

## ANNUAL REPORT 2023-24



## **ABOUT US**

Care Earth Trust, established in the year 2000, is engaged in biodiversity conservation for human wellbeing through research, advocacy and capacity building. Since its inception, it has evolved to be an equal opportunity, non-discriminating organisation with a pan India presence.

In addition to assessing human impact on the environment, the organisation recommends evidence-based strategies and action for the mitigation of adverse impacts and increasing ecosystem resilience. It also provides technical services in areas such as biodiversity inventorying and monitoring and in developing training and capacity building initiatives on conservation.

Care Earth Trust was awarded the Indira Gandhi Paryavaran Puraskar in 2009 by the Union Ministry of Environment, Forest and Climate Change for its pioneering work on conserving the Pallikaranai Marsh and the Nanmangalam Forest.

The institution is registered as a Trust under the Tamil Nadu Societies Act and holds the required statutory approvals of the Government of India for accepting project grants in Indian rupees (INR) as well as Foreign Currency. Care Earth Trust is an empanelled organisation of the State Planning Commission, Tamil Nadu.



## MANAGEMENT'S NOTE

In email terminology, this "finds us well" and I state this with a sense of gratitude to our friends, well wishers, collaborators, donors and those invisible men and women who have stood by us in this year of introspection, review, change and hope.

We began the year with a commitment to change and evolve, and realised soon enough that the core values of the organisation are not only intact but are being safeguarded by the younger members of Care Earth. We were able to maintain the quality of work that we are so passionate about. This year also witnessed a good number of colleagues moving on other avenues and jobs, only for us to be joined by a young, dynamic, and exuberant group.

2024 holds immense hope for Care Earth and we plan to experience this by moving back into the building where it all first started 24 years ago. A happy 25 seems well within grasp.

Jayshree Vencatesan Managing Trustee





## POLICY RESEARCH

#### Climate Change and Water Risks – A Strategy and Action Plan for Chennai

Supported by Natwest India

The technical report titled 'Climate Change and Water Risk: A Strategy and Action Plan for Chennai' is the outcome of an ongoing collaboration between NatWest Group and Care Earth Trust, who share the vision of developing evidence-based strategies and actions to address the impacts of Climate Change, at a scale that is viable in terms of planning, resource allocation and replicability.

The work towards drafting the Plan combined a set of methods, from secondary literature to key informant interviews to online surveys. Another key component of the Plan is the attempt to factor in voices from on-ground through community interviews in four locations across Chennai. As an organisation that practices grounded science, it was felt that such a programme on Climate Change can hardly be justified if those most affected by its impacts are not given a seat at the table. The insights on-ground have been valuable, and it is hoped that 'ground-up responses' to Climate Change and Water Risk is something that becomes the norm in the days to come.

A one-day consultative workshop was organised guidance of the Tamilnadu Industrial Investment Corporation Ltd(TIIC). During the workshop, a group comprising of diverse participation from Government, private sector, and Civil Society Organizations identified and discussed key issues under specific thematic areas such as Climate Finance, Urban Biodiversity, ESG and



MSMEs, Equitable City, Livelihoods, and Disaster Risk Reduction under the overarching umbrella of Climate Change and Water Risk.



The Strategy and Action Plan was officially released in February 2024 in the presence of Dr. N. Krishna Kumar, IFS (Retd.), former Principal Chief Conservator of Forests (PCCF) and Chairman of the State Environmental Impact Assessment Authority, Department of Environment, Government of Tamil Nadu and Sowmiya Anbumani, President Pasumai Thayagam as the guests of honour. This initiative was supported by the Natwest Group.

A summary of our findings from the community interviews is online as a short video here <u>LINK</u>

#### MEDIA COVERAGE

Chennai's water risk differential: Report - DT Next

Document on climate change and water risk released in Chennai - <u>The Hindu</u>



## Preparation of Working Plans for the Forest Divisions of Dadra & Nagar Haveli and Daman & Diu

Supported by Department of Forests & Wildlife, UT Administration of Dadra & Nagar Haveli and Daman & Diu

Care Earth is working with the Department of Forests & Wildlife, UT Administration of Dadra & Nagar Haveli and Daman & Diu to prepare Working Plans for two Forest Divisions in the Union Territory, as per the National Working Plan Code (NWPC) 2023 for Sustainable Management of Forests and Biodiversity.



