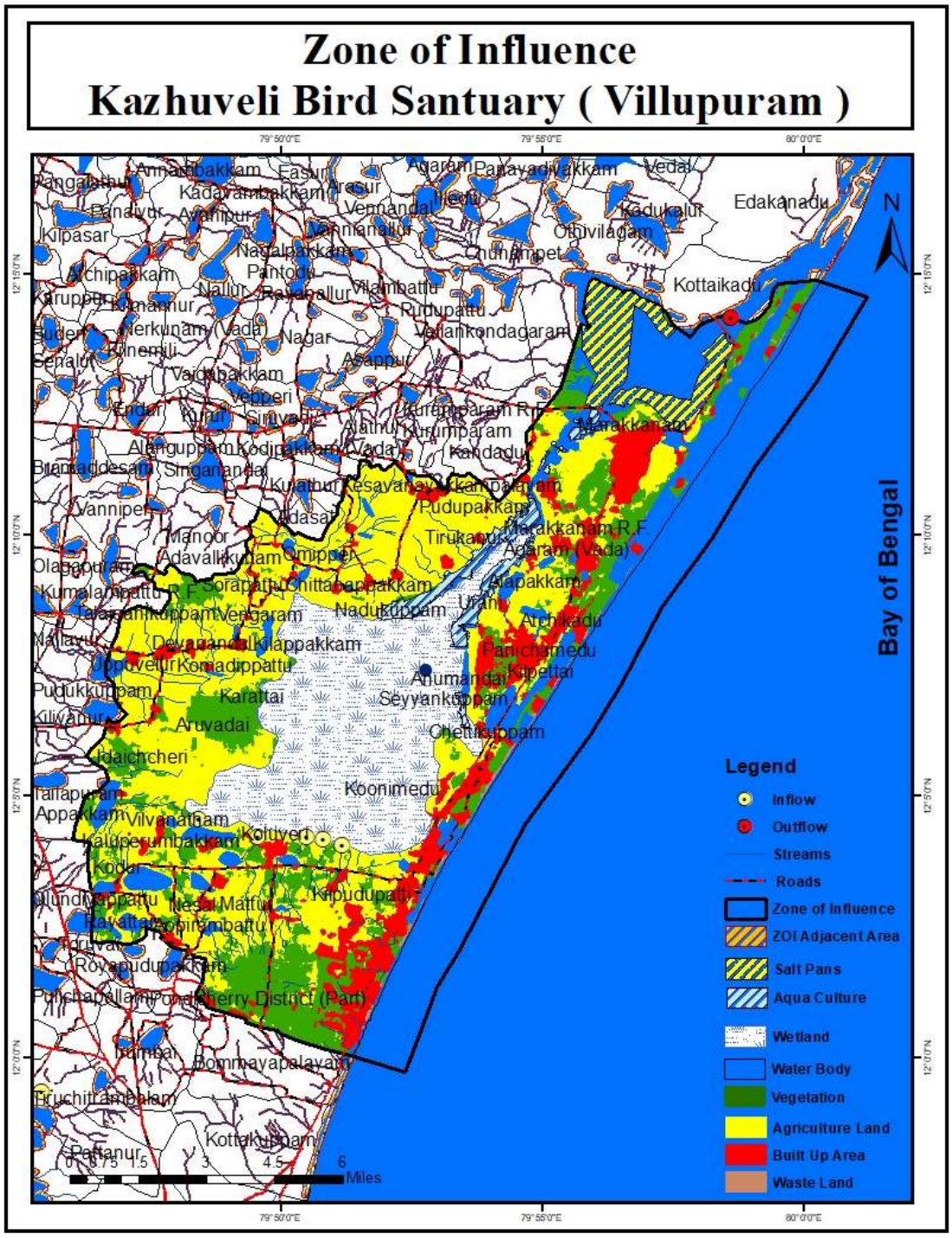


Fig. 3.65.2. Map (2004 *vs*. 2024) and Land Use/ Land Cover of Kazhuveli Bird Sanctuary

