

Ainthinai EXPRESS

FINAL PROJECT REPORT - MAY 2024





The Team

ATREE's
Agasthyamalai
Community Conservation Centre (ACCC)
Manimutharu

P Maria Antony, Conservation Education Team Lead
M Mathivanan, Sr. Research Associate & Coordinator
A Saravanan, Sr. Research Associate & Assistant Coordinator
S Thamizhazhagan, Sr. Technical Assistant & Innovator
S Thalavaipandi, Research Associate
Dr A Thanigaivel, Research Associate
K Thiraviyam, Technical Assistant

Consultants

A Anish, Nature Educator
A Civin Solomon, Nature Educator
R Sahanashree, Project Associate
S Selvakumar, Research Associate
RV Pandi, Project Assistant
U Ajith Kumar, Project Assistant
Gomathi Sankar, Historian
K Balachandar, Film Cinematographer
Harshini, Film Editor

Advisors

Dr T Ganesh, Senior Fellow
Dr R Ganesan, Senior Fellow
Dr M Soubadra Devy, Senior Fellow
Dr KS Seshadri, Fellow in Residence

Disclaimer

The photographs in this document depict program participants interacting with deceased animals or non-living animal products. These animals were primarily obtained by professionals for commercial purposes. All photographs that show people's faces were used with their prior permission.





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EXECUTIVE SUMMARY

We are pleased to share the final report of the CSR grant provided by eMudhra for the conservation education program at the ACCC, Manimutharu.

We focused on the “Wetland Rovers of Tamiraparani,” a year-long initiative designed to raise awareness about the conservation of the Tamiraparani River and its wetlands among participants. We successfully conducted the Wetland Rovers program throughout the year. In addition, we organized five one-day Wild Tamiraparani Walks and two Camp Wild programs. A total of 314 hours were dedicated to sensitizing around 253 participants, including students, teachers, and trainers. To support their engagement, twelve customized field handbooks were developed.

We again express our gratitude for your support and welcome your comments and suggestions. We look forward to a long-lasting relationship.





1. Introduction

The Tirunelveli district is unique, boasting of all five landscapes described in ancient Sangam literature as the “*Ainthinai*”: *mullai* (forest), *kurinji* (mountains), *marutham* (farmland), *paalai* (arid land), and *neithal* (seashore). This rich geographic diversity is even mentioned in Tamil and English medium school textbooks. However, despite these landscapes being within 25-30 kilometres of schools, students often lack first-hand experiences with them.

Leveraging this remarkable geographic advantage, we targeted schools in Tirunelveli district. We designed three express versions of our time-tested environmental education courses, which we’ve successfully implemented for the past six years. Due to the district’s unique juxtaposition of all five landscapes within a close range, there’s significant potential to expand these courses beyond Tamil Nadu. This opportunity to experience such diverse environments in a single location may not be readily available elsewhere.



2. Goal

Our program has several key goals. First, we aim to connect students from diverse backgrounds with the unique landscapes in their own backyards. This will not only familiarize them with their local environment but also spark their creativity and sense of exploration. Second, we want to encourage them to engage with nature directly, rather than relying solely on virtual experiences through television, social media, and other means. Finally, the program aims to



Campers at Kakkachi Golf Course, KMTR, Tirunelveli, soak in the refreshing coolness of the midday mist.

foster a sense of environmental stewardship from a young age. By exposing students to the critical role of wetlands and the ecosystem services they provide, we hope to instil conservation stewardship at an early age.

3. Wetland Rovers of Tamiraparani

The ATREE-ACCC flagship

fieldwork-based education program aims to educate students about the significance of the Tamiraparani River and its associated wetlands. Participants explore diverse wetland types, including hill streams, evergreen forest swamps, riparian forests, rivers, irrigation tanks, paddy fields, temple ponds, natural springs in sand dunes, mangrove forests, and estuaries. The program focuses on the *Ainthinai* landscapes: *Mullai* (forest), *Kurinji* (mountains), *Marutham* (farmland), *Paalai* (arid land), and *Neithal* (seashore).