The project team has carried out extensive field surveys (largely tree mensurations, biodiversity assessments and socio-economic surveys) across the forest areas of the Union Territories.

### Baseline survey on implementation of human-wildlife conflict measures

In collaboration with Tamil Nadu Biodiversity Conservation and Greening Project for Climate Change Response (TBGP), Tamil Nadu Forest Department

The project addresses the pressing need for effective management of Human-Wildlife Conflict in selected villages sharing boundaries with 10 forest divisions of Tamil Nadu. The reconnaissance field visit started in March 2024, and with a team of wildlife, social science, and GIS experts the work continues.





## PROTECTED AREAS AND LIVELIHOODS

#### Livelihoods and Skilling project in Sathyamangalam

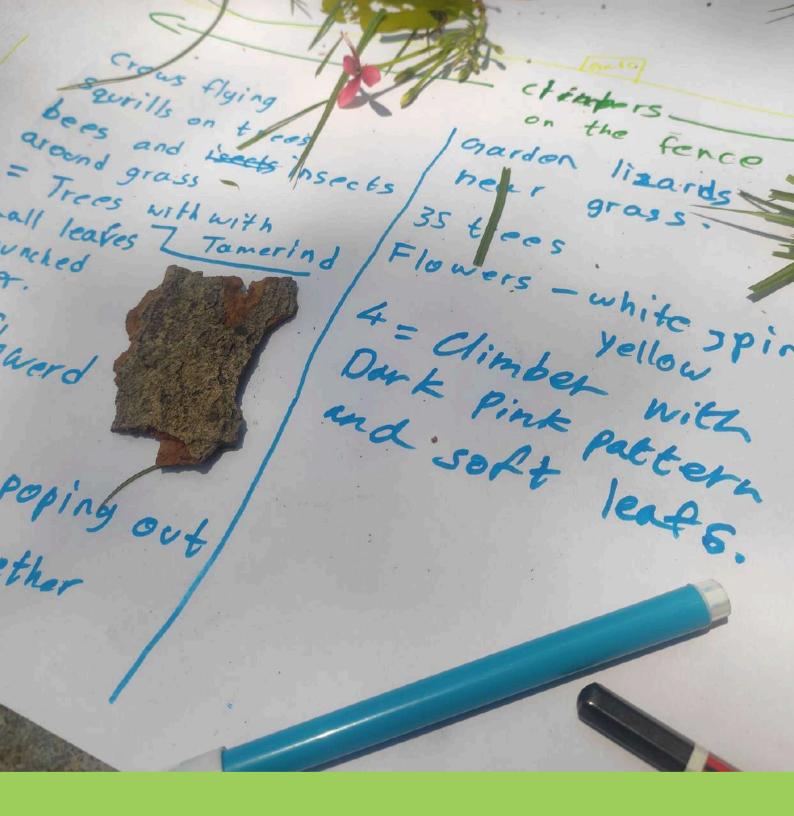
Supported by Small Industries Development Bank of India (SIDBI)

In tune with local conditions and demands, training in value addition of (Phoenix sp.) to Seemaru prepare Seemaru broomsticks was conducted in the Badripadugai and Attanai hamlets during November 2023. Machine processing of another NTFP - tamarind - was another training module for the Ugginiam and Nagalur hamlets in March 2024. The machine processing reduces the processing time considerably, whilst increasing the market value. Training for the women of project hamlets in tailoring and hand embroidery as a source of seasonal income remains ongoing.









# EDUCATION, TRAINING AND CAPACITY BUILDING

#### Youth-Led Nature Culture Living Labs in India

Supported by SwedBio, a programme at the Stockholm Resilience Centre

#### **Training the Trainer**

Care Earth Trust has been working with two government schools in Chengalpattu district for over a year to bring ecology and conservation science into classrooms as part of the "Youth Led, Nature- Culture Living Labs in India" project.

As an attempt to take the objectives of this project to a wider target audience, a two-day 'Training the Trainer' workshop was organized for school teachers who are also the coordinators for the National Green Corps (NGC) Eco-clubs in their respective schools. The programme was conducted in September 2023 at an organic farm near Thazhambur. The workshop included expert lectures on nature and culture topics, activities on ecological education, nature-centric lesson plan preparation and presentation, interactive sessions, and a field visit to Thazhambur wetland.

