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Cover page: *Mimeusemia ceylonica,* a moth rediscovered after 127 years from

Tirunelveli & Thoothukudi districts. Credit: S. Thalavaipandi

Back cover: Front view of Agasthyamalai Community Conservation Centre.

Credit: M. Vinod kumar

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Agasthya is a tri-annual newsletter by ATREE's Agasthyamalai Community Conservation Centre (ACCC) aimed at highlighting issues of research and conservation concern in the Agasthyamalai Region, Tamil Nadu

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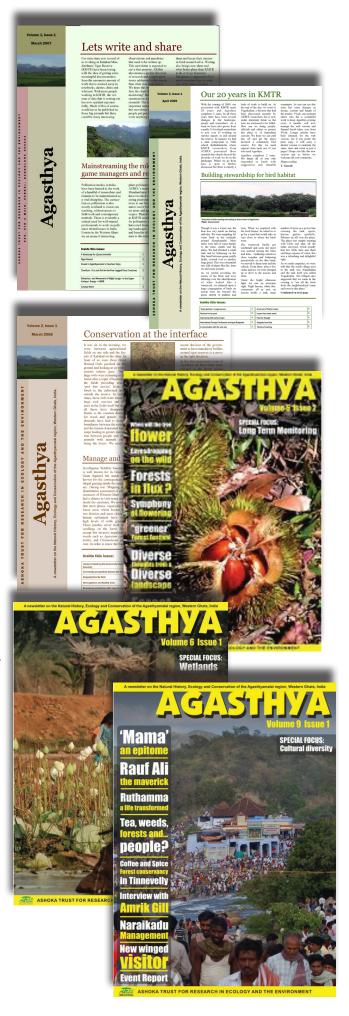
Editor's note

New wine in an old bottle

am glad to let you know that we have restarted Agasthya, the newsletter that chronicles the natural history, conservation issues and events conducted by ACCC team and others in the Agasthyamalai landscape. The first issue came out in March 2007, continued till 2010 and then dropped as 'Facebook' became more attractive and we had a Facebook site for ACCC. However, this did not last long as there was none to nudge people to write so we restarted a new look Agasthya in 2015 with a professional designer, a new team, some new stuff like interviews with local communities and lots of visitors to ACCC to contribute. For some reason, this attractive looking Agasthya had a short life span and we all thought we should move to a blog. So, the ACCC blog was born but that also became dormant after a few years. Then came this bunch of enthusiastic youngsters who said they enjoyed and learnt a lot about the landscape by reading all the old Agasthya issues and we should restart it. I echo their feeling and having spent many years in the region have forgotten most of what happened but the old Agasthya was a good refresher. As a result, we now have a fresh looking Agasthya designed in-house by an enthusiastic and bubbling young editorial board with contributions coming from various people. Many things have changed in the landscape since 2007 both inside KMTR and outside leading to new challenges and opportunities, but Agasthya as before will remain short and sweet. It will continue to document the beauty of Nature but also provide thoughts for discussion on conservation. The success of this venture will depend on regular contributions and for that, the team Agasthya has to be very proactive to make people put 'pen to paper', as they say.

I have been writing this editorial since the beginning and this one that connects the old with the new will be my last. I hope everyone who visits the Agasthyamalai region or even reads Agasthya will contribute to keep the newsletter a source of information and a delight to read. I wish the new team my very best.

T Ganesh



The Essence of Tamiraparani

The river Tamiraparani is the pride and lifeline of Tirunelveli and Thootukudi districts. This mighty river has sustained the livelihoods of countless communities and nurtured a rich ecosystem for centuries. Cascading through the Western Ghats, it captivates locals and visitors alike with its mesmerizing beauty. In colonial documents, this river has been described as a silver thread adorned with lush green paddy fields around it. Starting from its origin in the picturesque hills of Agasthyamalai, the Tamiraparani flows majestically for approximately 120 kilometers, winding its way through verdant forests, lush fields, and bustling towns of Tirunelveli and Thootukudi before meeting the Bay of Bengal. Along its course, the river meanders through idyllic landscapes, providing a serene haven for a multitude of flora and fauna and a myriad of cultural services. The Tamiraparani's habitat boasts a remarkable diversity of plant and animal species. Moreover, the river's bountiful waters sustain an array of aquatic life. Fishermen