I. KURINJI

This course first took the team to the hills at an elevation (Kurinji) in Oothu located in the Kalakad-Mundanthurai Tiger Reserve (KMTR). Here, they were exposed to unique tall evergreen forests criss-crossed by hill streams, which eventually form the River Tamiraparani. These fast-flowing streams boast of unique organisms adapted to their conditions. The students spent a whole day sampling these life forms. Functioning as a control for subsequent landscapes, this pristine landscape (“no pollution”) allowed students to appreciate good water quality through sampling water parameters.

Wallowing in the high elevation swamp, helped students feel connected with nature. This playful activity was paired with a more serious endeavour – sampling water



At Oothu, KMTR, these Roversians are measuring the stream's rate of flow using a floating ball.

macroinvertebrates and associated plants within and around the swamp.

Human and nature interdependence in this region was further highlighted through an interaction with tea workers. As the course was designed to expose participants to “hyper-local cuisine”, the food served was carefully chosen from the local menu.



“

Our first trip to Manjolai, Kakkachi golf course and Oothu is one of our favourite experience and we never forget this in our life.”

– TEAM CIVET,
GOVERNMENT
GIRLS HIGH
SCHOOL,
NADUKALLUR,
TIRUNELVELI

Transforming into mini-explorers at Oothu Estate! These boys use dip nets to examine the tiny creatures thriving in the vibrant stream, before carefully returning them to their watery home.



TAKEAWAYS: 1

Bringing out artist, writer, and explorers

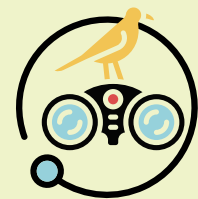
The “I Observe Like Salim Ali” activity ignites the artist, writer, and explorer within participants. By combining art, writing, and scientific research, it fosters a deeper connection with the natural world.

Participants hone their creative, expressive, and analytical skills through this multi-faceted approach. The activity emphasizes the importance of keen observation, a skill central to both artistic expression and scientific exploration. This thoughtful reflection allows participants to translate their observations into written narratives or artistic creations, ultimately cultivating their artistic and scientific abilities.



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A budding explorer captures the beauty of Melputhukudi Sunai and its feathered residents in a sketch.



TAKEAWAYS: 2

Bird Watching

transformed from a relaxing hobby into a rich learning experience for students. Venturing into forests, rice paddies, and even the seashore, participants not only counted birds but also used them to teach about avian adaptations. Students discovered how beak shapes correlate with diet, differentiating between birds adapted to deep water, shallow water, insects, and grains. By observing and identifying birds in their natural habitats, students gained a deeper understanding of bird behavior, habitat preferences, and their vital ecological roles.



These young campers are getting a close look at the birds at Koonthankulam Bird Sanctuary, a Ramsar Site!

© Dr. Thanigaivel

II. MULLAI

Mullai, as described in Sangam literature, is an ecotone between wilderness and human habitation. As part of this section, students travelled to Kalakad Thalayanai, also located within KMTR. This riparian habitat lies along River Pachaiyar, a tributary of the Tamiraparani River, abutting a human-dominated landscape. Here, they sampled and compared the flora, fauna, and water parameters. Students were allowed to splash around in the stream under the careful guidance of the Conservation Educators. A short and brisk hike through the bamboo thickets along the riparian area completed the learning experience by highlighting the importance of this habitat for elephants, all under the strict vigilance of the Forest Department. While the Tamiraparani River remained their constant companion, the trek allowed them to appreciate canopy dwelling animals such as giant squirrels and langurs. They even had the opportunity to see a Planaria, a flatworm classically mentioned in textbooks for its regenerative abilities. Spotting one in the wild is not very common!



