

AGASTHYA

Volume 6 Issue 1

Waterfowl census,
citizens
and conservation

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Event Reports

SPECIAL FOCUS:
Wetlands

Notes from the editor

Building a constituency around wetland conservation

I was surveying the wetland in Pottaisuthi along with some volunteers when one of the volunteers, a young student named Jesuraj, came up to me and asked if the swallow has a brownish grey patch on its back. I answered in the affirmative and without giving it a thought went on with the survey. I noticed later that he seemed to be jotting down observations on a notebook. After surveying three tanks, at the end of the day I asked him what all he observed in the field. He showed me his notebook and in it were illustrations of all the birds he had seen in the field. Without any formal training and external motivation, using just a pencil, he had sketched the features of the birds observed by him. The attention that he had paid to details was remarkable. The white patch on the shoulder of black ibis, the spot on the spot-billed ducks etc. was almost like pointers depicting key features of birds in a bird guide. Encounters with such people even if they are far apart, keep the spirit of many conservationists going. It is for such enthusiastic kids that we as adults wish to hold and pass on the nature's treasures that we inherited. Some of these local kids need a proper channel to propel their interest in nature. Watching wetland birds can be one such first step towards a long journey of observing nature. Volunteering for the water-birds survey exposed people to not only observe the birds that use wetlands but also the human-use of wetlands. During the survey, we came across an old lady collecting lotus leaves, a young boy collecting lotus and lily flowers, some others fishing while farmers were collecting silt from the dry part of the wetland to manure their fields. Wetlands, as we saw, were useful not only to birds but also to humans. Yet, threats stem from powerful lobbies working to make instant monetary profit which has engulfed many wetlands in the area. Amidst this we are beginning to witness growing stewardship among local farmers and charismatic individuals who have now taken the lead on long drawn legal battles to conserve wetlands for wildlife and human well-being. It was also heartening to see more volunteers participating in the second year of the bird census. We hope that our activities are aiding to build a support base for such local enthusiasts for the long and tough journey ahead.

- Allwin Jesudasan



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Cover page image: Multiple use of wetland **Credit: R Ganesan**

Flip of cover page image: Kids trying out the spotting scope to view birds **Credit: R Ganesan**

Back cover: Biologically and culturally rich and diverse landscape of the Agasthyamalai **Credit: R Ganesan**

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Waterfowl census, citizens and conservation

When I first came to Tirunelveli way back in 1986, it was the beginning of summer. I was travelling by train and sitting by the window I could see the semi arid landscape pass by in shades of brown with occasional scattering of green. I could see peacocks, ibises, storks, egrets, partridges here and there; some in the fields, some in barren lands and some in small pools of water. I have not seen so many birds except in Gujarat and other parts of north India and this journey has since then remained strongly in my memory. But the opportunity to study this landscape came only in 2008 and it was timely because over the last 20 odd years I have seen irrigation tanks converted to paddy fields or used for urbanisation, getting polluted, heavily silted and choked with weeds. At the same time in the arid land where large trees were present, which often take centuries to grow, have been mercilessly cut for various developmental works offering very little scope for birds and other creatures to persist in the landscape. So the important question that we were asking is how to engage society in conserving the birds and their habitats. As Baba Dioun, the environmentalist, had said, "In the end, we will conserve only what we love, we will love only what we understand, and we will understand only what we are taught". So there began our journey to help people to love and understand nature first and hope conservation will soon follow. In the Tirunelveli region with its numerous tanks, reservoirs and rivers, water birds are the best to make people realise that there is something to love and cherish. Because they are effortlessly seen, as they are big, don't fly away that easily and at least majority of them tolerate human presence, one can see them for hours if they are not disturbed. To make this happen, over the last few years we have been organizing workshops, talks and field visits to encourage people to watch birds and carried out surveys to show how many birds are around them. For most, it was surprising to know that the bird they have been seeing in



R Ganesan

A typical view of the landscape around Tamiraparani

their garden or in the nearby pond has come all the way from far away places like Russia!

