

NEWSLETTER of the

ISSN: 2395-065X

NILGIRI NATURAL

HISTORY SOCIETY

For private circulation only
ISSUE 8.2 - December 2019



EDITORIAL BOARD

Anita Varghese¹, Sumin George Thomas¹,
Sharada Ramadass¹

1. Keystone Foundation, Kotagiri, Nilgiris - 643217, Tamil Nadu, India.

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For membership and other details contact :

Nilgiri Natural History Society,
144-A, Bee Museum, Club Road. Opp. Hill Bunk,
Ooty -643 001, Nilgiris, Tamil Nadu, India,
email: contact@nnhs.in,
Phone No: +919442619577



Indian ornamental tree spider

(*Poecilotheria regalis*)

An endangered species, the yellow thigh spider (*Poecilotheria regalis*) is an arboreal tarantula found in the monsoon forests of south India below the altitude of 1000m. Considered to have venom and a bite that can cause intense pain, they are known to be defensive spiders. Moving rapidly, they prefer flight to fight and nest in tree holes. The population is severely fragmented with habitat loss, collection for the pet trade and persecution acting as threats to the species.

Photo Credit : TNA Perumal

EDITORIAL

The winter edition of the NNHS newsletter is a collection of stories of 'creepy crawlies' that many people are quite freaked about! Spiders have made it to the front cover of the newsletter in the past but here is one edition dedicated mostly to these fellow lives. National geographic tells us that there are 45000 species of spiders' world over! Surely we want to know some of them that are here in the Nilgiris? We also have a natural history note on seduction in spiders which bring to mind first lines of Mary Howitt's poem- "Will you walk into my parlour?" said a spider to a fly' though in the article featured here it would be "Will you walk into my parlour?", said a spider to a spider'.

Moving from spiders to honey bees, a young researcher is mesmerised with the forests of the Nilgiri Biosphere Reserve as he takes part in a survey team to revisit transects and plots that were done 10 years ago to count honeybees. He discovers the bees but finds that the Malabar tree nymph (a species of butterfly) has stolen his heart! We also have a record of the Southern Ghats Slender Gecko from Sigur plateau to report, this species is reported only from few locations in South India.

We have an article about an action research initiative called the 'Conservation Agreements' which was a two year project implemented by a team in Keystone Foundation. This effort showcases how local farmers became partners in conservation. Protected areas and tiger reserves are home to many local communities and they share these spaces with tigers and elephants. A strong belief system in the forest deities is part of the culture of these communities and this makes the landscape a sacred landscape for them. A young tribal boy from Sathyamangalam writes about this and shares snippets of his research into his own community's ties with the sacred forests.

The NNHS has been buzzing with activities ranging from walks and trails for schools, tourists and workshops for all. Finally we are happy to end with a photo from one of our regular contributors on the Nilgiri Sholakili. Endemic and endangered this beautiful bird has seen so many changes in its name. Well "what's in a name?"- "Everything" a taxonomist would reply!!

As always the newsletter tries to cover a diversity of stories and we enjoy bringing them together. Happy reading!

Best wishes

Anita Varghese

Chief Editor

EXPLORING

THE NILGIRI BIOSPHERE RESERVE THROUGH

THE 'TEARS OF RA*'

- Asish M, Keystone Foundation

View from Sairandhri watch tower, Silent Valley

"The bee's life is like a magic well: the more you draw from it, the more it fills with water" - Karl von Frisch

A group of tiny social insects with a perfect division of labour, selfless team work, strict discipline and utmost efficiency. They are great architects, cooks, nurses, guards, warriors and foragers. They nurture forests by playing the role of pollinators and indicators of forest health. With their effective communication and decentralised and collective decision making skills, they are the best in what they are doing. Honey bees are not strangers to the human world. Their ability to adapt quickly lies in their capacity to regulate temperature inside their hives, migrate long distances and being less choosy of flowers for nectar and pollen. From nesting to nectar to pollen, they depend heavily on the environment for survival. In these times of climate change how do they cope? Research shows that as temperatures rise globally temperate

insects have a higher chance of survival. The honey bees that took me through the Nilgiri Biosphere Reserve (NBR) are tropical bees viz. *Apis dorsata*, *A.cerana*, *A.florea* and Stingless bees. The changing phenology patterns, spread of invasive species, habitat destruction, insecticides and drastic weather events may pose a threat to their very survival – do we even understand this? These tropical bees make their nests in tree branches, roofs, dark hollow cavities, cracks in walls and rock crevices though it is still a mystery why some places are preferred over others.

