



# Agasthya

A newsletter on the Natural History, Ecology and Conservation of the Agasthyamalai region, Western Ghats, India.

## Wind, rain and fire

Some of ATREE's staff went on a trek to the Agasthyar peak just before the monsoons and brought back memories and pictures of the peak shrouded in mist. Fortunately the pictures did not show much difference from those taken by us a decade ago. But the issues are beyond these pictures, Agasthyar peak is gaining popularity among pilgrims and thousands want to make the trek. The peak itself is in Kerala which means the forest departments of both states have to enforce some restrictions. The TNFD on its part is now limiting the number of visitors and requesting them to carry back their thrash. Hope such efforts work.

The eastern flanks of Western Ghats after the monsoon sets in is usually dry but for some strong winds and occasional showers called 'sáral'. The crest is draped by fine layers of

cloud and if one is lucky to be in such a place one could see the clouds accompanied by strong winds blow over

and vanish over the hot plains of Tamil Nadu. The wind sobers the heat levels over the plains but can also trigger undesirable events such as forest fires. KMTR experienced a severe fire in the last week of June and the forest department staff had to be on their toes all the time to put it out especially in very unfriendly terrain where it can take a day's trek to reach a burning spot. Fires seem to recur every few years



Forest fire near Manjolai  
Photo: R. Ganesan

in a big way in KMTR and one would need to know the how and why of such events and have some preventive

measures in place to minimize such outbreaks.

The big Adiamavasai or new moon festival in KMTR is a few weeks away and ATREE with the local administration will do its best to minimize the impacts on the forests. We will carry more details of this in the next issue. Until then enjoy reading Agasthya.

T. Ganesh

## Not all plants are green!

There are exceptions to every rule. Some plants lack leaves and green color, have poorly developed roots just to anchor in the soil; but they produce flowers and fruits. *Hyalisma janthina*, a tiny plant of Triuridaceae is one such found in the dark, wet forest floor of Agasthyamalai forests. It pops out of



*Sciaphila*  
Photo: R. Ganesan

dead litter covering the forest floor with lurid purple and a wiry stem, hardly noticeable. Its leaves are merely scales, simple flowers without any color and elaborate display, mature at

different times to avoid self-fertilization. Perpetuation seems to be the only aim, as it produces flowers and seeds to end its life within a month's time.

The nagging question in our mind will be how the plant acquires its food without chlorophyll and associated greenness. This non-green plant, provides asylum to a fungi (yet another non-chlorophyllous organism, capable of synthesizing food from detritus) in its poorly developed

roots and in turn the fungi supplies food. It is not a saprophyte; rather a "myco-heterotroph", meaning a plant dependent on fungi for food.

One may wonder why a plant has to lose its 'characters' the greenness, leaves and roots; and dependent on another organism for its dear life. This plant destined to perpetuate in the dark forest floor where chlorophyll/greenness is of no use, it has evolved to co-inhabit with others through a trade-off practiced over millions of years, the time-tested tool in speciation. Let us not tamper with this.

R. Ganesan

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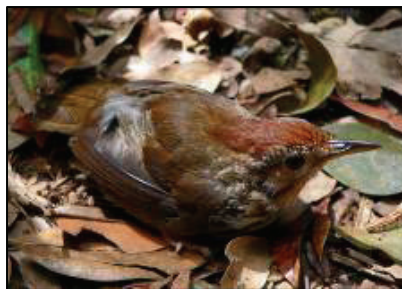
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## A Canopy-eye view

The tea estates that are within KMTR have been set-up by clearing native flora, in this case mid-elevation rain forests. This has resulted in a matrix of tea, cardamom plantations, secondary and primary forests. The fauna associated with this vegetation type has had to overcome and adapt to this change in vegetation and habitat structure. How does this change effect the structure of the bird and small mammal community? Does change in canopy structure necessarily mean decrease in diversity and stratal use of habitat? Is there a differential response by each of these communities and if so does vagility alone explain the difference or are resources an important consideration? These were some of the questions that came to mind when I first visited the tiger reserve in 2005. Historic factors that have

shaped the landscape at Kakachi and Kodyar provide a unique opportunity to test some of these questions. Though similar questions have been asked in other parts of the world, I wanted to use a canopy-based sampling approach to answer them. The preliminary results are very exciting and have brought into sharp focus the biases that have been inherent to the existing sampling protocols for birds and small mammals in structurally complex habitats such as tropical forests. Canopy sampling helped in detection of many small



Puff-throated Babbler, an understorey specialist  
Photo: Vivek Ramachandran

and crepuscular species that are hard to detect from the ground. Sampling from the canopy is also important to observe behaviour and habitat use. Habitat structure determined the bird species composition and a distinct 'guild compression' was in evidence in the clear-felled areas where sensitive mid-storey species were conspicuously absent.