Wetland birds in the Tirunelveli and Thoothukudi districts are poorly studied. So unless we know what is there how can we tell people what to watch and where to watch? We did an extensive survey in 2009 and 2010 on the birds in the region and got some idea of what to expect. In 2011, as most regular readers of Agasthya would know, we organised the first waterfowl census involving people from the districts which not only gave us a better idea about the distribution of waterfowls in the districts but also allowed us to connect with a large and exciting citizens group who are passionate to conserve our feathered friends. The 'Pearl City Nature Society' was formed who gave us the much needed moral and financial backing to carry-out the 2012 census. We believe that this effort can be sustained with more people and groups joining the census in the years to come.

A common enquiry that we often get is "what the use of this census and how it can help in conserving our wetlands and birds?" Well, thanks to these annual censuses, we have

now identified important areas that need to be protected apart from Koonthankulam which is a Wildlife Sanctuary. There is Vagaikulam, Arumugamangalam, Kadambankulam, Vijayanarayanam, Nanguneriikulam, Vallioor, wetlands around Singampatti and many more that, as citizens of the district, we should vouch for its protection. We could share this information with the forest department to make sure these tanks are free from poaching, cutting of trees etc. but at the same time rights of local people are not compromised. Forming citizens initiatives are not just for birds, it's for all habitats and taxa. You could observe plants in wetlands as some of the participants of 2012 census did, look for frogs, reptiles, snakes, snails and mammals that are all there in the region but poorly documented. We need your help, your voice, your writings, your pictures and anything that would help in protecting the beautiful landscape of Tirunelveli and Thoothukudi districts for posterity from the fangs of unsustainable development.

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Constellations of small tanks in Tamiraparani: orphaned or adopted?

Come the month of December, the wetlands or more appropriately the tanks, both big and small in Tamiraparani basin is teeming with birds which come from far and near. When you drive around the area in April - you could see people fishing and sometimes truck loads of fishes leaving these wetlands. During other times of the year, you could see lotus and lily leaves being harvested. Even the sediment enriched tank bed soil is collected as it is high in nutrients and organic matter which can be used in their paddy fields. This reflects the multi-functionality of

these wetlands in the landscape as well as the multiple stakeholders dependency. Many of these tanks have long history and date back to the 4th and 5th century A.D, when they were constructed by local landlords and maintained by the community. With socio-political change and with the advent of the new rulers, many of these tanks were not maintained. After independence large reservoir based irrigation canals emerged and the command area of Tamiraparani expanded and many of these tanks which were not part of this network got further

neglected. Today Tirunelveli boasts of 2500 wetlands of which 1222 are managed by Public Works Department and fed by irrigation channels. Other tanks which are vested with the Panchayats are all rainfed. The full potential of these unique human-made ecosystems are not realized due to poor maintenance, encroachment and many of them have been put to alternate use by both state and private constituents. Just to highlight a few, Tirunelveli bus stand today sits on Vendhankulam which was once a beautiful wetland, and Nainarkulam in the



An aged woman collecting lotus leaves to be sold in the hotels for serving food

heart of the town is a repository of town's sewage. At the backyard of ACCC, we have been a witness to the shrinkage of several 'kulams' by encroaching paddy fields.

I leafed through various framework policies and conventions with a hope to see if these could help rejuvenate the ponds particularly the rain-fed ones. I started with Ramsar Conventions for Wetlands in which India is a member of contracting parties, the Notification on Regulatory Framework for Wetlands Conservation (RFWC) and the Draft National Water Policy (DNWP) launched by Ministry of Water resources. I also read through the scholarly engagements of my colleagues at ATREE on both these pieces of legislations. Firstly, most of these wetlands may not meet the depth and area

requirement prescribed by Ramsar or RFWC. ATREE had identified an important shortcoming in RFWC which I quote here "Irrespective of the size, a wetland that perform critical ecological/biodiversity functions e.g harbouring critical population of endangered species need to be included under the category A (high priority) of Ramsar". This specifically applies to wetlands in the Tamiraparani basin where a network of small wetlands supported populations of threatened birds like pelicans and painted storks. Birds now appear to be in 'quasi equilibrium' in the region tracking water levels of these small wetlands which are distributed in staggered fashion to various regions starting from North to South.