#### Bhoomi | Art x Climate Change

As part of the SwedBio supported "Youth Led, Nature- Culture Living Labs in India" project, 'BHOOMI' an exhibition was organized during September 2023 at the Alliance Française of Madras in collaboration with Common Threads Studio, Chennai. This was an attempt to bring nature education with an arts and cultural aspect. The main objective of this exhibition is to create awareness about the impacts of climate change through textile artworks made out of waste materials. The exhibits depicted the adverse effects of climate change on different ecosystems, such as oceans, forests, and mountains. People from all walks of life, including school and college students, visited the exhibition. Responses received from the visitors showed that the exhibition has provided a lot of insights on the impacts of climate change and significantly motivated them to adopt sustainability practices in their day-to-day lives.



#### MEDIA COVERAGE

'Bhoomi', a fibre art exhibition, addresses climate crisis - Indian Express Indulge



#### TechCamp- Mukkudal Event

#### Supported by US Consulate General Chennai

On April 11, 2023, TechCamp Thoothukudi and Tirunelveli a one-day workshop on riverine and ocean issues in Thoothukudi organized by Care Earth with the support of the US Consulate General in Chennai and Centre for Public Policy Research (CPPR) Kochi. Following this event, Mr. Muthu Krishnan, a participant, spearheaded a clean-up drive along the Thamirabarani riverbank in July 2023.

During the event, 24 individuals participated and learned about marine biodiversity. They engaged in plastic mapping exercises and tools to tackle local community issues alongside the clean-up drive. Teams of three were formed, with each assigned specific roles such as waste tracking in the app, waste collection, and proper disposal of trash bags. A significant finding during the drive was the abundance of plastic spoons. This prompted discussions on the hazards of single-use plastics, leading to initiatives to raise awareness among nearby shops their detrimental about Subsequently, efforts were undertaken to advocate for alternative and eco-friendly alternatives for plastic spoon usage.











## **URBAN STUDIES**

#### City of 1000 Tanks Water Balance Pilot

In August 2023, we inaugurated the first City of 1000 Tanks project called the Water Balance Pilot. The inauguration brought together key local and international stakeholders including the Minister for Municipal Administration and Water Supply & bureaucrats from the Government of Tamil Nadu, Netherlands Ministry of Water and Infrastructure, Green Climate Fund, and stakeholders interested in upscaling the project across Chennai among others.

This Water Balance Pilot project showcases the transformative capacity of City of 1,000 Tanks Water Balance Model, which envisions a water abundant Chennai. Using EbA, the project repaired the broken infrastructure, collects rainwater and treats wastewater locally in order to replenish the aquifer, thus ensuring local water security and climate resilience for the Little Flower Convent, a school of 500 visually and hearing-impaired pupils.

Continuous monitoring using remote embedded sensors and water chemistry sampling, ensures that treatment quality and quantity is consistent. Data sets will be used to demonstrate efficacy and support capacity-building activities, enabling upscaling of nature-based solutions across Chennai and beyond. For more information on the project see links below.

http://www.ooze.eu.com/en/urban prototype/city of 1000 tanks water balance pilot/https://vimeo.com/815284432



#### MEDIA COVERAGE

26/08/2023 - <u>The Hindu</u> 31/08/2023 - <u>Times of India</u>

30/08/2023 - <u>The Hindu</u> 31/08/2023 - <u>விகடன</u>்



#### Afforestation of parks in Greater Chennai Corporation

#### Supported by Hinduja Foundation

The afforestation project, supported by Hinduja Foundation, Greater Chennai Corporation and Chennai Metropolitan Water Supply and Sewerage Board, aims to make a significant contribution to the city's green initiatives. The project has the potential to generate positive impacts on the urban environment and including increased green cover and biodiversity enhancement. Tall native tree saplings have been strategically planted throughout various parks, educational institutions, and open spaces within the Central and North zones of Chennai.



We carefully selected indigenous tall saplings, a total of 2100, tailored to thrive in specific soil types and local weather conditions, thereby fostering biodiversity while effectively mitigating air pollution.