cast their nets into the Tamiraparani, hoping to secure a plentiful catch of freshwater fish, adding to the region's gastronomic delights. The river is also a breeding ground for otters, several species of turtles, thus ensuring their continued existence. The presence of these magnificent creatures in the Tamiraparani's habitat underlines the river's vital role in supporting biodiversity. Tamiraparani's importance extends beyond its ecological significance. It serves as a lifeline for agriculturists, providing water for irrigation and enabling the cultivation of crops like paddy, sugarcane, and banana. The river's water is also harnessed for hydropower generation, contributing to the region's energy needs. Additionally, the Tamiraparani's cultural and religious value cannot be overstated, as it is considered sacred by the locals, who perform rituals and ceremonies on its banks. This practice of late has been polluting the river too. The local administration and efforts of ACCC have gradually increased awareness regarding the impacts of solid

waste ending up in the river system. The team has walked along the river collecting baseline information on the socio-cultural and ecological functions of the river through the TamiraSES project. Our team continues to put efforts in gauging communities' interest to participate in restoration and management of this unique river system.

In conclusion, Tamiraparani and its habitat epitomize nature's magnificence and the harmonious coexistence between humans and the environment. Its enchanting beauty, diverse ecosystems, and vital role in sustaining livelihoods make it an invaluable asset to Tirunelveli. Preserving the Tamiraparani and its habitat is not only essential for the well-being of the region's flora and fauna but also crucial in ensuring the continued prosperity and cultural heritage of the people who call it home.

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An Encounter with a Frogmouth

Many animals in nature have the ability to blend into their surroundings by matching their colour, pattern, and shape to the environment. This helps them hide from predators. Some insects, reptiles, and amphibians are particularly skilled at this and can be difficult to spot while walking in the forest. Among these masters of camouflage

Lanka frogmouth, which is endemic to the Western Ghats and Sri Lanka's biodiverse forests.

On August 14th, 2023, Dr. T. Ganesh (TG), Tamizhazhagan (Chian), and I went to our field station in Kodayar, located inside the KMTR, for our regular research work on tree phenology and moth sampling. In the morning, TG and Chian collected tree

phenology data while I assisted them. At night, I observed moths by setting up a light sheet in front of the room. During this trip, we saw about 200 species of moths, including the Indian moon moth, lesser atlas moth, and the golden emperor moth. We planned to return on August 16th, 2023. Our field work was completed by around 6:00 PM at Kakachi. The road was in a very bad condition, so I drove our Marshal vehicle slowly while we looked for animals on both sides of the road. We only saw a sambar deer. Once we reached Manjolai, we had a cup of black tea at a shop for free. Later, at around 8:00 PM, I spotted a bird on a bush just above the road. I told TG that there was something on the bush and reversed the vehicle to get a better look. It turned out to be a Sri Lanka Frogmouth, which was a lifer for all three of us! We observed it for a few minutes be-

fore returning to Manimuthar field station with happiness.



A Sri Lanka frogmouth PC: Thalavaipandi S

are some birds, including the Sri Lanka Frogmouth. In India, two species of frogmouths can be found: Hodgson's frogmouth in northeast India and the Sri

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Hey, get me a snack!

It was some years back when I first noticed Brahminy kites chasing Montagu's harriers in the dry grasslands of Perumal Nagar, Tirunelveli. It was a bit unusual as these kites do not forage in grassland areas. The kites were attacking the harriers and chased them away very vigorously. The dextrous harriers could fly up and avoid any physical contact with the pursuer but had to fly away from their foraging grasslands. More closer observation revealed that the kites tolerated the harriers when they were sitting but as soon as they started foraging, they kept a sharp look out for the bird. Once the harrier catches its prey, usually a large grasshopper, the kites attack and chase the harrier. The kites are faster and more vigorous flyers and can swoop very powerfully. The harriers being more dexterous in flight easily avoid conflict by a gentle flip of its wings that often sends the pursuing kites on a tangent while the harrier slowly glides away or gains height to quickly finish its snack. Often when the chance is long and two or more kites are in pursuit, the harrier drops its prey and moves off. It was, therefore, a clear case of parasitizing prey, what is technically called Kleptoparasitism. The harrier often did not return immediately

to the place but did after a long time.

Our observations of harriers over many years have seen many such instances where larger open country birds like Laggar falcons have chased harriers to obtain prey or even harriers being preyed upon by falcons such as the Peregrines but never seen Brahminy kites pursue with such determination. Why did these kites do this when their main food is fish or refuse and their habitats are wetlands? Why target Montagu's harrier as we did not see such a behaviour against Marsh and Pallid harriers? More importantly, what triggered such a sudden spurt in such incidents which was never seen earlier? I offer a couple of explanations in our next issue of Agasthya!