Secondly, both DNWP and RFWC hints at

centralizing tendency of wetland and water management to meet their criteria. This approach is antithetical to the current mood of decentralized governance of natural resources in the country. In any case, about 84 % or 1263 rainfed tanks today are with Panchayats but there appears to be a general tendency of apathy and withdrawal towards these tanks as compared to the network managed by PWD. There are models where NGO like 'The Foundation of Ecological Security' (FES) has intervened and built capacity of local Panchayats on watershed management. A large cluster of villagers and Panchayats have been able to effectively improve the natural resources of the area using sources from National Rural Employment Guarantee Act of Govt. of India. Various village level sub-committees such as tank-users can be nested under Panchayats for effective management. Perhaps this model may be a one of the pathways to rejuvenate 'orphaned tanks'. Other tanks which are potential heronries can be identified as Biodiversity Heritage Sites under the biodiversity act or as 'Community Reserve' under the wildlife protection act which will again ensure multi-functionality of the wetlands reconciling conservation and use by the community.

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Mobilizing citizens for the waterfowl survey

India has a significant portion of its land as wetland comprising of natural lakes, irrigation tanks and reservoirs. About 25 of these wetlands have been selected as internationally important by the Ramsar Convention and declared as Ramsar Sites. Humans value wetlands as they provide many services such as cultural, aesthetic and health services. These natural resources, if managed properly can solve many problems related to environmental as well as social issues. Apart from providing services to humans, wetlands also provide habitat to variety of plants and animals.

In Tirunelveli and Thoothukudi districts, there are many wetlands that are rich in floral and faunal diversity and these wetlands are home to more than 70 bird species including many migratory birds. These districts were known for its heronries (nesting sites of water birds) but is changing fast because of various reasons including people's attitude. In our survey of wetlands, we found that birds seem to prefer nesting in places where the trees were present inside the tanks. Unfortunately, we came across many instances where the trees in the wetlands have been cut. ATREE's

ACCC believes that local people's participation in wetland conservation is very important and thus ACCC has been conducting many conservation programmes with the involvement of local citizens. One of our initiatives is the annual waterfowl census in wetlands which are fed by the perennial

river Tamiraparani. Main goals of this programme are conservation of wetlands and its biodiversity, creating awareness, assembling like-minded people under one roof and taking count of water birds during winter season. As soon as we made an announcement in newspapers about



Volunteers participating in the wetland bird census

waterfowl census, many citizens from Tirunelveli and Thoothukudi districts responded. In the first year (2011) about 40 volunteers participated and in the second year 55 participated, indicating an increase in both reach and popularity. Many of them were new to bird watching and hence had to be given an orientation program in

identification of wetland birds. People aged between 20 to 60 years participated and their profession ranged from students, doctors, entrepreneurs, employees, pensioners, to home-makers. Inspired by the census efforts in 2011, two nature clubs (Pearl City Nature Society and Dhonavur Nature Club) have been formed in the landscape. These groups

were started to regularly watch birds in wetlands and to bring the students of schools and colleges under the fold of nature lovers. It is heartwarming to know that lot of citizens are interested to engage themselves in nature conservation activities through the waterfowl census.

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On waterfowl trail...

The landscape of Tirunelveli district makes a perfect painting with the Agasthyamalai hills in the backdrop, agricultural fields and wetlands in the foothills interspersed with Palmyra trees. The agricultural fields and wetlands are adorned by hundreds of colorful water birds like the storks, pelicans, herons, jacanas, ibises and egrets which is a sight to behold.

The district has no dearth of water thanks to the many rivers that originate in the Agasthyamalai hills. Numerous human-made wetlands situated in the arid plains of the district are fed by perennial rivers viz., Tamiraparani, Manimuthar, Pachaiyar, Kodumudiyar, Gadanathi, Ramanathi and Nambiar through the river-canal-tank network. The matrix of wetlands surrounded by extensive paddy fields supports high diversity of waders, divers and shorebirds, most of which are winter migrants. The old trees and plantations support heronries while the palmyra traditionally planted around the

tanks offer roosting sites for numerous resident birds. But there is little documented information on the bird life, their status and the threats these habitats are facing.

As part of the wetland survey project funded by IUCN, all the tanks that lie in the buffer area of Kalakad Mundanthurai Tiger Reserve (KMTR) were surveyed by us to investigate the bird life in the region. Survey of India topographic sheets were used to trace the tanks which also gave us information of tanks that do not exist anymore. About 177 wetlands that lie within 5 km of the eastern boundary of KMTR spread over a distance of 65 km were surveyed between Nov 2008 and Feb 2009. This gave us an opportunity to also visit the tanks that may not be of use to the local population but were good habitat for birds. During the survey more than 13,164 birds belonging to 68 species were recorded. Seventeen tanks that were found to support a large population of water birds were identified. These tanks were monitored

seasonally to further investigate the importance of these tanks.