#### The Chennai Resilience Centre (CRC)

The Chennai Resilience Centre (CRC) is a unit of Care Earth Trust, fostered by the Adrienne Arsht-Rockefeller Foundation Resilience Center. A flagship project of the CRC is the Chennai Urban Horticulture Initiative aiming to actively transform Chennai's urban spaces, communities, and neighbourhoods. In 2022, the initiative has set up four model farms (Anbagam Homeless Shelter Otteri, Andhra Mahila Sabha Adyar, Chennai High School Adyar, and Perumbakkam Resettlement Colony) and following an MoU with the Tamil Nadu Urban Livelihoods Mission, 171 women SHG members have been trained in Rooftop Vegetable Farming

You can check CRC's Instagram page for their project updates: @Chennairesiliencecentre and @urbanthOttam

#### MEDIA COVERAGE

NGO ropes in SHGs to transform concrete terraces into green spaces in Chennai - <u>The Hindu</u>

Chennai Resilience Centre launches Urban Ocean Project to address waste pollution in waterbodies - <u>The Hindu</u>

Attempts to shape Chennai's resilient future - The Hindu



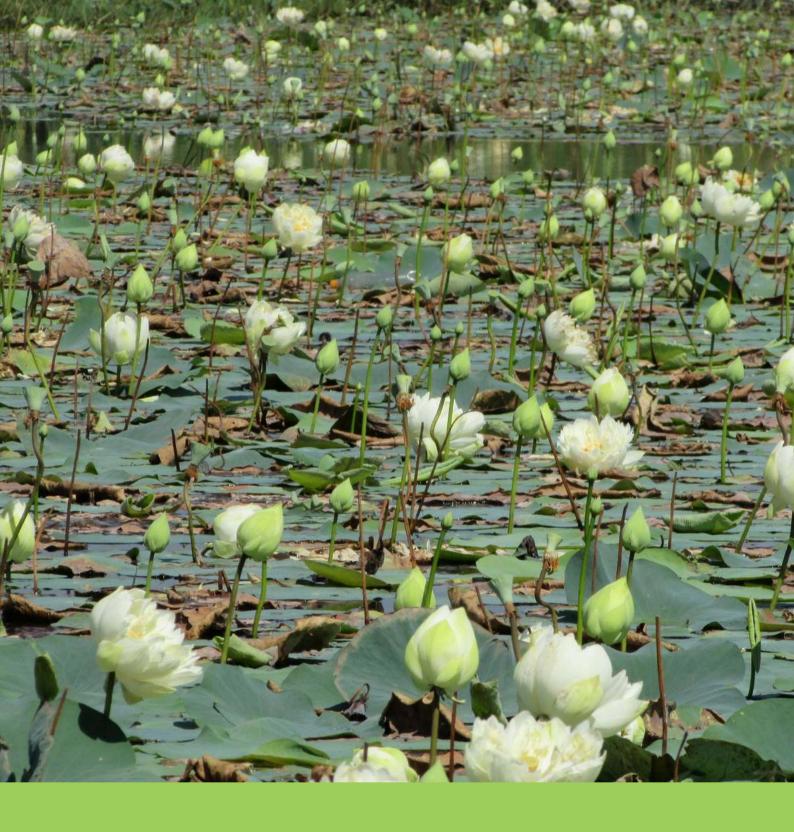
#### A New Beginnning – Partnering For Science and Technology

The year witnessed Care Earth becoming a part of two of the three winning consortia of a Grant announced by the Dutch Research Council, NWO/ and the Department of Science and Technology DST Merian Fund.

The first of these is titled Resilient Hydro Twin: Participatory Integrated Digital Twin for Adaptive Urban Resilience to Water Extremities. This interdisciplinary research project seeks to create an advanced city-level digital twin that integrates multi-system models (hydrological, hydraulic, water resource management, resilience, governance) for improving disaster response to urban water extremities. Through the implementation of complex system modelling and the incorporation of human behaviour within the digital twin, the project aims to accurately predict system behaviour during hydrological extremes and fortify the resilience of the city. The focus is on integrating social adaptation measures into the model and propose a multidisciplinary-participatory approach for the active inclusion of the local community in decision-making processes related to flood management. This project, led by TU Delft and IIT Madras brings together a consortium of academic and industry partners, thereby ensuring the digital twin reflects the intricate complexity of urban systems and is robustly designed to manage real-world hydrologic risks.