The first taste I would have experienced will be of honey – though I have no recollection of it. It is common in some Indian traditions to give a drop of honey to new borns. I remember the honeybee hives in my grandmother's home and the painful stings I got for venturing too

near them while on vacations. The bees would be attracted to the lights in the house and could be found lying on the floor. After I got stung once, I remember my grandmother telling me, that the sting was also fatal to the bee. That was perhaps my first insight into the science of bees. Later in college I read about their altruistic behaviour and sexual determination – all of which fascinated

Honey tree – Eucalyptus with *Apis dorsata* hives, Wayanad

Photo: Asish M



Kunthi river, Silent Valley

Photo: Asish M

me even more. It was only through my work at Keystone that I had the opportunity to observe these bees closely and learn about them in the wild.

Researchers at Keystone assessed the status of honey bee populations in the forests of the NBR in 2007-09. Ten years after that study, we were keen to do a reassessment - to count the bee nests and relook at their habitats in 2019. I was very happy to be part of the research team that surveyed the forests of Wayanad and Silent Valley. We had only a month to complete the survey since our permits were sanctioned accordingly and neither was it the season of these migratory bees. We decided to go ahead anyway and do our best with what we had.

In Wayanad our team was able to revisit 6 out of the 12 transects in the three forest ranges- Muthanga, Sultan Bathery and Tholpetty. It was my first proper research inside a forest and my first time to plan, organise and follow up on research permissions from the forest department - University doesn't prepare you for this! Our survey team comprised of an ecologist, wildlife biologist, field assistant and forest department personnel. The local shopkeepers in Wayanad were at first very keen to interact with us though later when they came to learn our study was about honey bees - they lost interest in us- after all bees were not as charismatic as the birds, elephants and tigers that researchers study! They were keen for our safety and reminded us many times to watch out for elephants and other wild animals and to stay out

of the way of these 'dangerous animals'. After each transect we understood what they meant- since we too had many close encounters and felt lucky to have escaped unhurt. It was in Muthanga that we had to abandon the survey half way on account of elephants along the route. We were happy to see many interesting spiders, ungulates, pugmarks etc and we had the fortune to watch the solar eclipse inside the forest.

The moist deciduous forests of Wayanad were overgrown with invasive plants like *Lantana camara* and accessing our earlier sites was very difficult, we even lost some of our clothes to the Lantana thorns! The ticks who became part of us, reminded us every evening of our day time field work. The swamps inside the Wayanad forests had thick grass and wading through the knee deep mud, one could feel leeches climbing up and hear the elephants very close by. Those moments were filled with tension but now in retrospect one could call it

adventure. We were able to relocate 92 of the previous nesting sites, though only 21 of them had bees since it was not the season for bees. The migratory bees would only start to arrive a month later. While in the previous survey all four types of bees were found in these forests - this time we only saw the *Apis dorsata* bees, owing to shortage of time.

It was in the evergreen forests of Silent Valley that I truly fell in love with the forest at first sight! The tall trees, no thorny Lantana, river Kunthi flowing by, Malabar tree nymph flitting around, Lion tailed macaques, Nilgiri Langurs, Hornbills, Tree pies etc will never be forgotten. It was the first time that many of us in the team had the opportunity to spend the night inside a forest. Sairandhri and Poochipara camp sites inside the forest was where we stayed as we completed the transects. We walked about 21kms in two days and never felt exhausted - it was a very different feeling from field work in Wayanad. We found 15 points with nesting evidence and two active *Apis cerana* colonies. Here the migratory *Apis dorsata* had not yet arrived to these forests.

Comparison of 2007 observations, 2019 survey and conversations with the local people give us a preliminary idea that overall there has been no decline in bee numbers in the wild. The habitat change was starkly visible in Wayanad, more invasives which might pose threat to bee population directly or indirectly and this calls for more studies in the future. As Karl von Frisch said, "Honey bee's life is like magic wells" - I too am left with more questions and a wish to keep exploring!