This survey led us to Vaagaikulam tank situated at Nanankulam near Alwarkurchi in Tirunelveli district which was found to sustain high bird diversity and was first reported by us. It is one of the largest heronries in the district of Tirunelveli after Koonthankulam bird sanctuary. The tank comprises of semi submerged *karuve*/trees and is an important nesting and roosting site for several non-migratory species of birds like black-crowned night heron, black-headed ibis, little cormorant, little egret and Indian pond heron. Unfortunately this heronry is in imminent danger as the trees that are currently used for nesting are scheduled to be cut down by the local authority.

The survey also showed that traditional methods of land use are slowly eroding which is resulting in degradation of the environment. We observed that the tank area is shrinking and in extreme scenarios entire tanks are disappearing due to landfills for development and encroachment of lake beds by current agricultural practices. This in turn is endangering the bird life that sustains this habitat. Therefore it is imperative to preserve and conserve what is left by protecting few of these tanks and educating people about the importance of birds. It is necessary to take up planting programs within the tank and its periphery. In small tanks, such plantations should be limited to a portion of the tank so that rest of the tank is left open to be used by ducks and other swimming birds and also for human activities like fishing and domestic purpose. Traditional practices of protecting the tanks where the community was completely engaged are fast eroding which needs to be revitalized wherever possible.



R. Ganesan

Wetlands are a haven for biodiversity

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It is good to be back home

In 2010, after a gap of 40 years I returned to my native village in Thoothukudi district from Valparai where I worked in a tea plantation company. By this time I had lost contact with all my friends with a like-minded interest in wildlife and nature. I then came across a news item in 'The Hindu' requesting for volunteers for a wetland water bird census in Tirunelveli and Thoothukudi districts. I called the given number and they readily agreed to include me as a volunteer. I thus came to know about ACCC-ATREE and all the friendly people there.

Since then I have been trying to read more about the wetlands in the two districts. After digging through the history of these tanks and making several field visits I found the whole area to be unique. Two check-dams were built across the river Tamiraparani in 1507 and 1873 by the kings of Madurai and the English rulers respectively. From 1507 onwards Kaliavoor dam has been feeding 31 irrigation tanks in Thoothukudi. In this stretch there are several large tanks of over 2000 acres, notable among them are Thenkaraikulam, Vellurkulam, Srivaikundam,

native plants. Afterwards they move to Thenkaraikulam, Perurkulam, Perungulam etc. The first quarter of the bird season is dominated by migratory birds and then by large wading birds like spot-billed pelican, painted storks, ibises and flamingos. Birds move from one tank to another and so regular monitoring is important. During the 2012 census, we saw fewer birds but in the second week of February I saw more migratory birds in all the ponds.

The first waterfowl census in 2011 also helped me to identify and know people with common interest in Thoothukudi. With ATREE's help we formed Pearl City Nature Society in 2011. This dedicated group has now become watch dog for all environmental issues in Thoothukudi. Regular field trips are arranged to increase the awareness among the students and public. I consider this as a major achievement by ATREE in aiding the public in wildlife protection and nature education in Thoothukudi.

And such efforts are important as there are problems related to wildlife in this region. The uncontrolled growth of *Ipomoea* and water hyacinth are slowly destroying many ponds. Native reed beds are fast vanishing, turtle and bird poaching is rampant in all the tanks. To protect any place proper documentation of the flora and fauna is important. All these tanks need urgent ecologically backed desiltation and should abstain from diverting water for unsustainable developments and non-farming activities. Since all the tanks are managed by the PWD and village panchayats their participation is paramount in the protection of the wetlands along with the Forest Department and civil society.



Huge congregation of birds is a common site around my village

For the survey, Dr. Ganesh led our team and covered several large tanks in Srivaikundam Taluk. For the first time I realized the vast unexplored richness of the tanks close to my village. I was familiar only with forest birds and all the water birds seemed new to me. Each identification gave me immense pleasure, a feeling only a fellow bird-watcher will understand. Villagers who are used to seeing guns and traps looked at our bird-book, binoculars and cameras with amusement and wondered what we were doing.