Roversians at Kalakad Thalayanai come across the bones of a Gaur (Bos gaurus), the largest wild cattle. They use this opportunity to educate their team about this magnificent creature.



III. MARUDHAM



In the rice paddies of Gadana, Tenkasi District, these budding scientists are collecting soil samples to count the variety of creatures living underground, including earthworms.

Wetland ecosystems, embedded within human-dominated landscapes, comprise the agro-ecosystems and irrigation systems that feed us. A trip to Gopalasamudram's wetlands exemplifies the interdependence of food security and healthy wetlands, even if artificially created. Traditional practices are biodiversity-positive, while current mainstream agriculture often falls short, leading to deterioration of water quality and biodiversity decline. The team spent two days in the paddy fields and irrigation tanks. The students spoke to farmers to understand traditional practices and investigated how they supported biodiversity. The presence of diverse migratory birds in the irrigation tanks highlighted how human-created habitats could also support biodiversity. A trip to the archaeological site, Adichanallur, provided a glimpse into a past era of prosperity in Tamil Nadu, likely supported by the healthy wetlands of Tamiraparani River. This site is believed to be the remnants of the 3,200 year-old Porunai Civilization.

“

Students insights on Rovers- They experienced first-hand experiential learning. some of the field activities tied back to their school curriculum – biology and history ‘Touch and Study’ experience was very useful and enjoyable.”
– MS SHARADA RAMADASS, EXTERNAL REVIEWER FOR ROVERS

IV. PALAI

This trip to Theri Reserve Forest and Melputhukudi Sunai (spring/oasis) transported the students to a landscape reminiscent of a desert with sand dunes and an oasis. The desert-like landscape too provided a beautiful habitat for unique flora and fauna. Standing at this unique site prompted students to contemplate what it would mean to lose the Tamira River's close proximity. This area is the last remaining Barringtonia and Pandanus swamp of the many that once existed. The watchful presence of the Arunsunai Katha Ayyanar temple emphasized the sacred nature of this swamp grove. The visit also prompted reflection on how faith-based conservation has been a pathway to preserving these remnant patches of the past.



Located in Tiruchendur taluk of Thoothukudi district, the Theri Red Sand Dunes, a protected reserve forest since July 21, 1982, were the destination for our Roversians! (RIGHT) The team enjoyed a captivating storytelling session by a natural spring. (FAR RIGHT) They explored the unique stilt roots of the Screw Pine (Pandanus sp.), and (BELOW) captured a memorable group photo.

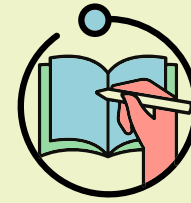


© RV Pandi



© Anish



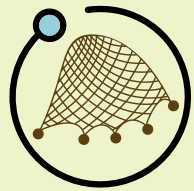


TAKEAWAYS: 3

Nature journaling is a practice where participants immerse themselves in the natural world by observing and recording their experiences. It's more than just taking notes; it's a blend of writing, drawing, and even scientific notation, allowing individuals to capture the essence of their connection with nature. This focus on observation, as exemplified by participants recording the behavior of Tufted Grey Langurs (*Semnopithecus priam*) during a Wild Tamiraparani Walk in the Kalakad Mundanthurai Tiger Reserve (KMTR), fosters not only attentiveness but also patience.



Sketching and recording observations of a Tufted Grey Langur at Agasthiyar Falls during a Wild Tamiraparani Walk.



TAKEAWAYS: 4

Sampling aquatic macroinvertebrates

are tiny animals, visible without a magnifying glass, that lack backbones and live in water. This diverse group includes insects like dragonfly nymphs, crayfish, mussels, worms, and more. Participants sampled these creatures, they explored the amazing adaptations like streamlined body shapes for reduced drag and air bladders for buoyancy, that allow them to thrive underwater. Through this exploration, students gained a deeper appreciation for the complexities of wetland ecosystems, but also learned how studying macroinvertebrates can be used to assess the health of different water habitats.