Map of the Wetland in 2011



Map of the Wetland in 2024



Land Use/ Land Cover of the Wetland

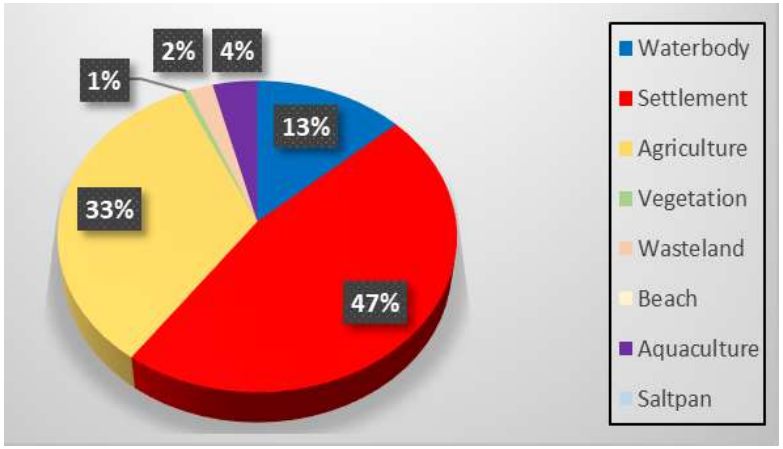


Table 3.65.1. IUCN Status of Floral Species in Kazhuveli Bird Sanctuary Wetland

S. No.	Species	Family	Tamil Name	Habit	IUCN
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber	NE
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub	LC
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb	NE
4.	*Acanthospermum hispidum*	Compositae		Herb	NE
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb	NE
6.	*Aerva lanata*	Amaranthaceae	Peelai, Sirupeelai	Herb	NE
7.	*Aeschynomene indica*	Fabaceae	Kothiram	Herb	NE
8.	*Aeluropus lagopoides*	Poaceae	Kadal Arugampullu	Grass	NE
9.	*Borassus flabellifer*	Arecaceae	Panai	Tree	LC
10.	*Boerhavia diffusa*	Nyctaginaceae	Mookarattai	Herb	NE
11.	*Brachiaria mutica*	Poaceae		Grass	NE
12.	*Calotropis gigantea*	Asclepiadaceae	Erukku, Arkkam	Shrub	NE
13.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb	NE
14.	*Chloris barbata*	Poaceae	Kodaipul	Grass	NE
15.	*Cleome viscosa*	Capparidaceae	Nai vaelai	Herb	NE
16.	*Corchorus capsularis*	Tiliaceae	Sanal	Herb	NE
17.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass	NE
18.	*Cyperus alternifolius*	Cyperaceae		Sedge	NE
19.	*Cyperus squarrosus*	Cyperaceae		Sedge	NE
20.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb	NE
21.	*Digitaria ciliaris*	Poaceae		Grass	NE
22.	*Emilia sonchifolia*	Astereceae	Muyalccevi	Herb	NE
23.	*Eragrostis viscosa*	Poaceae	-	Grass	LC
24.	*Geniosporum tenuiflorum*	Laminaceae	Nallathulasi	Herb	NE
25.	*Gisekia pharnaceoides*	Gisekiaceae	Kolikkirai	Herb	NE
26.	*Glinus lotoides*	Molluginaceae	Cerupattai	Herb	NE
27.	*Glinus oppositifolius*	Molluginaceae	Thurapundu	Herb	NE
28.	*Heliotropium*	Boraginaceae		Herb	LC

	curassavicum				
29.	*Ipomoea carnea*	Convolvulaceae		Shrub	NE
30.	*Ipomoea pes-caprae*	Convolvulaceae	Attukkal	Climber	LC
31.	*Ischaemum indicum*	Poaceae	-	Grass	LC
32.	*Jatropha gossypifolia*	Euphorbiaceae	Kaatu-amanakku	Shrub	NE
33.	*Justicia prostrata*	Acanthaceae		Herb	NE
34.	*Launaea bellidifolia*	Asteraceae		Herb	LC
35.	*Lantana camara*	Verbenaceae	Unnichedi	Shrub	LC
36.	*Lepisanthes tetraphylla*	Sapindaceae	Neykkoddaan	Tree	LC
37.	*Martynia annua*	Martyniaceae	Thael Kodukku	Herb	NE
38.	*Mollugo cerviana*	Molluginaceae	Parpaadagam	Herb	NE
39.	*Mukia leiosperma*	Cucurbitaceae		Climber	NE
40.	*Parthenium hysterophorus*	Compositae	Vishachedi	Herb	LC
41.	*Passiflora foetida*	Passifloraceae	Poonaipidukku	Climber	NE
42.	*Pedalium murex*	Pedaliaceae		Herb	NE
43.	*Phyllanthus reticulatus*	Euphorbiaceae	Inki pazham	Shrub	LC
44.	*Prosopis cineraria*	Fabaceae	Vani	Tree	LC
45.	*Prosopis julifera*	Fabaceae	Semai karuvel	Tree	LC
46.	*Salacia chinensis*	Celastraceae		Tree	LC
47.	*Salvadora persica*	Salvodaraceae	Peruvilla	Tree	LC
48.	*Salicornia brachiata*	Chenopodiaceae	Kattumari	Herb	LC
49.	*Senna occidentalis*	Caesalpiniaceae	Thagarai	Shrub	NE
50.	*Senna siamea*	Fabaceae		Tree	LC
51.	*Senna tora*	Caesalpiniaceae	Oosi thagarai	Herb	NE
52.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb	NE
53.	*Spermacoce hispida*	Rubiaceae	Nathaichoori	Herb	NE
54.	*Sphaeranthus amaranthoides*	Compositae	Siva karandhai	Herb	LC
55.	*Suaeda maritime*	Amaranthaceae		Herb	LC
56.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb	NE
57.	*Thespesia populnea*	Malvaceae	Poovarasu	Tree	LC
58.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber	NE