Kaspa, and Perungulam. Nine other tanks are over 250 acres. The Srivaikundam dam feeds 22 ponds and notable tanks above 2000 acres are Kadambakulam, Arumugamangalam, Peikulam, Authurkulam and Korampallamkulam. Five more tanks are above 500 acres. All these tanks are only few kilometres from each other.

From September onwards, thousands of migratory and resident bird flocks to these ponds. Birds first prefer the ponds such as Kadambakulam, Arumugamangalam and Kaspa where water is shallow with more

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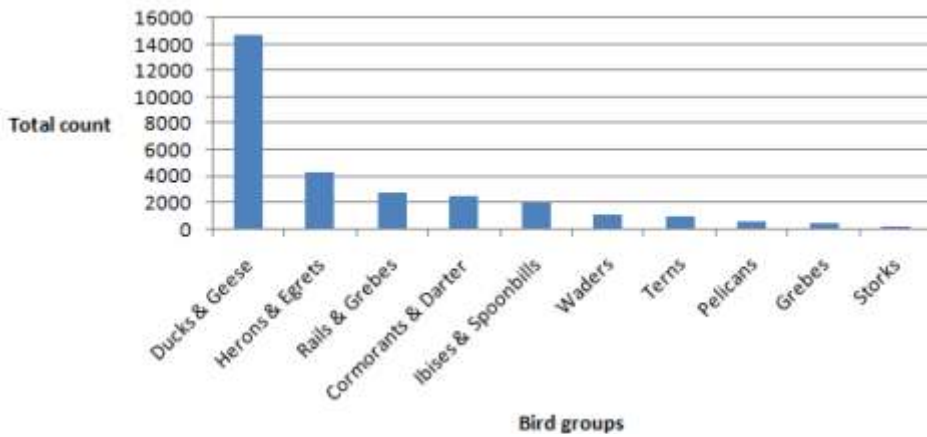
Wintering waterfowl census: counting over the last two years

A few seasons of water-bird surveys in the foothills of the KMTR reserve had revealed lots of little hotspots over the last two years, but, little was known about the diversity and status of the larger wetlands that are encountered closer to the mouth of the Tamiraparani river. As a result, a sprinkling of large and small wetlands was chosen for the winter survey and a total of 53 tanks were surveyed during January 2011 and 2012. About 42 tanks were surveyed in both the

years and a host of 62 species of waterfowl with their total numbers ranging from 30 to 32 thousand each year have been counted in the specified area.

Kadambakulam a large 800 hectare tank close to the coast was found to be unique with a large sheet of sprawling wetland vegetation. Hundreds of hiding whistling teals taking off from the sides of the bund, and wigeons flocking in thousands have been

witnessed here. Tenkarikulam that lies a few kms west of this tank is another huge sheet of water during these seasons, which in total contrast is deeper and completely devoid of vegetation. If not for the lurking ducks in the vegetation, this tank was home to hundreds of Terns fishing in the deep blue waters. The diving ducks, the pochards too chose to be in their niche areas in this tank. An egret that was skinned clean from its feathers lay on the bund reminding us of the effervescent threat



Total numbers of the major groups of birds counted at 53 tanks during January 2012

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Can frogs help reduce chemical inputs into our wetlands?

Frogs and toads are among the common animals that most of us saw when we were young. They were commonly seen near houses and gardens and the constant croaks were the usual company at night. Today, this has very much disappeared in the urbanized

moisture to frogs and in turn serve as breeding grounds. However, they face trouble in another form. Paddy yield needs to be high and so, the farmer, is more often than not, compelled to buy chemicals, pesticides and fertilizers offered at subsidized rates by

chemicals dumped into the fields may kill a few pests but it may also be killing other animals that naturally are known to keep pests under control. These chemicals reach the actual ponds through irrigation channels. Frogs and Toads for instance, are primarily carnivorous and feed mostly on insects. Paddy attracts many unwanted insects termed as pests and the frogs and toads are efficient in feeding on them. How much do we know of these frogs? How much does a farmer know of the frogs and its benefits? Is there an ounce of truth in the traditional knowledge that frogs control pests?