Ganesh T. *tganesh@atree.org*





Moulting for a fresh start

Moulting is a process carried out by many invertebrates where they outgrow their old skin and come out with a brand new, fresh outfit to encounter the world outside. Also, vertebrates such as snakes and lizards shed their outgrown skin (also called ecdysis). While for snakes the moulted skin usually (but not necessarily always) comes off in a single piece, it is shed in small pieces by lizards. Fan-throated lizards or Sitana are a spectacular-looking group of lizards that inhabit many parts of South Asia. Abundantly found in the open-natural and coastal ecosystems, males of this group possess a dewlap that is in the shape of a hand-fan.

On a relatively less hot afternoon, I was on my way to the boys dorm from the laboratory. Suddenly, disturbed by my presence, a Maruthamneydhal fan-throated lizard (Sitana marudhamneydhal) spurt across the mud path and stopped abruptly. I stood there observing the lizard, trying not to make any sound or sudden movement. The lizard also was motionless for a few seconds

and suddenly made a hesitant movement with its leg. Just then, I observed that the lizard was in the process of ecdysis. The skin was yet to peel off from its tail. In a swift motion, the lizard took a bite of the hanging skin from the base of its tail and started consuming it. Thalavai anna walked beside and informed me that he had seen a few lizards over the past days that were shedding skin. Now with a fresh set of scales adorning their body, the lizards might be anticipating a positive start to their breeding season. They will be preparing to mark their territories, ward off other males, attract females and claim their mating rights by flagging their dewlaps, thus demonstrating to the world their wonderful colours and vigour.

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Feature Article

A Glimpse of the Otter in Tamiraparani

"Healthy otters tell us we have a healthy countryside" - J. C. Tregarthen

t was early dawn on a clear morning in June 2022. A synchronised bird count being conducted along the Tamiraparani river was interrupted by a lonely otter perched on a partially submerged rock. The survey was led by Rahini and Antony in Papanasam, an eco-sensitive zone at the edge of the forest. They recall that the otter disappeared into the river immediately, popping its head out of the water occasionally. This sighting that lasted barely 30 seconds was enough to prompt a study to find out more about these otters along the Tamiraparani river.

The Tamiraparani landscape is special in that it is suspected to support 2 out of the 5 species of otters found in Asia - smooth-coated and Asian small-clawed otters. The Tamiraparani river, historically known as Porunai, originates in the Pothigai Hills located within the KMTR and flows down through multiple landscapes to reach the Bay of Bengal at the Gulf of Mannar off the east coast of Thoothukudi. The river's personality changes with the landscape, flowing shallow through rocky terrain in the higher altitudes and becoming deep and slow-moving at the plains. These different river characteristics form habitats suitable for both species of otters.

Mapping otter presence to restore the river



An otter's footprint. PC: Smriti Mahesh

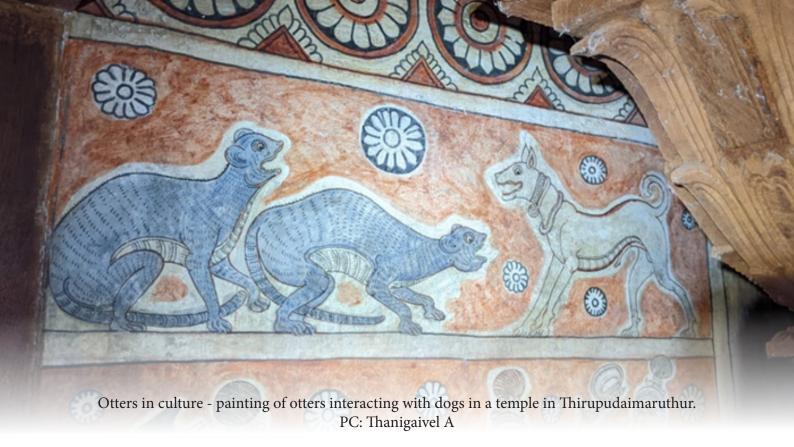
As part of the otter team, we set out to investigate the distribution and occurrence of otters along the Tamiraparani river by conducting reconnaissance surveys in search of habitat and river characteristics suitable for them. Apart from looking for direct sightings, we also look out for indirect signs of otter presence - footprints, spraint sites, grooming sites and dens - and set up camera traps to record otter movement. We also interact with fisherfolk, farmers and other riverside locals on a daily basis, enquiring about possible otter sightings and people's perceptions of the river itself. Through these conversations, we hope to get an insight into the historical distribution of otters along the river. We study how otter presence has changed over decades and through the seasons, and ultimately try to understand the factors that affect otter presence across space and time.