59.	*Trachys muricata*	Poaceae	-	Grass	LC
60.	*Trianthema portulacastrum*	Aizoaceae		Herb	NE
61.	*Tridax procumbens*	Compositae	Vettukkaaya poondu	Herb	LC
62.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber	NE
63.	*Typha angustifolia*	Typhaceae	Sambu	Herb	LC
64.	*Xanthium indicum*	Compositae	Marul oomatham	Herb	LC

Table 3.65.2. IUCN Status of Selected Fauna Species in Kazhuveli Bird Sanctuary Wetland

S. No.	Scientific Name of the Species	Family	Common Name	IUCN	Present study
A. Mammal					
1.	*Macaca radiate*	Cercopithecidae	Bonnet macaque		*
2.	*Funambulus palmarum*	Sciuridae	Three-striped palm squirrel	LC	*
3.	*Bandicota bengalensis*	Muridae	Bandicoot	LC	
B. Reptile					
1.	*Calotes versicolor*	Agamidae	Garden lizard	LC	*
2.	*Sitana ponticeriana*	Agamidae	Fan-throated lizard	LC	*
3.	*Mabuya carinata*	Scincidae	Common skink	LC	*
4.	*Lygosoma punctate*	Scincidae	Garden skink	LC	
5.	*Lygosoma albopunctata*	Scincidae	White-spotted garden skink	LC	
6.	*Varanus bengalensis*	Varanidae	Indian monitor lizard	NT	
7.	*Hemidactylus brookii*	Gekkonidae	Spotted gecko	LC	
8.	*Hemidactylus triedrus*	Gekkonidae	Termite-hill gecko	LC	*
9.	*Hemidactylus frenatus*	Gekkonidae	House gecko	LC	
10.	*Hemidactylus leschenaultia*	Gekkonidae	Bark gecko	LC	

11.	*Ramphotyphlops braminus*	Typhlopidae	Blind snake	LC	
12.	*Amphiesma stolata*	Colubridae	Striped keel back	NE	
13.	*Atretium schistosum*	Colubridae	Olive keel back	LC	
14.	*Xenochrophis piscator*	Colubridae	Checkered keel back	LC	
15.	*Ptyas mucosus*	Colubridae	Rat snake	NE	*
16.	*Ahaetulla nasuta*	Colubridae	Green vine snake	LC	*
17.	*Naja naja*	Elapidae	Cobra	LC	
18.	*Bungarus caeruleus*	Elapidae	Krait	LC	
19.	*Vipera russelli*	Viperidae	Russell's viper	LC	*
20.	*Melanochelys trijuga*	Geoemydidae	Pond turtle	LC	*
21.	*Lissemys punctate*	Trionychidae	Falpshell	VU	
C. Amphibian					
1.	*Euphlyctis hexadactylus*	Agamidae	Indian pond frog	LC	*
2.	*Euphlyctis cynophlyctis*	Colubridae	Skipper	LC	*
3.	*Tomopterna rolandae*	Agamidae	Burrowing frog	LC	
4.	*Hoplobathrachus crassus*	Colubridae	Jerdon's bull frog	LC	
5.	*Limnonectes limnocharis*	Lacertidae	Paddy Field frog	LC	
6.	*Kaloula taprobanica*	Agamidae	Painted frog	LC	*
7.	*Ramanella variegate*	Elapidae	Marbled frog	LC	
8.	*Bufo melanostictus*	Bufonidae	Indian Toad	LC	*
9.	*Polypedates maculatus*		Common tree frog	LC	
D. Butterfly					
1.	Common crow	*Euploea core*	Nymphalidae	LC	*
2.	Common Emigrant	*Catopsilia pomona*	Pieridae	NE	*
3.	Common evening brown	*Melanitis leda*	Nymphalidae	LC	*