These questions were what we set about to study in the paddy fields around KMTR. Fields around KMTR manage to harvest two crops a year and the frogs breed almost throughout the year, except for the parched months of May. As a preliminary work, we searched for frogs that are supported in the paddy fields. We later caught about 10 frogs of three species and delicately flushed their stomachs using established protocols to see what they eat. Surprisingly, we found them to eat a great diversity of insects. Our study will examine how many from their diet spectrum will qualify as 'Crop pest'. As to know what farmers know of frogs, we set out and released a photographic pocket field guide on frogs and toads of KMTR in Tamil. With the arrival of monsoon, more intensive surveys, both ecological and social will be carried out to solve the question that have been lurking in the mind for a while!



Frogs such as Red narrow mouthed frog (*Microhyla rubra*) are abundant in paddy field which may be controlling insect populations

places that we live. If one needs to find some frogs, the best places would be to reach the nearest wetland, tank, pond or paddy fields. Paddy fields, in some sense - a type of wetland, offer continuous availability of

the Government. The more pesticide used, the more pests being killed seems an impeccable logic. An abuse of the host of largely inorganic chemicals in fact causes much more than just killing pests. The

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Wetland plants – rarely seen and appreciated

My interests in wetlands all started a few years ago when we put together the 'Kulam Valam' – a Tamil Newsletter about wetland conservation. I interviewed mat weavers who brought my notice to the reeds and sedges that they collected from the wetlands. These were an important bio-resource for their livelihood. The water-fowl census then took me to many wetlands - yet another eye opener to know about the plants that play a major role in supporting bird life. Sometime later, the ACCC team came up with the idea of

air chambers that facilitate floatation and in extreme cases, as it is found in 'netti', they develop corky tissue around the stem. There are plants such as lotus and lilies which are rooted but their leaves and flowers float above the water surface. Water hyacinth floats freely on the water surface and its roots are submerged in the water scavenging for nutrients. Plants such as *Vallisneria* are rooted in the bottom and its leaves are submerged. Only its flowers stay above the water so that they are pollinated with the aid

are used as food and medicine while leaves are used as fodder and manure. Silt in the tank containing decomposed plants used as organic manure for paddy and banana. Flowers of lotus and lily are sold in temples and also used for medicinal purposes. Reeds are harvested to make mats.

Wetland plants support birds, fishes, frogs, reptiles, snails, several micro organisms, apart from cattle and humans. It provides space and resources for nesting, roosting and feeding of resident as well as migratory



A. Saravanan

The health of the wetland can be ascertained by the extent of lily, lotus and Ipomea. More the ipomea, more the wetland is polluted.

a guide for wetland plants, an off-shoot of a similar guide to wetland birds. Both the guides target the common people to help them readily identify plants along with the birds in the wetlands. I started my survey in April 2011 covering 80 wetlands. The inventory now comprises 93 plant species representing 46 families.

Plants in wetlands are as diverse in structure and species composition as the plants that grow on land. Diverse habitats ranging from wet soil and shallow edges to deeper area with slush makes the tanks ideal home for diverse plant species. Plants in wetlands have diverse modifications to live in a habitat where the water is plenty. Wetland plants have specially modified roots, stem, leaf and flower systems that are adapted to aquatic conditions. Generally, these plant parts have

of ripples.

Water quality is one of the controlling factors that determines the species composition and abundance of plants in wetlands. Polluted water can aid in the excess growth of single species such as water hyacinth which can rapidly multiply thereby reducing the chances for other species. Sunlight is another key factor for flowering, hence when water recedes one might see a large number of flowers. Summer would be the best time for avid botanists who are keen to collect some specimen.

Humans are one of the major beneficiaries of many wetland plants and are known to harvest and utilize several parts of the plants. Roots and rhizomes such as 'Amalai kizhangu', 'Kadal paalai' and lotus

birds. Some birds like jacana walk through the floating leaves for feeding. Swamphen, coots and jacanas nest on the floating vegetation which forms the ideal habitat for their food - snails, frogs and reptiles. Fishes get food from living and decomposing parts of plants and also take shelter in the entangled mass of plants.

These wetlands plants are beneficial not only to harbor biodiversity but also in improving human well being. Loss in wetland plants will be detrimental not just to wetland biodiversity but also to humans specially the marginalized communities.

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Man with a mission

Tirupudaimarathur village is located on the banks of the confluence of Tamiraparani and Ramnadi rivers. This is a village where Painted storks, Pelicans and other birds find priority in the activities of the villagers. Vast area of common lands here has been declared a 'conservation reserve'. This is the only village along Tamiraparani where commercial sand mining from the river bed is banned.