Students on the hunt for macroinvertebrates! All the creatures collected were safely returned to the same habitat.

V. NEITHAL

The final leg of the course took the students to the coast where the Tamira River flows into the Bay of Bengal (at the Gulf of Mannar). This was the busiest part of the program. It began with a visit to a salt pan, where the entire process of salt- making from estuarine water was explained. Students were amazed to see how certain flora could thrive in such saline conditions.

Following this, the students explored the mangroves in the Tamira estuary. They marvelled at the anti-gravity roots, structures crucial for survival in the anaerobic conditions, often only depicted in textbooks. The concept of ecological flow, the minimum freshwater requirement for a healthy estuary, was introduced. While a higher flow, with less regulation, could potentially better support the habitat's residents. This visit also served as a reminder that the Tamiraparani River is the only South Indian River that flows directly into the ocean. The day concluded with a delightful feast at a fisherman's home, featuring hyper-local cuisine showcasing the bounty of the sea.



At Punnakayal, a small coastal village, (ABOVE) A Roversian plants a rescued *Avicennia* mangrove sapling found floating in the strong sea waves. (LEFT) Halophytes, like the salt-tolerant *Suaeda* sp. (locally called Yumari keera), thrive in coastal areas like saltpans and seashores. Here, fisher people living near the Tamiraparani River estuary use this plant to create a delicious dish. (RIGHT) The Roversians gently explore the fascinating world of the octopus (*Octopus* sp.), observing its unique slimy and textured body.



VI. ROVERS STUDENT CONFERENCE AND GRADUATION



The Rovers program culminated in a grand graduation ceremony, celebrating the achievements of the graduating students. To foster conservation leadership among them, we organized a student-led conference – the Rovers Student Conference. This “by us, for us” format provided a platform for students to develop their leadership skills.



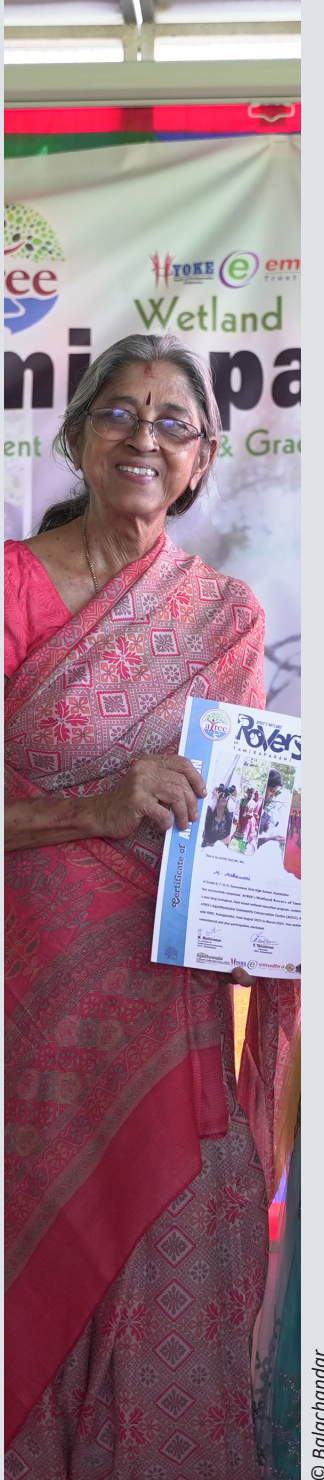
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(FAR LEFT) A proud Roversian ignites the lamp, signifying the official start of the Rovers Student Conference and Graduation ceremony at YOKE, Kodaganallur. (LEFT) The Civet Team takes center stage, presenting their experiences from their Roversian adventure to the attentive audience. (ABOVE) Ms. Usha Raman, Principal of Sri Jayendra Golden Jubilee School, Sankarnagar, Tirunelveli, proudly presents a Rover certificate to a deserving student.