4.	Common grass yellow	*Eurema hecabe*	Pieridae	LC	*
5.	Common lime	*Papilio demoleus*	Papilionidae	NE	*
6.	Common Mormon	*Papilio polytes*	Papilionidae	NE	*
7.	Lemon pansy	*Junonia lemonias*	Nymphalidae	NE	*
8.	Mottled Emigrant	*Catopsilia pyranthe*	Pieridae	NE	*
9.	Pale Grass Blue	*Pseudozizeeria maha*	Lycaenidae	NE	*
10.	Peacock pansy	*Junonia almana*	Nymphalidae	LC	*
11.	Plain tiger	*Danaus chrysippus*	Nymphalidae	LC	*
12.	Tawny coster	*Acraea violae*	Nymphalidae	LC	*

LC – Least Concern; * - Yes

Table 3.65.3. IUCN Status of Bird Species in Kazhuveli Bird Sanctuary Wetland

S. No.	Scientific Name of the Species	Common name	Habitat	IUCN	PS
1.	*Accipiter badius*	Shikra	T	LC	*
2.	*Acridotheres tristis*	Common Myna	T	LC	*
3.	*Acrocephalus dumetorum*	Blyth's Reed Warbler	T	LC	*
4.	*Alauda gulgula*	Oriental Skylark	T	LC	
5.	*Alcedo atthis*	Common Kingfisher	T	LC	*
6.	*Amaurornis phoenicurus*	White-breasted Waterhen	A	LC	
7.	*Anas acuta*	Northeren Pintail	A	LC	
8.	*Anas clypeata*	Northern shoveler	A	LC	
9.	*Anas penelope*	Wigeon	A	LC	
10.	*Anas poecilorhyncha*	Spot-billed Duck	A	LC	
11.	*Anas querquedula*	Garganey	A	LC	
12.	*Anastomus oscitans*	Asian Openbill	A	LC	
13.	*Anthus richardi*	Richard's Pipit	D	LC	
14.	*Anthus rufulus*	Paddy-field Pipit	D	LC	*
15.	*Apus affinis*	House Swift	T	LC	
16.	*Ardea cinerea*	Grey Heron	A	LC	*
17.	*Ardea purpurea*	Purple Heron	A	LC	
18.	*Ardeola grayii*	Indian Pond Heron	A	LC	*

19.	*Artamus fuscus*	Ashy Woodswallow	T	LC	
20.	*Athene brama*	Spotted Owlet	T	LC	
21.	*Bubulcus ibis*	Cattle Egret	D	LC	*
22.	*Burhinus oedicnemus*	Eurasian Thick-knee	A	LC	
23.	*Burhinus recurvirostris*	Great Thick-knee	A	LC	
24.	*Casmerodius albus*	Great Egret	A	LC	
25.	*Ceryle rudis*	Pied Kingfisher	D	LC	*
26.	*Charadrius dubius*	Little Ringed Plover	A	LC	
27.	*Chlidonias hybridus*	Whiskered Tern	A	LC	
28.	*Chlidonias leucopterus*	White-winged Tern	A	LC	
29.	*Ciconia ciconia*	White Stork	A	LC	
30.	*Ciconia episcopus*	Woolly-necked Stork	A	LC	
31.	*Circus aeruginosus*	Eurasian Marsh Harrier	D	LC	
32.	*Circus macrourus*	Pallid Harrier	T	LC	
33.	*Circus melanoleucos*	Pied Harrier	T	LC	
34.	*Cisticola juncidis*	Zitting Cisticola	T	LC	
35.	*Clamator jacobinus*	Pied Cuckoo	T	LC	
36.	*Columba livia*	Rock Pigeon	T	LC	
37.	*Copsychus saularis*	Oriental Magpie Robin	T	LC	
38.	*Coracias benghalensis*	Indian Roller	T	LC	*
39.	*Corvus macrorhynchus*	Large-billed Crow	T	LC	*
40.	*Corvus splendens*	House Crow	T	LC	*
41.	*Cypsiurus balasiensis*	Asian Palm Swift	T	LC	*
42.	*Dendrocitta vagabunda*	Rufous Treepie	T	LC	*
43.	*Dicrurus adsimilis*	Black Drongo	T	LC	*
44.	*Dinopium benghalense*	Black-rumped Flameback	T	LC	
45.	*Dupetor flavicollis*	Black Bittern	A	LC	
46.	*Egretta gularis*	Western reef heron	A	LC	
47.	*Egretta garzetta*	Little Egret	A	LC	*
48.	*Elanus caeruleus*	Black-shouldered Kite	T	LC	*
49.	*Ephippiorhynchus asiaticus*	Black Necked Stork	A	LC	