Watch this space in the coming issues for a canopy view of the going ons in a rainforest.

**Vivek Ramachandran**

## A Day at Kalakad Mundanthurai Tiger Reserve

I've seen only a few parts of India, mostly drier areas in the south, plus some greener elevations southwest of Mysore. This was my first time in the ghats. In May 2008, my son-in-law, a scientist with ATREE, arranged for our family group to visit the ATREE field station at Upper Kodayar, between reservoirs near the end of the road in the heights of the reserve. The road is paved but mostly one lane. The slopes are very steep, deep green in the foreground with shades of purple on receding hills. Lots of cover for the lion tailed macaque, tigers, and elephants. Though we only got a glimpse of one macaque near the

road and an elephant in the tea plantations, which covers a small part in the core of the reserve, the forests are huge and extensive and could support other animals and plants that we could not see.

What a magnificent land. I would like to have explored trails throughout the ghats. I understand the land lease to the Bombay-Burma tea company expires in about 20 years, with concern about the future of the reserve and the livelihood of plantation workers. Tea grows well there but greatly alters the ecology of the reserve, which comes under increasing pres-

sure from civilization each year.

We were not able to visit the forest canopy research site where ATREE scientists are studying the wildlife that live in the tree tops. We planted a tree as an example to the community at the site of the new ATREE outreach field station near Singampatti village.

A genuine highlight of all my trips in India.

**J Rolly Kinney,**  
Corvallis Oregon, USA

## Lilliputian forests of sage Agasthya

Whenever I see the evergreen forests, I feel that trees are out competing each other to scale new heights. For a change, while scaling a few peaks in search of plants, I found stunted forest that stand not more than 3 or 4 m tall. In peaks such as Agasthyar, Aiyenthalai Pothigai, Nagapothigai, they were not more than 2 m. I saw trees of Lilliputian stature with interlocked branches huddling together. I saw these forests as I was ascending after taking a long rest (as advised by my guide) at Peyar from Kannikatti side towards Agasthyar peak. Also, I enjoyed (only botanist could!- commented by fellow trekkers) seeing this forest as the mist did not descend on the peak which seems to be rare even during summer as I am told. Sometimes,



Stunted trees along steep slopes  
Photo: Jahnavi Pai

afternoon rains could play spoil sport as the route is then covered by algae and is slippery. It was getting steeper and as I looked for support from the plants to haul myself, to my surprise these were the short trees and the entire forest stand looked stunted. Being a botanist I recognized at least a few of them as they had been part of tall forest I trekked through. Leaves were much

smaller, thicker, folded or rolled and coated with algal growth. Flowers and fruits were produced on topsy-turvy branches. Branches were highly gnarled and densely covered with mosses, lichens and orchids. The steep slope and Lilliputian nature of trees made me feel like Gulliver. Following this excitement I wondered why these trees become so short and

how they managed to hold on to these steep hostile slopes. The same old evergreen forest Herculean trees have become Lilliputian due to poor soil, steep slopes, high velocity wind, intense solar radiation, high temporal fluctuation in temperature in addition to other unknown historical reasons. Little later when I saw the sage Agasthya as a short stunted granite statue surrounded by Lilliputian trees at the peak, I thought superstitiously that the divine soul blessed these plants to be 'sweet sixteen' for ever. In the recent past I happened to read a piece by Ian Lockwood on Sri Lankan mountainous Forest and got to know that these forests existed there too. However, my thoughts about the Lilliputian forests vanished when I thought about the fate of these unique forests under the predicted influence of global change as these forests have been pushed to the limit of the sky already. Will they also vanish to oblivion forever like Sage Agasthya?

**R. Ganesan**

# Revitalizing eco friendly farming in Singampatti Villages

Use of chemical fertilizer in farming affects the natural cycle, killing the valuable living things leaving the crops in danger to pest attacks. Using them in fields bordering the forests is unfriendly to flora and fauna. Measures to control pests, increases the cost of production besides causing environmental pollution. Organic farming is a buzz word in agriculture which is slowly catching up even in Singampatti, a traditionally chemical fertilizer-pesticide dependent community.

ATREE has been giving saplings to farmers that could be used as green manure. Mr. E.S.P. Subramanian, a big farmer from Ayan Sin-



A Farmer weeding an organic paddy field with a Cono weeder.  
Photo: Mathivanan M

gampatti planted Gliricidia, Soopapul and Pungai saplings given by us in his field bunds. These saplings now give him more than 3 tones of green manure every year, which has reduced his fertilizer cost by about 50%.