4. Wild Tamiraparani Walk (Porunai Nathi Pakkanume)

It connects children with nature in Tirunelveli, and Thoothukudi districts. This is a one-day field trip to engage, explore and educate the students about the importance of river Tamiraparani and any one of her associated landscapes

Five day-long field exploration trips were conducted for students of Pushpalatha Vidya Mandir, Tirunelveli, focusing on Socio-Ecological Observatories (SEOs) identified by ATREE at five key locations along the Tamira River. The concept behind SEOs is to build the capacity of local communities to monitor the river's socio-ecological systems, which integrate the well-being of both the communities and the well-being of the riverine landscape. These SEOs are situated in unique locations that encompass both 'culturally and ecologically important landscapes.

The final leg of the trip included visits to Punnakayal (estuary), Melputhukudi Sunai (spring/oasis), Theri Reserve Forest (sand dunes and oasis), and Marudur Anicut, an ancient barrage built by the Pandya kings. Unlike the Rovers program, this program focused on exploring the links between cultural heritage and biodiversity.

The field trips provided students with unique insights into the region's natural and cultural heritage. Engaging



activities included hands-on experiences like using sieve nets, spotting scopes, measuring the physical parameters of water, interactive sessions on conservation measures taken by various non-profit organisations, refreshing swims in natural water bodies, exploration of local cuisine, guided walks, bird watching, beachcombing and boat rides.

An excited participant holds a carp fish caught by a fisherman on the Tamiraparani River. This wasn't just about the fish; the participants also had a chance to interact with the fishermen, learning about the fish species in the river, the fishermen's livelihood, and the importance of the Tamiraparani River in their lives.



TAKEAWAYS: 5

Beach Combing at Punnakayal is a favorite activity during ATREE's field visits to Neithal Landscape. Participants stroll the shore searching for treasures like seashells, sea grasses, algae, urchins, starfish, sea pens, and egg cases, all washed ashore by the waves. It's a fun way to explore the ocean's bounty and connect with the beach environment. But beachcombing offers more than just cool souvenirs. Examining their finds fosters curiosity about the ocean and its inhabitants, while the variety of objects teaches students about science and the environment. Beachcombing provides a fun and engaging way to connect with the natural world.



A beachcomber's delight - sea biscuits and sea urchins discovered at Punnakayal!



TAKEAWAYS: 6

Fun with nature

Nature's beauty transforms into a giant playground on field trips, sparking curiosity and fostering a connection with the environment for all ages. Children become explorers, dipping their toes in cool streams, navigating winding forest trails, and breathing in the fresh mountain air. They collect memories, observe fascinating creatures in their natural habitat, and feel the refreshing coolness of the streams, all while surrounded by the beauty of misty mountains. These exciting adventures not only create lasting memories but also cultivate a sense of appreciation for the natural world, inspiring future generations to be its stewards.



Making a splash in the wild stream at Kalakad Thalayanai!

© Cavin Solomon



5. Camp Wild

An immersive residential program teaches life in Ainthinai landscapes.

Campers engage in presentations, games, storytelling, and nature exploration to build independence, social skills, friendships, and love for the environment.

Camp Wild is a three-day, two-night nature exploration program organized for students from Agasthya Academy, Erode and Isha Home School, Coimbatore. This residential program attracts participants from afar, offering them the opportunity to explore diverse habitats. These include the gallery forests of Mundanthurai, the rocky habitat of Euphorbia plants, freshwater sources, desert dunes, and estuarine ecosystems. Engaging activities like hiking, night walks, storytelling, and cultural exchanges enrich the participants' understanding of the local landscape, its flora and fauna (including butterflies, moths, reptiles, birds, and fish), and its cultural and ecological significance.



The hands-on learning experiences were particularly impactful, allowing our students to go beyond theoretical knowledge.