50.	*Eremopterix grisea*	Ashy-crowned Sparrow Lark	T	LC	
51.	*Eudynamys scolopacea*	Asian Koel	T	LC	*
52.	*Falco tinnunculus*	Common Kestrel	T	LC	
53.	*Francolinus pondicerianus*	Grey Francolin	T	LC	*
54.	*Fulica atra*	Coot	A	LC	
55.	*Gallicrex cinerea*	Watercock	A	LC	
56.	*Gallinula chloropus*	Common Moorhen	A	LC	*
57.	*Gelochelidon nilotica*	Gull-billed Tern	A	LC	
58.	*Glareola maldivarum*	Oriental Pratincole	A	LC	
59.	*Halcyon smyrnensis*	White-throated Kingfisher	D	LC	*
60.	*Haliastur indus*	Brahminy Kite	T	LC	*
61.	*Hieraaetus pennatus*	Booted eagle	T	LC	
62.	*Hierococcyx varius*	Common Hawk Cuckoo	T	LC	
63.	*Himantopus himantopus*	Black-winged Stilt	A	LC	
64.	*Hirundo rustica*	Barn Swallow	T	LC	
65.	*Hirundo smithii*	Wire-tailed Swallow	T	LC	
66.	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	A	LC	
67.	*Ixobrychus cinnamomeus*	Cinnamon Bittern	A	LC	
68.	*Ixobrychus sinensis*	Yellow Bittern	A	LC	
69.	*Limosa limosa*	Black-tailed Godwit	A	LC	
70.	*Lonchura malacca*	Black-headed Munia	D	LC	
71.	*Merops orientalis*	Green Bee-eater	T	LC	*
72.	*Merops philippinus*	Blue-tailed Bee-eater	T	LC	
73.	*Mesophoyx intermedia*	Intermediate Egret	A	LC	
74.	*Milvus migrans*	Black Kite	T	LC	*
75.	*Motacilla flava*	Yellow Wagtail	D	LC	
76.	*Motacilla maderaspatensis*	White-browed Wagtail	T	LC	
77.	*Mycteria leucocephala*	Painted stork	A	LC	
78.	*Nectarinia lotenia*	Loten’s Sunbird	T	LC	
79.	*Nycticorax nycticorax*	Black-crowned Night Heron	A	LC	

80.	*Oriolus oriolus*	Eurasean Golden Oriole	T	LC	
81.	*Orthotomus sutorius*	Common Tailorbird	T	LC	
82.	*Passer domesticus*	House Sparrow	T	LC	*
83.	*Pelecanus philippensis*	Spot-billed Pelican	A	LC	
84.	*Phalacrocorax carbo*	Great Cormorant	A	LC	
85.	*Phalacrocorax niger*	Little Cormorant	A	LC	*
86.	*Phalaropus lobatus*	Red-necked Phalarope	A	LC	
87.	*Phoenicopterus roseus*	Flamingo	A	LC	
88.	*Phoeniconaias minor*	Lesser Flamingo	A	NT	
89.	*Platalea leucorodia*	Spoonbill	A	LC	
90.	*Plegadis falcinellus*	Glossy Ibis	A	LC	*
91.	*Ploceus manyar*	Streaked Weaver	T	LC	
92.	*Pluvialis squatarola*	Grey Plover	A	LC	
93.	*Porphyrio porphyrio*	Purple Swamphen	A	LC	*
94.	*Prinia inornata*	Plain Prinia	T	LC	
95.	*Prinia socialis*	Ashy Prinia	T	LC	*
96.	*Psittacula krameri*	Rose-ringed Parakeet	T	LC	
97.	*Pycnonotus cafer*	Red-vented Bulbul	T	LC	
98.	*Pycnonotus jocosus*	Red-whiskered Bulbul	T	LC	
99.	*Rostratula benghalensis*	Greater Painted-snipe	A	LC	
100.	*Saxicola caprata*	Pied Bush Chat	T	LC	*
101.	*Sterna aurantia*	River Tern	A	LC	
102.	*Streptopelia chinensis*	Spotted Dove	T	LC	*
103.	*Sturnus pagodarum*	Brahminy Starling	T	LC	
104.	*Tachybaptus ruficollis*	Little Grebe	A	LC	
105.	*Tadorna ferruginea*	Ruddy Shelduck	A	LC	
106.	*Threskiornis melanocephalus*	Black-headed Ibis	A	NT	*
107.	*Tringa glareola*	Wood Sandpiper	A	LC	*
108.	*Tringa stagnatilis*	Marsh Sandpiper	A	LC	*
109.	*Turdoides affinis*	Yellow-billed Babbler	T	LC	
110.	*Tyto alba*	Barn Owl	T	LC	