Encouraged by such success stories, ATREE and POIHAI Trust joined hands towards making Singampatti a model village in organic agriculture. We are first targeting some farmers who are enthusiastic about organic farming. Mr. Rajan, a small farmer, had agreed to experiment with organic farming. He cultivates paddy, brinjal and flowers which yielded good results. He

has now stopped using chemical fertilizers and pesticides and uses various organic alternatives such as "Panchkavya", Effective Micro-organism (EM), Fish karaisal and Amirthakaraisal. He despises chemical fertilizers as he had incurred much loss when using them. Encouraged by his success, six other farmers are experimenting with organic agriculture. As the good results become apparent, more farmers are likely to change their agricultural practices.

Villagers are beginning to realize that organic agriculture is cost effective and sustainable. Efforts such as those of Rajan's will go a long way in making farmers revive their traditional agricultural practices. We hope to see chemical free agriculture and healthy people in Singampatti and surroundings.

**Mathivanan M.**

## Scaling Peak Agasthya



Statue of Sage Agasthya  
Photo: Allwin Jesudasan

Though Jahnvi, Kottaimuthu and I had seen most of KMTR, we felt that reaching the highest peak in this region would make our KMTR experience more complete. And so we started our trek to the peak on April 29<sup>th</sup>. All had gone as expected till we reached Poongolam on the second day; where one of our assistants

backed out saying that the route from here would be very slippery due to the rain and the rocky terrain. The forest department expected us back the next day. So we did not have an extra day to make it to the peak. After some discussion, we decided to continue as far as we could till 3 p.m. We had only faint arrow marks to guide us, as none of us had been up before. To add to the discouragement, the path ended abruptly – we had lost our way. After about half an hour of exploring, we finally found the path. We soon reached a point where the going got extremely slippery and steep. A fall would have meant certain death.

Two days of intense walking had taken its toll on us making our legs tired and weak. We were again contemplating if we should head back. The fatigue had lulled us to a false sense of achievement and it was tempting to turn back. But Agasthya's statue beckoned us. And so the journey continued through some steep sholas and small peaks where visibility was less than 10 feet. Every peak we scaled seemed to be the last until at about 3 p.m. the swirling fog dispersed momentarily to reveal the faint outline of Agasthya's statue.

**Allwin Jesudasan**

## Keen eyes make the difference

While sampling ants in KMTR, I noticed this massive tree within my sampling quadrat. Its sheer size and structure mesmerized me. My immediate reaction was to look up and note some key characteristics of the tree such as leaf shape and arrangement, flowers, fruits, etc. I strained my neck and eyes, but could barely notice much because the tree was 30mts tall. Looking through the binocular did not help either. Unable to note down any key features of the tree, I found myself staring at its bark in disappointment and lo! I found a lovely fissured pattern which was prominent because of a faint yellow colour, smeared all over the bark. A closer look revealed lichens, mosses and a mantis which was completely camouflaged. Insects such as moths and beetles, frogs and birds mimic these bark patterns to escape from predators. Even fashion designers these days copy these patterns on clothes

and take all the credit.

Completely fascinated with the bark patterns, I recollected the story of the peppered moth *Biston betularia*. This moth which rests on tree barks, prior to "Industrial Revolution" appeared peppered, white with black speckles, following which, it underwent a dramatic transformation and began to appear predominantly charcoal grey. Bernard Kettlewell, a scientist identified that this change occurred because of increase in pollutants that resulted in stained trees, which affected the camouflage



Spot the critter! Amazing camouflage.  
Photo: Vivek Ramachandran

potential of the moths.

There is a whole new world out there around tree barks which remains unexplored. Not to forget that this entire episode was triggered by the tree with the yellow fissured bark identified as "*Calophyllum austro-indicum*". This observation which occurred by a mere chance, taught me that interesting glimpses need not

always happen through binoculars and magnifiers. They can happen at eye level also.