Dams, Coastal walks, mangrove exploration, encounters with Painted Storks, flamingos and visits to salt pans and learning about how salts are made provided valuable insights into our local biodiversity.”
- TEAM AGASTYA, ERODE

Campers learn about the dam's importance and admire its breathtaking scenic beauty.



6. Beneficiaries, Capacity Building & Deliverables

Name of the Programs	Contact Hours	Beneficiaries		Capacity Building	Deliverables
		i. Students	ii. Teachers	Nature Trainers	
Rovers	110	26	14	3	5 - Journals
WTW	60	130	10		5 - Journals
Camp Wild	144	60	10		2 - Journals
Total	314	216	34	3	12
		253			



7. Partnerships

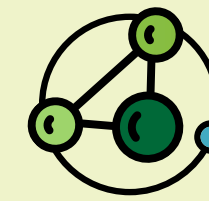
A collaborative effort fuelled the program's success. This graphic highlights the importance of partnerships for impactful environmental education programs.

- Tirunelveli District Administration
- Tamil Nadu Forest Department, (Kalakad and Ambasamudram Divisions)
- Department of School Education,
- Nellai Neervalam
- Government Girls High School, Nadukallur
- Government Siddha Medical College, Tirunelveli
- YOKE, Kodaganallur
- Pusphalatha Vidya Mandir
- Agastya Academy,
- Isha Home School, Coimbatore
- EGG Foundation, Gopalasamudram





Students connect with a towering hundred-year-old Jamun tree



TAKEAWAYS: 7

Bonding with nature

The beauty of nature connects us. The hiking in mountains, the sounds of birdsong, exploring rolling waters in riparian forests, smelling fresh earth in rice paddies, feeling the warmth of red sand dunes, or savoring coastal flavors. These simple moments reconnect participants with nature, fostering a sense of peace and wonder. By engaging with the environment, learning its interconnectedness, and discussing challenges, they gain respect and responsibility. Empowered by this knowledge, they act sustainably, fostering a lifelong love for nature.



8. Looking ahead

Building on the momentum of the successful 2024 Wetland Rovers program, future iterations aim to expand program reach, engaging a wider range of schools and students. Conservation efforts will be refined, implementing long-term strategies with increased effectiveness. To empower local communities, the program will build capacity of local youth for conservation education through targeted training programs. Additionally, new program visions aligned with stakeholder needs and interests will be explored and initiated. Finally, the program will integrate climate literacy, introducing a focus on this critical area with hyper-local case studies for a deeper understanding.



9. Acknowledgements

We are deeply grateful to our diverse group of participants (**Students, Teachers, Parents, Volunteers**) for their curiosity, enthusiasm, and willingness to learn – they are the driving force behind this program’s success.

We also extend our thanks to **Ms Pushpalata Pooranan**, Director & Correspondent, Pushpalata Educational Centre, Tirunelveli, **Mr Vasudevan** and **Ms Chithra Vasudevan**, YOKE, Kodaganallur, **Ms Selvi**, Head Mistress, Government Girls High School, Nadukallur, and our other partner organizations for their collaboration and shared vision, which were instrumental in achieving our program goals.

We thank **Punnakayal Mr Raju** and his family and **Dr Kiruba Solomon**, Freelance Ecologist and his family for the hospitality and delicious lunch for the participants during their visit to Neithal landscape.



We thank **Ms Sharada Ramadass**, Independent Researcher, for evaluating the performance and outcomes of Roversians through presentations in Rovers Student Conference and for the critical feedbacks and **Ms Chethana V Casiker**, Senior Research Fellow, ATREE for copy editing this report.

Finally, we gratefully acknowledge and extend our thanks to **eMudhra** for the generous financial support, as it allowed us to deliver the program effectively.



“

We must teach
our children to smell the earth, to
taste the rain, to touch the wind,
to see things grow, to see the
sun rise and night fall – to care.

- John Cleal



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