The Tamiraparani river, and otter habitats within it, is under threat due to a variety of reasons along its course. Through the knowledge gained from this study, the team aims to involve local stakeholders and devise a restoration plan to curb existing threats and restore appropriate vegetation along certain parts of the river. This should enable the return of native aquatic life, followed by the eventual occupancy of otters in these areas. A healthy population of otters would be a good sign of the river's return to good health since the presence of otters plays a crucial role not only as an indicator of water quality, but also of the riparian vegetation and level of anthropogenic pressure on the river.

Too quick for a picture but a memory for a lifetime

At ACCC, I (KB) got a chance to spend 2 months (August & September) doing research on otters in the Tamiraparani river. I spent a whole month searching the otters. But, it was in vain and I was equally disappointed and worried about not sighting an otter in the river.

At that time, Mr. Arunachalam at ACCC shared information about an otter he had seen in Vattakulam near Zamin Singampatti Agasthiyar temple with me. At first, I didn't believe what he said. He told me that he had once seen an otter cub walking slowly over a rock in the afternoon. I was surprised to hear that. He took me to that Vattakulam and showed me the



place where the otter was seen. I believed it would make an ideal otter habitat as the place had boulders, grass and shrubs. Apart from that, between each boulder, small dens were found. Kans grass is abundant around Vattakulam and along the banks of the river. Suddenly, I heard a sound. It was as if something was moving from the den. When I heard that sound, I was scared and moved backwards. Mr. Arunachalam said that it was an otter sound. But even though I did not believe much in what he said, we left the place and we would come to Vattaku-

Civin Solomon (left) helping Aditya Ganesh (right) set up a camera trap to find otters. PC: Sneha Shahi

lam again tomorrow morning. I kept going to Vattakulam with my team members to check for otter presence. But it was in vain. One day, I decided to go alone and try my luck. On that day, the sun was shining, all the plants were green and looked very beautiful, and even the bird calls were clearly heard in between. Just then, a miracle happened. I saw a beautiful smooth-coated otter, walking slowly from behind the boulder, opposite to where I was sitting. When I saw it, I stood and watched in shock, with joy in my heart that I had achieved it. I thought of taking a picture of the animal. But, the otter saw me and quickly jumped into the water and disappeared. But I was happy on one side and sad on the other because I really regretted not being able to take a photo of the otter.

I tell others about the sighting, it is hard for them to believe it without a picture. Even the fishermen here told me that they never see otters that close. However, this is not a setback and I hope that the research on otters will not end with me and that there will definitely be opportunities for someone else again in the future.

Civin Solomon, Smriti Mahesh, Kousik Baabu & Aditya Ganesh

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Up and Above the Ground: An Encounter with a Sand Boa at ACCC

am an intern and work near the mountains which are always in sight. Thus, it was natural to see some wildlife frequently. As a reflection of my interest in learning about reptiles, I would walk in and around ACCC at night, always with a headlight. So far, in my effort, I have observed many snakes like rock python, common kukri, Russell's kukri, Russell's viper, cobra, sand boa, common wolf snake, and green vine snake in their natural habitat.

One evening after a drizzle, I was busy working in the lab. My friends, Anikethan and Venkatesh, hurriedly called me outside. They had seen a snake on a neem tree and wanted me to see it. When I saw the snake on the tree, I was confused. My friends were also confused as to whether it was a python or a sand boa. I rushed back to get my camera to click a picture to identify it. Upon closer inspection and some discussions with people from ACCC, it was identified as a common sand boa (Eryx conicus). This is an exciting finding because sand boas are usually ground-dwelling snakes. They reside in bur-



rows or bunds near agricultural areas. It was interesting to see it resting on a tree. I also searched on the internet if this behaviour has been recorded before. I was surprised because sand boas are indeed known to climb trees and reside in tree hollows.