The second project, led by Restructuring and Enhancing Strategies with a Transformative AppRoach for InTegrated Water Disaster Management in India and the Netherlands (RESTART) led by the Department of Environmental Sciences, Wageningen University and the Kerala State Council for Science, Technology and Environment, with 12 internationally acclaimed Dutch and Indian Institutions as consortium members. This consortium aims to develop the knowledge and tools for deriving targeted management strategies/interventions to mitigate the impacts of future water disasters and preserve economic, social, environmental/ecological, and health/human life values. It seeks to understand drought/flood processes at different scales and assess the socio-economic impacts to formulate interventions and reduce the know-do-gap.

An integrated framework with flood and drought models will be developed to bridge the gap in the understanding of comprehensive catchment processes. A process-based framework will be developed to capture the spatial-temporal dynamics of floods/droughts at the river basin scale using an ensemble of models to assess the water storage capacities, implications on water potential, and crop productivity under changing climate and land-uses. Using high-resolution remote sensing technologies and Artificial Intelligence/Machine Learning (AI/ML) techniques, the project aims to improve the process-based modelling framework. Then, the socio-economic impacts of the integrated floods and drought management are assessed, considering economic loss, education, agricultural productivity, livelihoods, and adaptation/intervention measures and their potential under current and future climate scenarios will be derived in consultation with stakeholders. Multiple study sites, both in India and the Netherlands, will serve as demonstration areas, allowing stakeholders to observe its implementation, knowledge sharing, co-creation, and peer learning to accelerate adoption.



## WETLAND RESTORATION

#### **Ecological Restoration of Unamancheri Wetland Chennai**

#### Supported by Natwest India

The Unamancheri wetland restoration project, supported by Natwest, aims to restore its water-holding capacity and biodiversity. On April 20th, 2023, a group of NatWest Management Committee (ManCo) members visited the Unamancheri project site. The 14 senior leadership members of Natwest India, as well as the Panchayat president and ward members, participated in this event.



The committee was welcomed by the Eco Club of the Unamancheri Middle School. Kiran Guduru, Head of LGRA India, and Natesh Iyer, Head of Commercial Banking, became storytellers for the morning, narrating stories of plants and engaging the children. The day concluded with the inauguration of the Biodiversity Library, a curated set of children's books on nature, environment, and climate, by Punit Sood (Head of International Hubs, Natwest Group) and Mahendran (President, Unamancheri Panchayat). The library consisted of a collection of children's literature books that aimed to take the first step toward shaping tomorrow's climate leaders.

## A Blue Green Approach for Climate Action: Ecological Restoration of a Freshwater Wetland, Tiruvallur – Tamil Nadu

#### Supported by Natwest India

The Eco-restoration of Vengathur in Tiruvallur commenced in September 2023. To assess the current state of the wetland, we conducted a comprehensive bathymetry and drone survey. These surveys provided us with crucial information about the depth and condition. Geographical Information System (GIS) was used to delineate and analyse the flow patterns of the inlet and outlet, as well as providing a comprehensive view of the topography. This technology allows us to create detailed maps that illustrate the spatial distribution of water flow in and out of the tank. By overlaying the geo-data with topographical data, we can better understand how the landscape influences the flow patterns. This enables us to identify potential areas where sedimentation may occur or where erosion could be a concern.





## Strategic Intervention to Restore the Jalakanta Mariamman Temple Tank

#### Supported by Hinduja Foundation and Gulf Oil Lubricants India Ltd.

The Jalakanta Mariamman temple tank is located abutting the temple with the same name. The tank was dilapidated and the disuse has led to the denudation of the waterbody. The periphery was overrun with invasive alien plant species and weeds. The compound wall was also damaged largely along the iron fencing grills. The restoration work has been completed in a month after obtaining permission and support from Greater Chennai Corporation.

Filtration ponds and Sponge Gardens have been installed for augmenting water supply for the waterbody from the nearby catchment areas. The stone packs along the inner slope have been removed and repacked for the conservation of the stability of the bund. A tonne of garbage has been removed from the water surface as well as along the periphery, giving the Temple Tank a new lease of life.



## Restoration and conservation of a mountain wetland in the Nilgiris, Western Ghats

#### Supported by Hinduja Foundation

The wetland candidate for restoration is the historical Hannikallu, the Swamp Corridor, a government owned aquatic habitat, whose ownership is now vested with the Station HQ, Wellington. The 12-acre freshwater marsh with six feeder springs and with intermittent pockets of open water has been restored and the project will be completed in June 2024. It has been incorrectly designated as a swamp due to the presence of the planted *Erythrina suberosa* (Coral tree) and Celtis species.