Wayanad forest

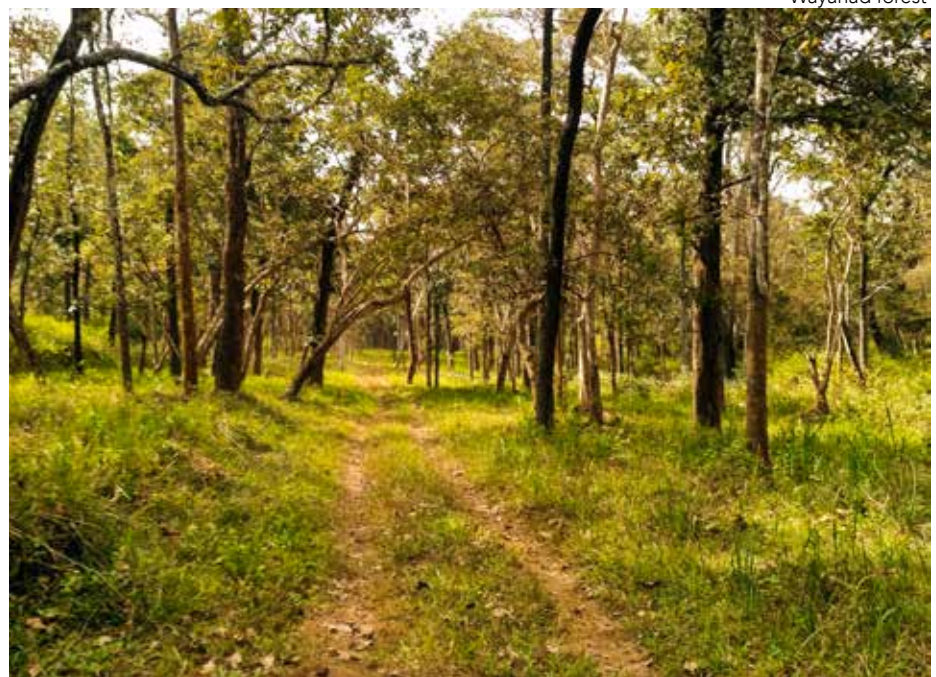


Photo: Asish M

SOUTHERN GHATS SLENDER GECKO IN SIGUR PLATEAU



Samson. A^{1*}, Ramakrishnan.B¹, Santhoshkumar.P²,
Leona Princy.J² & Bomman. R³

An observation record of the Southern Ghats Slender Gecko (*Hemiphyllodactylus aurantiacus*, Beddome, 1870) (Reptilia: Gekkonidae) in Sigur Plateau, Nilgiris, Western Ghats

The genus *Hemiphyllodactylus* Bleeker, 1880 remains one of the most poorly known genera of geckos (Bauer & Das 1999). So far, *Hemiphyllodactylus aurantiacus* (Beddome, 1870), the Southern Indian half leaf-fingered gecko (also known as the southern ghats slender gecko), has been reported only from few locations in southern Indian states like Andhra Pradesh, Karnataka and Tamil Nadu (Smith 1935; Sanyal et al. 1993; Daniels 1994; Daniels & Kumar 1998; Bauer & Das 1999; Sharma 2002; Das 2002). In this note we represent the poorly known *Hemiphyllodactylus aurantiacus* in Sigur plateau, the Nilgiris, Western Ghats.

On 16th July 2017 11:58 AM we recorded *Hemiphyllodactylus aurantiacus*, the Southern Ghats slender gecko species on a house wall from Chemmanatham tribal settlement (N 11.568413° E 76.686269°) at an elevation of 888m msl (Fig.1) in Sigur plateau, the Nilgiris, Western Ghats. The species was identified based on the descriptions available in the literature (Smith 1935; Bauer & Das 1999; Sharma 2002, Javed et al., 2010). It is

recorded from different locations and found dwelling in a variety of habitats from hills to rocky terrain, plenty of shade, humidity and also inside human habitations adjacent to forest patches. Generally, a slow moving species, it is nocturnal and active on a relatively dark portion of walls, presumably to avoid competition with larger geckos (Das 2002). Recently Javed et al (2010) reported range extinction of this species from Andhra Pradesh, India. In Tamil Nadu, *Hemiphyllodactylus aurantiacus* has been recorded from Nilgiri, Shevaroy and Anaimalai Hills in southern India. Sigur plateau is a connective junction of the Eastern Ghats and the Western Ghats and supports numerous species of wildlife. The occurrence of *Hemiphyllodactylus aurantiacus* shows that Sigur plateau is dwelling habitat for them. Further observations are needed to better understand the breeding behavior of *Hemiphyllodactylus aurantiacus* in future.