"Many people are waiting for my death," says Justice Ratnavel Pandian, former Chief Justice of Madras High Court. Justice Pandian is the village's guiding light and instrumental in bringing about these changes. He is referring to those commercial lobbies and interest groups which operate in the countryside. "Have you seen our forest," he asks with pride. All along the river, the common lands that were barren once, today sports a lush green cover.

"It has been the most difficult task to protect these trees in the initial stages," Justice Pandian says. "Narambu had to literally live there and take care of them," he says pointing to his "man Friday". It is people



Justice Ratnavel Pandian

in the village like Narambu who have made it possible to turn Justice Pandian's ideas into reality.

Justice Pandian is not sure if the villagers understand fully the importance of these activities. But he is hopeful that future generations of the village will appreciate and reap the benefits of what their parents have sowed. "I am 80 now," Justice Pandian reveals. "For how long do you think I can go on like this," he asks. Despite a busy schedule even now, he makes it a point to visit Tirupudaimarathur at least once a month.

Many people wait patiently to see him as our conversation ambles along from forests, birds, to his work, vision and his own life. We would like to hear more but there would be another time. It's time to leave and give others a piece of his time.

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7

Tales from wilderness

Trekking up to the 'cliff'

I happened to trek to the 'Cliff' after many years. Cliff as we call it, is at 1550m and one can climb to it from Kakachi. This is a heritage trail, which we indulged in to unwind from routine fieldwork. The path winds its way up to a place from where one gets a panoramic view of the Kakachi region and the golf course of the tea estate. The way up from here is a short 150m climb, but goes through a large patch of Eethal, the reed bamboo which is one place to lose our way as herds of elephants and gaurs trample about this place.

In the end, we did manage to surface at the cliff and were welcomed by good warm sunshine and some strong breeze at 50kmph. On one side you can see the Muthukuzhi and Kodayar dam and on the other side a fine stretch of closed canopy wet evergreen forest. It's also a different world on top, the vegetation is stunted and trees are loaded with epiphytes. Many species like Aglaia, Diospyros and others fruit profusely here compared to the tall forests down below. We still have no explanation why they do so but probably it's the most suitable elevation for them. We had established vegetation monitoring plots in 1993 at this place which revealed that the

R Ganesan



Stunted trees are a feature of the forest along 'cliff'

place was diverse and unique in terms of its plant species richness. These mountain tops are therefore unique habitats which are also likely to be under threat due to climate change. Thus it becomes necessary that we keep monitoring such plots established earlier. But here, gaurs and elephants had

other ideas; they had trampled and displaced the plot pegs which gave us some hard time to trace the corners of the plot.

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Importance of corridors and its ecological services

One cannot miss the tea plantations which appear most like 'emerald islands' studded amidst rainforest in Western Ghats. They are unique and structurally different from coffee, cardamom and rubber plantations. The monotony of large tea plantations is broken occasional by forest corridors which act as wind breakers. These patches are also critical for many wild animal species which use them to move between forest patches. In recent times the dip in the demand for the

species. I hypothesized that distance of the plantation from the forest corridors is an important factor for seed dispersal by non-volant (non-flying) mammals. So I went about estimating the number of seeds that arrive at two distances from the corridor, one tea plantation closer to the corridors (<50 m) and second further (>50m) away from the corridors. We laid 120 transects within the plantations at the two distances and recorded seeds arriving through frugivore droppings

the brown palm civet (*Paradoxurus jerdoni*), which is a nocturnal frugivore and prefers forest canopies. It however comes to the ground often to defecate on logs and along trails. It seldom moves into the open and this explains why the seeds found in the plantations are close to the forest. Only occasionally does it venture far from the corridor edge. This behavior could explain the seed deposition patterns in the tea plantations. However, the shade trees in



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The forests around large tea plantation act as wind breakers

Indian tea in the international market has led to abandoning of a huge number of estates. What are the ecological consequences of these abandoned plantations? Can we restore them for posterity and increase the forest cover of Western Ghats? These questions drew me to examine ecological, economic and legal issues centering around plantations.