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My First Internship

Harshit Mishra with the ACCC team and kids. PC: ATREE-ACCC

ntil May 2019, all the experience and perspective I had about wildlife and a forest was from natural history TV channels and the Nehru Zoo in Hyderabad, Telangana. It took a lot of searching to realize that there is hope for Indian students who want to pursue a career in ecology, evolution and conservation or generally speaking, the environment. What took more effort was to convince my parents why a student of life sciences will benefit from an internship in ecology but in the end I got their unconditional support! And there I was, on a bus to Tirunelveli for my first internship and first time staying away from home. My internship started with me travelling to Kodayar. I was to assist with sampling, separation and documentation of leaf fall and leaf litter from three plots in the rainforest of Kakachi and Kodayar. In the end I submitted a short report of this work. This was the first time I had seen a proper relatively less disturbed rainforest and learned about it. Along with this work, to my surprise and delight, I was a part of the citizen science and public engagement activities of ACCC, workshops, nature trails for school children and clean up drives. In addition to these, I was also a part of the field work of two master's interns at the centre working on owls and bats. Over the last four years, I have realized that more than the institution or project or landscape where you

work, what matters more is the people you work with. Having a supportive and encouraging team for a novice like me at that time was the best part of the internship. The team at ACCC pushed me when I was scared or lazy or sometimes genuinely tired while walking in the forest. They made me expand my physical and mental boundaries and at the same time became very good friends of mine. I got the chance to see various parts of Tirunelveli, had my magical moments in the field, sightings of many snakes, birds, drinking water from and swimming in the forest water bodies and eating amazing food of Tirunelveli. This internship sealed my future in this field and has also been an important achievement which has given me many more opportunities as my career progressed. The ACCC internship was probably one of the best periods of my life and I thank Dr. T. Ganesh and the ACCC team for this.

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Research Highlights

Moth rediscovered after 127 years

Featured on the cover of this issue, a crepuscular moth *Mimeusemia ceylonica*, known only from its type locality Trincomalee (Thirukonamalai) in Sri Lanka, was rediscovered at ACCC in 2020 during a moth survey conducted by S. Thalavaipandi and P. Prasanth. Additionally, this moth was also recorded in the Vallanadu Black Buck Sanctuary in 2021. This rediscovery holds a particular significance because it is the first time *Mimeusemia ceylonica* has been photographed, as it was previously only known from illustrations.

Subbaiah T, Prakhalathan P. Rediscovery of crepuscular moth *Mimeusemia ceylonica* Hampson, 1893 (Noctuidae: Agaristinae) after 127 years and its distribution in India. Species 2023; 24: e20s1020 doi: https://doi.org/10.54905/disssi/v24i73/e20s1020



Diet of Montagu's harriers wintering in India

In this study, Arjun Kannan and team used a new approach to study and determine the diet of the Montagu's harriers in India using web-sourced photos and pellet analysis across its wintering range in Western, Deccan and southern India. They found that more than 50% of the diet of the wintering Montagu's harriers consisted of orthopterans (grasshoppers and crickets). However, they also found that non-insects, reptiles, rodents, birds and eggs also played a major part in their diet in small quantities. Though a majority of their diet was formed by orthopterans, they found significant differences in diet between the sexes where the males had more reptiles and rodents than females.

Kannan, A., Thalavaipandi, S., Mehta, D., Saravanan, A., Prashanth, M. B., & Ganesh, T. (2023). Diet of Montagu's Harriers *Circus pygargus* Wintering in India: Analysing Seasonal, Regional and Sex Differences Using Web-Sourced Photographs and Pellet Contents. Acta Ornithologica, 57(2), 155-166. https://doi.org/10.3161/00016454AO2022.57.2.004



Temples as refuge for bats?

In this study, Dr T. Ganesh and team addressed a question as to why cavedwelling bats preferred to roost and nest in temples. They found that microhabitat characteristics available inside ancient temples with dark rooms, crevices, high ceilings and walkways were preferred and used by bats as their alternate roosting sites. The study also highlighted that scrub and grasslands were crucial for foraging bats. The study concluded by stressing on the importance of retaining dark, unused spaces in places such as ancient temples as they serve critical for bat conservation.

Schneider's leaf-nosed bat (*Hipposideros speoris*)

Ganesh T., Saravanan A., Mathivanan M. (2022) Temples and bats in a homogeneous agriculture landscape: Importance of microhabitat availability, disturbance and land use for bat conservation. PLOS ONE 17(7): e0251771. https://doi.org/10.1371/journal.pone.0251771

New locality record of the Sri Lankan flying snake

R. Sankaranarayanan reported the first record of the Sri Lankan flying snake from the Agasthyamalai region. It was previously thought to be endemic to Sri Lanka but subsequent records from Andhra Pradesh and Tamil Nadu revealed that it was indeed widespread in southern India.