Acknowledgement

The authors thank B. Vishnu for finding the species in the field. Our whole hearted thanks to Kalaimani. A for

species identification. We also thank Ravi. P, Naturalist for his valuable comments and suggestions.

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1. Vulture Project, Bombay Natural History Society, Mumbai, India
2. Herpetology and Tribal Medicine wing, Department of Zoology and Wildlife Biology, Government Arts College, Udhagamandalam-643 002 The Nilgiris, Tamil Nadu, India
3. Field Assistant, Chemmanatham Tribal Settlement, Mavinhalla Post, Masinagudi, The Nilgiris.

*Corresponding author:
kingvulture1786@gmail.com

SPIDERS



Brettus cingulatus

Family : Salticidae

Commonly known as : Jumping spider

Habitat : Found in small trees and under surface of foliage, such as coconut tree fronds. More abundant in undisturbed than in disturbed habitats

Distribution : Widespread between India to China

Description : They are small to medium colourful jumping spiders that show sexual dimorphism. Known to be ambush araneophagic web invaders - they invade webs of other spiders to prey on them. Not very active, they slowly advance onto the web vibrating it with their legs. If the web occupant approaches in the manner appropriate to dealing with ensnared prey, the predator will attack.



Cheiracanthium indicum

Family : Eutichuridae

Commonly known as : Sac spider

Habitat : Seen on the ground, in garden, fields, under the litter

Distribution : Native to India and Sri Lanka

Description : These are small spiders (5 to 10 mm, both sexes) and considered beneficial predators in agricultural fields. Prominent in India, they are mildly venomous and can inflict a painful bite if disturbed or threatened. Females can lay between 150-240 eggs in sacs. Night time hunters of small insects, the males often get eaten by females.



Herennia multipuncta

Family : Araneidae

Commonly known as : Ornamental tree trunk spider

Habitat : In dry environment, on tree trunks and building walls

Distribution : Native to tropical parts of southern Asia

Description : Very well camouflaged, they build sticky orb webs on tree trunks and building walls. Often more than one male may be present around a female. The species shows sexual dimorphism with females larger than males. Found in association with man (synanthropic), all species of the genus except multipuncta are endemic to islands.



Olios milleti

- Family : Sparassidae
- Commonly known as : Green crab spider
- Habitat : Found commonly in gardens; hides under green leaves during daytime
- Distribution : Native to India and Sri Lanka
- Description : Hails from the family of huntsman spiders and occur in hot countries. Difficult to spot in field, as it perfectly camouflages itself among green leaves. Crablike legs enable them to run sideways. Not web builders, they hunt and forage for food, stalking and ambushing their prey. Studies in coffee plantations indicate that the insect pest, the green scale (*Coccus viridis*) is a common prey for this foliage dwelling spider.



Opadometa fastigata

- Family : Tetragnathidae
- Commonly known as : Long jawed orb weavers
- Habitat : Prefers dense canopy, moist habitat and shelter in trees
- Distribution : India to Phillipines, Sulawesi
- Description : Elongated spiders with long legs and silvery or golden spots on their abdomen. The web is a large horizontally woven orb structure that can extend to a diameter of more than a metre. The entire web is often suspended by several long strands of silk attached to branches and leaves nearby.



Hersilia savignyi

- Family : Hersiliidae
- Commonly known as : Two tailed spider
- Habitat : Prefers open, dry environment and found on trunks of large trees, including the common coconut palm.
- Distribution : India, Sri Lanka to Phillipines
- Description : Very well camouflaged on tree trunks, they are fast runners and show different colouration due to their camouflaging nature. When disturbed, they can move sideways. Egg sac is attached to the tree trunks, and guarded by the females. Constructs web in the tree barks.