111.	*Upupa epops*	Hoopoe	T	LC	
112.	*Vanellus indicus*	Red-wattled Lapwing	D	LC	*
113.	*Vanellus malabaricus*	Yellow-wattled Lapwing	D	LC	
114.	*Zoothera citrina*	Orange-headed Thrush	T	LC	

LC – Least Concern; * - Yes; T – Terrestrial; A – Aquatic; D – Dry/ desert; NT – Near Threatened

Table 3.65.4. IUCN Status of major plant invasive alien species in Kazhuveli Wetland

S. No.	Species	Family	Tamil Name
1.	*Alternanthera sessilis*	Amaranthaceae	Ponnanganni
2.	*Ipomoea carnea*	Convolvulaceae	
3.	*Lantana camara*	Verbenaceae	Unnichedi
4.	*Senna occidentalis*	Caesalpiniaceae	Thagarai
5.	*Prosopis julifera*	Fabaceae	Semai karuvel
6.	*Xanthium indicum*	Compositae	Marul oomatham

Table 65.5. IUCN Status of major medicinal plant species in Kazhuveli Wetland

S.No	Species	Family	Tamil Name	Habit
1.	*Abrus precatorius*	Fabaceae	Kundumani	Climber
2.	*Abutilon indicum*	Malvaceae	Thuthi	Shrub
3.	*Acalypha indica*	Euphorbiaceae	Kuppaimeni	Herb
4.	*Acanthospermum hispidum*	Compositae		Herb
5.	*Achyranthes aspera*	Amaranthaceae	Nayurivi	Herb
6.	*Aerva lanata*	Amaranthaceae	Peelai	Herb
7.	*Borassus flabellifer*	Arecaceae	Panai	Tree
8.	*Cardiospermum halicacabum*	Sapindaceae	Mudakotthan	Herb
9.	*Cynodon dactylon*	Poaceae	Aruhampul	Grass
10.	*Datura metal*	Solanaceae	Karu Oomatthai	Herb
11.	*Mukia leiosperma*	Cucurbitaceae		Climber
12.	*Solanum trilobatum*	Solanaceae	Thoodhuvalai	Herb
13.	*Tephrosia purpurea*	Fabaceae	Kozhinji	Herb
14.	*Tinospora cordifolia*	Menispermaceae	Seendhil	Climber
15.	*Tridax procumbens*	Compositae	Vettukkaaya-thazhai	Herb
16.	*Tylophora indica*	Asclepiadaceae	Naippalai	Climber

CHECK LIST

- ✓ Responsible agency has been clearly identified and details of contact person included
- ✓ Wetland/Wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- ✓ Wetland/Wetlands complex map has been provided at required scale
- ✓ Zone of influence has been delineated and included in Wetland map or a separate map
- ✓ Wetland zone of influence is sufficient to manage all activities
- ✓ Site's importance have been listed, and for major categories, justification provided
- ✓ Site's biodiversity values are listed, and for major categories, justification provided
- ✓ List of pre-existing rights and privileges provided
- ✓ Consistency or, inconsistency of pre-existing rights and privileges indicated to be best of available knowledge
- ✓ Threats to site listed, and for major categories details provided
- ✓ Activities prohibited, beyond those already listed in Rule 4 (2) have been mentioned
- ✓ List of activities to be regulated within Wetlands and zone of influence is provided
- ✓ List of activities to be permitted is provided











CES, Anna University
Wetland Survey

Stakeholder Engagement during CES Wetland Visit