**Savitha Swamy**



# KMTR, a treasure in the eye of the beholder

The welcoming tiger billboard at the entrance of the Kalakad Mundanthurai Tiger Reserve says it all: 'A Paradise for Nature Lovers... the Treasure of the Western Ghats'. This is no exaggeration. In April 2008, we had the good fortune to be allowed to explore the world famous tiger reserve, expertly guided by Dr. Soubadra Devy and Dr. R. Ganeshan from ATREE. And no, we did not come to see the tiger or any other large mammal for that matter. We were looking for the overwhelming sensation to be in a forest without human impact. In Europe we have lost the opportunity to be in a truthfully

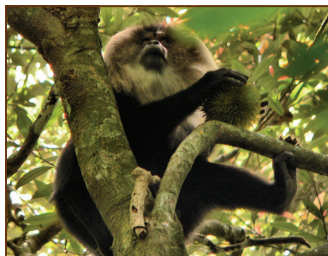


A rare mushroom  
Photo: Jan Wolf

natural area in the sense that all our forested areas are planted. And yes, this makes a difference even after centuries of growth. It is difficult to pin point why, but at KMTR you know, that you are in an ecosystem where everything is 'in place', after eons of

careful assembling. Clearly, ecological constraints arrange trees and herbs in the forest differently from humans. This

sensation is overpowering and every day more difficult to attain in an increasingly industrialized world. To become overwhelmed by the forest is the real hidden treasure to be found at KMTR. Of course we also marveled about the diversity of life and were happy to stumble upon fabulous mushrooms (photo) and impressive lion-tailed macaques (photo), but it is the context that makes these jewels shine. Back in The Netherlands, it is comforting to know that the KMTR paradise will be protected for future generations of scientists and nature lovers alike. Our advise: don't change anything.



Lion-tailed Macaque  
Photo: Jan Wolf

Jan Wolf

## Hotspot within a hotspot

During my last visit to KMTR, I visited Netherikal at an elevation 1400msl. It was unusually wet, cold and misty in early May and it felt like we were flying through clouds. I was there for a week as part of my research and got a chance to run camera traps in this remote location for five days. We recorded 5 species of mammals, two of them predators- Leopard and Wild dog and three prey species viz Mouse deer, Brown palm civet and Porcupine. Indirect evidences of Tiger, Sambar, Gaur and fresh debarking/dung of Elephant were seen in most places. While two tree squirrels and one primate were also sighted. It was a wonderful



Camera Trapped, A porcupine  
Photo: Chetana H. C

Chetana H. C.

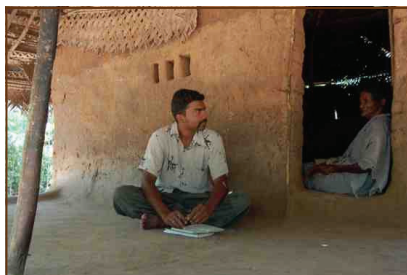
week since I could see 10 species and found evidence of tiger at this elevation. I realized the importance of wet evergreen forests in harbouring so many mammal species and probably some more. It turned out to be a hot spot within a hotspot. I suppose in such a mountainous landscape with seasonal rainfall, mountain tops with evergreen forests could serve as important habitats especially during the dry season when the plains and foot-hill dry forests are hot and parched.

## Snippets from field

- An art and cultural programme on biodiversity conducted by Ms. Abhisheka at St Michael school Singampatti was attended by parents and several other important people.
- A tiger was spotted on the main road close to the wooden bridge at Nalmukh estate by Aditya and Chian, our field assistant. Keeping with the trend of increasing number of signs and sighting in the recent months, like the one by our field assistant John in March while crossing a stream in the forest.
- The rare Jerdon's Baza was sighted at Kakachi for the third straight year. This is good news, as this elusive raptor is seldom seen and has a very disjunct distribution in the Western Ghats with very few confirmed sightings.
- There was a major forest fire in the Kalakad and Ambasamudram ranges of KMTR during late June. The forest department managed to control it after 2-3 days of continuous field operation.
- BSc final year students from nearby Killikulam Agricultural University spent 2 weeks in Singampatti field station to know about ATREE's activities.

## Like father, like son?

There are four major Kani settlements inside KMTR – Servalar, Mylar, Agasthyapuram Kanikudiyyirrupu and Injikuli. Soubadra and I, had decided to take our study on the attitudes and perspectives of forest fringe villagers, a step further, and collect data from some Kani settlements as well. I had to be based in Mundanthurai to collect the data. The first Kani settlement I collected data from was Servalar followed by Agasthyapuram kani kudiyyirrupu. After the interviews, I noticed that the younger generations seemed to know less about the fauna of KMTR compared to the older gen-



Allwin interviewing an old Kani Woman  
Photo: Allwin Jesudasan

erations. Majority belonging to the younger generation, who were interviewed, could not identify the Nilgiri Marten or the Leopard cat from the mammal guides. This also may be further due to the fact that the older generation wants their young to leave the forests and find alternate livelihood and access to other opportunities in the nearby towns and cities. This perceived disconnect with nature is a cause for concern and the long term cultural integrity and survival of the Kanis within KMTR.

Allwin Jesudasan



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