The marsh was under severe anthropogenic stress due to reclamation, agricultural waste disposal, sewage disposal, and erosion. After detailed topographic and hydrological surveys, the wetland has been restored with the following interventions; desilting, removal of invasive plants, restoring the springs and solid waste removal.





#### Restoration of Arasankalani Anaicut Thangal

#### Supported by Guru Kripa Foundation and Kaleesuwari Foundation

2023-24 marked the beginning of a partnership to work on the ecological restoration of Lesser Known Peri Urban Wetland with the support of Guru Kripa Foundation. The project site is a shallow wetland, called Arasankalani Anaicut Thangal, which is located off the Old Mahabalipuram Road, Chennai. In addition to the conventional restoration activities that typify Care Earth's approach of ecological restoration, the condition of this much neglected wetland demanded civil engineering interventions as well. We are grateful to Guru Kripa for the support, as also to Kalueeswari Foundations for coleveraging the funding of this project which is expected to be completed by June 2024.



The continued support of the Narayanan Foundation for improving and sustaining data storage at CET is gratefully acknowledged.





## **EVENTS**

#### Birds of Tamil Nadu: A Synopsis

In a momentous event on December 28, two books were released by Care Earth. The first one, "Birds of Tamil Nadu: A Synopsis," was unveiled by Ms. Supriya Sahu, IAS, Additional Chief Secretary to the Government Department of Environment, Forest, and Climate Change. Authored by R J Ranjit Daniels and B Vinoth, this comprehensive work showcases the rich avian diversity of Tamil Nadu.



The second book, "கழுகுகளின் காடு", authored by S. Chandrasekhar, was released by Thiru. Shrinivas R Reddy, IFS, Principal Chief Conservator of Forests and Chief Wildlife Warden, Tamilnadu Forest Department, Government of Tamilnadu. We extend our gratitude to Ms. Supriya Sahu, IAS and Thiru Shrinivas R Reddy, IFS, for gracing the occasion, to the authors for their passionate contribution to our understanding of the state's birdlife and to all those who attended the event in celebration of birds.



TO GET A DIGITAL COPY OF THE BOOK,
PLEASE SIGN UP USING THE GOOGLE FORM AT
THE LINK <u>HERE</u>

#### Pallikaranai Margazhi Bird Thiruvizha

Every year, during the month of Margazhi, we at Care Earth Trust conduct a series of walks around Chennai. The Tamil month of Margazhi, with all its culture and musical activity, coincides with the migratory season of birds from Eurasia. The city's wetlands become a haven for both these migratory avian wonders and their native counterparts. The wetlands, teeming with life after the monsoon season, provide a rich backdrop for observing birds that are rarely glimpsed in Tamil Nadu during other times of the year. With a delightful mix of both new and old participants, this year walks included the Pallikaranai marsh, Pallikaranai Eco Park and Nanmangalam reserve forest, which took place for 6 days from the month of January. This year, we also organized an inclusive photo walk, ensuring inclusivity for individuals from the deaf community in collaboration with Madras Photo Bloggers at Pallikaranai Eco-Park.









#### MEDIA COVERAGE

Flaps, Chirps and hops, It's birdwatching season in the city Times of India

Pallikaranai Marshland: A crucial haven for migratory birds threatened by pollution South First

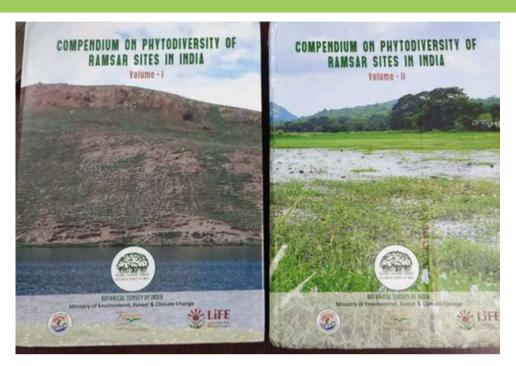
Rare sighting of great knots in Pallikaranai marsh New Indian Express

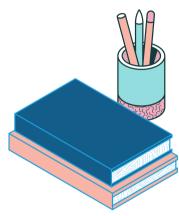
Nanmangalam Reserve Forest in the suburb, a world unto itself The Hindu

NGO To Conduct Free Bird Walks in Chennai <u>Times India</u>



## **PUBLICATIONS**





The paperback books 'Compendium of Phytodiversity of Ramsar Sites in India' in two volumes published by Botanical Survey of India have detailed floristic diversity of all the Ramsar sites of India. Muthu Karthick has co-authored a chapter on the plant wealth of Pallikaranai Marsh Reserve Forest.