PC: Hayath Mohammed, Bengaluru

Text source: IBP, and other reliable internet sources (collation: R Sharada)

'A CONVERSATION ON CONSERVATION AGREEMENTS'

- Bhavya George, Keystone Foundation

"I signed on the agreement because I want the world to know that even we the indigenous people of this region are doing conservation" – Balan, Bejlahatty village

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment 2019 report notes that biodiversity loss and ecosystem degradation occur at a slower rate on terrestrial land inhabited by indigenous people (Kuijper, 2020). Indigenous land accounts for over a quarter of global land surface worldwide and is inhabited by 370 million indigenous people in 87 countries (Garnett et al., 2018). Successful models across the globe of inclusive, evidence based and participatory conservation may be few and their lessons need to be considered seriously if there has to be a new approach. There are many conservation models foremost of which is the 'fortress conservation' which promotes protected areas free of human footprints as islands of preservation. When issues about poverty and alienation

of people from traditional areas took focus then conservation became more integrated with development goals and community based conservation became more acceptable. Even though they are called community based conservation projects it still remain a question as to who drives the project and how much does the community want it?

As part of my first field project I was located in Sathyamangalam tiger reserve area to work on a project which was supported by Conservation International as part of their Conservation Stewards Program to implement Conservation Agreements in six villages within the core of the tiger reserve. This model of community based conservation is being implemented across the world and therefore I was encouraged as there were many lessons that could be exchanged by being part of this network.

What is the agreement all about?

The Conservation Agreement (CA) is a continuous engagement with the communities through a negotiation where communities agree on conservation actions in return for a benefit package which will be their incentive. Meanwhile, the conservation actions are monitored by the community themselves and the facilitating agency and in case infractions of agreed conservation actions arise, there will be penalties decided by again the community. In whole the Conservation Agreement is about conservation actions, benefit package, monitoring and penalties and through a signed agreement communities then drive the implementation.

In our case in the Sathyamanagalam landscape, the conservation actions negotiated were sustainable NTFP harvest (when permitted by the forest department), sustainable agriculture, regulated grazing and fuelwood collection. It was also discussed that especially NTFP harvest, grazing and fuelwood actions had to be in compliance with the Forest Department rules for the tiger reserve area. The benefit package we decided upon consisted of trainings, bio inputs, crop varieties and seeds, water and soil conservation, fuel efficient stoves, veterinary services and fuelwood plant nurseries. Along the way the community decided that they needed crop protection more than soil conservation measures in two villages and this was modified accordingly.

What did the CA mean for various stakeholders?

For Keystone Foundation as a facilitating agency, with its 25 years of work in Conservation and Livelihoods, this was an opportunity to try the Conservation Agreement Model as a pilot in protected areas with indigenous communities. It was also a way to engage with the forest department and facilitate more dialogue between communities and the department.

For communities, it was a new way of working- where benefits were negotiated against committed conservation actions with penalties included for defaulters. This was a way for communities to showcase their positive interactions with the forest and highlight their actions towards conservation.



Photo: Field Ecology Centre- Sathyamangalam

Conservation agreement signing event



Photo: Field Ecology Centre- Sathyamangalam

Conservation Agreement designing process after discussion during community engagement.

manner since they were dependent on rain fed agriculture. Women rarely spoke in mixed forums, so it was better to meet with them separately. Also welfare measures are given freely with no expectation, this precedent which has been set from decades cannot be changed in two years and needs a much longer engagement. We also need to bring all role players on board and work together.

Finally over these two years I felt I heard the word 'conservation' more often from the people and it was linked to everything in their livelihoods. This to me was one of the biggest change we made – people began to relate their lives to conservation and say with confidence that they too are part of the conservation process. It is no longer that only external agencies practice conservation and communities are to be weaned away from forests.

Reference:

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Communities also had the opportunity to choose their partners in the agreement and could add as many stakeholders as they could negotiate with. It also was a training for them to host agreements and work with several donors and well wishers.

How fair are the negotiations?

It is through the process of negotiations that communities arrive at their needs, necessities and the conservation actions they want to take up. Very often these negotiations within the community since even though the signatory is at the level of the family many of the actions had to be agreed upon as a community. The negotiations were a constant part of the process and it was made clear in the beginning itself that it was a flexible channel of communication.

It is in here that as facilitators we had to be careful to hear the voices from all sides of community especially mindful for the less heard voices of women and youth. Fairness of the process lies in giving the lead to community to re-negotiate and find a mid-point from where the agreement process could be taken forward again.

What have we learnt?