Sankaranarayanan, R. (2023). An additional



Sri Lankan flying snake PC: R. Sankaranarayanan

record of the Sri Lankan flying snake, *Chrysopelea cf. taprobanica* Smith 1943, from the Agasthyamalai Region in the southern Western Ghats, India. Reptiles & Amphibians, 30(1), e18768. https://doi.org/10.17161/randa.v30i1.18768

Cnemaspis rashidi, a new gecko from Tamil Nadu

A team of researchers of whom A. Thanigaivel was a part of, have discovered a new species of gecko, Cnemaspis rashidi (Rashid's dwarf gecko), from a private estate in Kottamalai, Virudhunagar, Tamil Nadu

Sayyed, A., Kirubakaran, S., Khot, R., Thanigaivel, A., Satheeshkumar, M., Sayyed, A., Sayyed, M., Purkayastha, J., Deshpande, S., Sulakhe, S. (2023). A new species of the genus Cnemaspis Strauch, 1887 (Squamata: Gekkonidae) from the higher elevations of Tamil Nadu, India. Asian Journal of Conservation Biology, 12(2), 179-188. https://doi.org/10.53562/ajcb.83427



Prioritizing irrigation tanks for waterbird conservation

Patrick David and team developed a new approach by using total counts and abundance of species indicating declining trend to prioritise irrigation tanks for wetland bird conservation in the Tamiraparani river basin. This long term study conducted from 2011 – 2022 has shown that there was a marginal decline in waterbird abundance and that 14 of the 50 species showed declining population trends. They assessed some tanks which are winter and summer hotspots for wetland birds and came up with a list to prioritize seven tanks in both seasons for the conservation of wetland birds.

David, P., Prashanth, M. B., Saravanan, A., Thalavaipandi, S., Antony, P. M., Mathivanan, M., & Ganesh, T. (2023). Developing a novel approach to prioritizing irrigation tanks for Spot-billed pelican PC: Nitin

Conservation in the Tamiraparani river basin based on long term trends of waterbirds. Wetlands Ecology and Management, 31(3), 381-399. https://doi.

org/10.1007/s11273-023-09923-6

News and Events

Infrastructure revamp at ACCC

The laboratory has been upgraded to facilitate water quality analysis; a new kitchen and a dining area has been constructed; the guest house has another floor to house more guests; and a Mahindra Bolero B6 has been purchased as a new field vehicle.

Mullai Festival 2023

A 4-day program called the Mullai Thiruvizha was conducted connecting experts in the field grassland biodiversity, resource management and nomadic pastoralists to arrive at Equitable Solutions for Sustainable Pastures. Among the activities conducted as part of the program were art and photo contests, 'Coffee with Kidaari', a walk-and-talk with nomadic pastoralists in Vallanadu, a series of lectures on grasses, livestock and other important plants, and the release of a field guide to the Harriers of the Indian Subcontinent.

Guidelines for Religious Tourism in TRs

ATREE in collaboration with WWF UK and Alliance for Religion and Conservation (ARC) have produced a guidelines document which provides suggestions to manage religious tourism inside tiger reserves (TR) in India by taking into consideration the aspects of religion, culture and conservation.

Synchronised harrier count

A synchronised harrier roost count was conducted in Tirunelveli (11) and Thoothukudi (3) districts, Tamil Nadu from 5th to 7th December 2023. A total of 100 harriers were counted in 14 roosts in these two districts in three days.

Extreme rainfall in southern Tamil Nadu

Once in a lifetime rains received by southern districts of Tamil Nadu in December 2023. Tirunelveli, Thoothukudi, and Kanyakumari districts received a year's rainfall in a single day, resulting in flash floods which caused displacement of people, livestock and damage to infrastructure. We have initiated a study to see the cascading effects of floods on biodiversity and livelihoods



Snippets

A juvenile monitor lizard was spotted on the Manimuthar-Manjolai road near ACCC on 7 Sept 2023 by **R. Sankara-narayanan and Arshak K. P.**

A king cobra was spotted at a farm near ACCC by ACCC team.

Yellow-billed babbler chicks observed, it was also host to hawk cuckoo chick. Indian Pitta, a local migrant was regularly heard in ACCC campus in December by **A. Thanigaivel, S. Thalavaipandi & T. Ganesh**

Fan-throated lizard juvenile was observed at ACCC campus in 22 December 2023 by **A. Thanigaivel & S. Thalavai-pandi**