• Plant species diversity in the riparian forests of the Moyar River in southern India. Journal of Threatened Taxa, 15(4), 22955–22967.

Author: Nagarajan, M.K., & Bhaskar, A. (2023) Access the full article at the <u>Link Here</u>

 Grasshoppers (Orthoptera, Acrididae & Pyrgomorphidae) of Ghyalchok, Gorkha, Nepal, and four new species records. Journal of Insect Biodiversity and Systematics, 9(3), 591–622. Author: Subedi M, Bhaskar D (2023)
 You can access the full article at the Link Here

 பள்ளிக்கரணை பறவைகள் திறந்த புது உலகம்! Author: Kavitha K. (2024)
 You can access the full article at the Link Here

• ஈரநிலங்களின் பாதுகாப்பு ஏன் அவசியம்? Author: Kavitha K. (2024) You can access the full article at the Link Here





## IN THE NEWS

#### **FEBRUARY**

People are increasingly realising the importance of wetlands as a habitat that is critical to our existence not just because it offers water but, more importantly, as a buffer against natural disasters?

#### -JAYSHREE VENCATESAN

<u>Experts welcome Budget scheme on wetlands but stress on need for urgent efforts</u>

The Economic Times

"If you look at the riverbed of Cooum in Egmore, it is black in colour. This leads to the accumulation of toxic gases like hydrogen sulphide and methane, causing a foul odour. These gases will consume the dissolved oxygen in the water, rendering the river unfit for any form of life"

#### -RJ RANJIT DANIELS

<u>Polluted Chennai rivers call CRRT's restoration strategy into question</u>
<u>Citizen Matters</u>

#### **MARCH**

Submerged flora is the primary producer of dissolved oxygen in a lake. Many plants are insectivorous and once removed, the food cycle of the lake is impacted, and the lake dies. In fact, native fishes will only use native aquatic plants for breeding?

#### -N MUTHU KARTHICK

<u>Save aquatic plants during Chennai lake restoration project</u> <u>Times India</u>

#### APRII

<u>Final report to be drafted after today's meeting in Ernakulam Times of India</u>

Kerala: Wild tusker 'Arikomban' to be shifted to Parambikulam forest range
Newsnine

<u>Mangroves to come up at creeks</u> <u>Times of India</u>

Chennai's trees lack protection despite presence of District Green
Committee
Citizen Matters



"Pallikaranai marshland acts as a sponge during floods and is a refugium for biodiversity. Proposing an eco-park by filling the marshland with soil is completely erroneous. Since 2005, we've been saying that the landfill deters water flow. Marshland should be left as an aquatic habitat"?

#### -JAYSHREE VENCATESAN

<u>Let Pallikaranai marshland remain an aquatic habitat</u>
<u>DT NEXT</u>



## GOVERNANCE TRUSTEES



Dr. P S Easa Chairman



Dr. N V Joshi Trustee



Dr. R J Ranjit Daniels Trustee



Dr. Jayshree Vencatesan Managing Trustee



## **ADVISORS**



Dr.S Balaji Scientific Advisor



Er. S. Thirunavukkarasu Senior Advisor

## TEAM



Anjana Vencatesan Senior Research Associate



Ariprasath Junior Associate



Aswathi Junior Research Fellow



Chandrasekaran P Project Co-ordinator



Das Technical Assistant



Dr. Dhaneesh Bhaskar Project Manager



## **TEAM**



Jeya Kumar Sr. Project Associate



Kavitha Junior Associate



Keerthana Admin Assistant



Keerthi Junior Research Fellow



Keerthika Junior Associate



Manochandran K Sr. Project Associate (GIS)



Muraleedaran Manager Admin



Murugesan Project Co-ordinator



Muthu Karthick Team Leader

## **TEAM**



Nilesh GIS Analyst



Nityanand Driver



Ramamoorthy Project Coordinator



Dr Ramesh Project Associate



Sudarmathi S Junior Associate



Sunanda R Junior Project Associate



Vidya Assistant Manager



Vivekananthan Sr. Project Associate



Vishwanathan Driver













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