For forest to recover, corridors can be an important source for seeds of native tree

over a year. A total of 2518 seeds were counted that belonged to 13 species within 120 transects (1 by 100 m). All the 13 species (1877 seeds) were recorded within < 50 m from the forest corridor, whereas > 50 m away only 6 species (641 seeds) were recorded. The results support the hypothesis that distance from forest corridor is important in terms of both species and number of seeds dispersed by non-volant seed frugivores. Most of the seeds were brought to the tea plantation by

midst of the plantations, draws avian seed dispersers and this contributes to seed deposition more in open areas. However, composition of seeds by the two modes vary drastically. We therefore need a combination of strategies for natural restoration of abandoned plantations. Implementing this, is however subject to solving the legal and socioeconomic problems associated with abandonment.

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Farmers' visit to ACCC

As part of the IAMWARM Project of the Tamil Nadu Government, a group of farmers from Panagudi village led by Centre for Awareness and Rural Development Society visited the ACCC on 27th February 2012. I delivered a lecture on the importance of agrobiodiversity, improved farming practices and conservation of wetlands and its biodiversity to make farming more ecologically sustainable. Saravanan, Research Associate, ATREE delivered a lecture on 'Role of wetland plants in agriculture and human life'. This was followed by a tour to ACCC's nursery where the need to grow multipurpose tree species was highlighted. Officials from Public Works Department Mr. S. Aayub Khan, Ms. Karolin Rajasingh and Mr. S. Ilamurudhu also attended the meeting and shared their experience with the farmer group. This is the third consecutive training programme for IAMWARM project provided by ACCC.



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M Mathivanan addressing farmers

On February 2nd, ATREE's ACCC collaborated with District Environment Club of Tirunelveli and Rotary Club of Tinnevely to conduct a marathon to mark World Wetland Day. The marathon started at 9.30 AM at V.O. Chidhambaram stadium, Palayamkottai and concluded at Anna Stadium. Mr. Amanullah, Tirunelveli District Planning Officer flagged-off the marathon in the presence of several other guests/dignitaries from Education



Department, Rotary Club and other organizations. About 120 students both boys and girls from different schools of the district participated in this event. ACCC provided saplings to all participants to plant in their households and school campus as part of our effort to make our neighborhoods green. There was an overwhelming support from the region which subsidized the efforts and contributed to the success of the event. Hotel Aryas provided food; Rotary Club, TATA Gold plus and Ramco Cements sponsored T-shirts and caps to all participants.

The marathon opened with a prelude by me on the 'Wetland day' and its importance of Tamiraparani river and the associated wetlands. Pocket guide to the Frogs and Toads of Kalakad Mundanthurai Tiger Reserve was released by Rtn. Mr. Arumugapandian, District Governor of Rotary Club and Mr. Gajendrababu, District Environmental Officer received the first copy of the brochure. The print media highlighted the importance of the event which helped in reaching a wider audience in the landscape.



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Mr. Amanullah, Tirunelveli District Planning Officer, flagging-off the marathon

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Snippets:

- On 29th of January, a lone brown palm civet was sighted by Dr Ganesh, Prashant, Seshadri and Chian while doing phenology in a forest corridor in Nalmukh. The animal was observed to be feeding on the flowers of cullenia tree for over an hour giving ample opportunity for the entire team to make some footage and documentation. The animal bore injury marks on its face and hind leg.
- On the same evening, the team laid eyes on the elusive rusty spotted cat while returning to Manimuthar.
- A grey shrike was sighted by Arun, a volunteer, during the waterfowl census.
- A new heronry was recorded by the Wetland Census team at Mannur tank

Publications:

- H C Chetana and T Ganesh. 2012. Importance of shade trees (*Grevillea robusta*) in the dispersal of forest tree species in managed tea plantations of southern Western Ghats, India. *Journal of Tropical Ecology*. 28:187-197
- Timothy T. Caughlin, T. Ganesh and Margaret D. Lowman. 2012. Sacred fig trees promote frugivore visitation and tree seedling abundance in South India. *Current Science*, Vol. 102, No. 6. 918-922.

Grants received:

- K S Seshadri and Allwin Jesudasan received a grant of Rs. 1,80,000 from the Herpetological Conservation Research Fund, MCBT to study the ' Ecological and economic benefits of anurans to paddy agriculture in south India'.
- M Mathivanan received a grant of \$2800 from Bat Conservation International for his study, 'Temples as potential roosts for bats in south India: Implications for conservation'.



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