Most important lesson I learnt - it is not easy to get entire village as one united forum to be a part of conservation agreement, so it is better to start with interested individuals and add on the list as the work progresses. There are the risk takers who will come forward first who also we have built trust with over the years, there are people who are careful and they will join later, there

are those who will have one foot in and keep one foot outside to ensure they can back out and finally those who try to derail the process. Since the work was carried out in villages where Keystone has been working for more than 10 years and since the communities were more homogenous (same community and often related to each other) we did not experience the third and fourth category of people, even though we were warned of them! Benefit packages had to be given in a well-planned and timed



Photo: Field Ecology Centre- Sathyamangalam

Women Farmer in Ramaranai Village in the farm raised by organic seeds by CA.

KOVILS OF THE IRULA PEOPLE IN THE FORESTS OF SATHYAMANGALAM

- Vijayan, Keystone Foundation

Photo: Community Archives, PNC, Keystone Foundation



Puja ceremony at Perumal kovil, Kambathrayan Giri

The word “Forest” brings to mind thoughts of adventure, pristine, unknown; it has always been part of folklore, mysteries, resources and often conflict too. A protected area designated to save a plant or animal is also home to indigenous people and a repository of beliefs, cultural practices and buried ancestors. Sacred spaces or temples (Kovil) of the indigenous people in the deep forest reveal their values and

relationship with the forest and the life in it. Usually these values are passed on from generation to generation. When I undertook a survey of the Kovils of my community (the Irula), I spoke to many elders who have lived their life in and around the forests of Sathyamanagalam I was interested to learn about these Kovils inside the forest, their legends, ceremonies and rituals. I learnt that there are hundreds of them in the forest

but only a few of them are being used at present. Since the region was declared a protected area a lot has changed and there are only around 13-15 Kovils still in use by my people.

The Kovils insided the forests of Sathyamangalam are important to the 12 clans of Irulas, and 4 clans of Soligas. The Kurumbas also have their sacred sites and communities like the Lingayats and Aiyyar also participate in these temple ceremonies. The rituals are conducted together though some clans are more closely associated with some of the deities than others. There is a priest or Poosari who is in charge of each temple and this is an inherited position. The relationship of indigenous people with their kovils are special and deep, in many cases the elders are buried close to the temples and it is these elders who gave names for even the smallest things inside a forest. These traditional burial sites or Koppai as we refer to them are still to be found in many of the abandoned Kovils too.



One of the elders reminded me that we need to pray at these temples for our own good health as well as that of the forest. The rituals at each of these temples are linked to events in the forest, like the flowering of a particular tree, or the start of the honey season or the onset of fruiting in a tree. Essentially it is the emergence of life and prosperity in the forest that is revered.

In the temple premises one notices that trees and plants have been planted by people. Some of them like *Elumbichae*, *Ganigale*, *Banni*, *Bilpatre*, *Karvepilai*, *Kanchola*, *Doode*, *Beruchai* and *Kiliya* are commonly found and the people and animals that live around use them alike. Each temple also has a source of water, either a spring or well or dug out ponds and this too is shared by both people and animals. In all the times, when people have stayed in the forest temples, there has never been any problem to the people due to wild animals. Most of the times we see the animals when we are walking to the Kovils and when we spend time at the Kovil itself we get to watch a lot of birds and smaller animals. I have often felt that the Kovils bring a unity and often the domestic cattle and wild herbivores/ungulates graze peacefully side by side.

After the Kovil festivities are over each village also makes sure that they clean up the premises and keep it free of trash. The cleaning of the Kovils in preparation for the festivities will mostly be done by the women and the clean up after is usually the responsibility of the

youth. Also the people who undertake the walk to the forest will report back to the village if they see any dangerous animals or littering or wildfires in the forest.

Personally I feel that the young people are not taking part in the Kovil festivals as much as before. This may be because of needing to take permission from forest department and they see this as an additional responsibility. Mostly I feel it is also because they don't see their relationship with the forest and since they earn a livelihood outside of the forest, they don't feel the need to pray for the forest either. The elders also told me that they feel the only link to the forest now is the Kovil and for some people it is the grazing lands and seasonal collection of forest products for sale. Another change that people talk about is that in the past it was possible to go to the Kovil even if one was alone, but not any longer. There seems to be more wildlife and fear of encounters with the animals.

An elderly poosari aiiya reminded me "Makkal nambi vana irkum, athae maathari, vanathae nambi makkal vaalraanga" (translation – the forest depends on the people's goodwill but people depend on the forest for their very lives). This symbiotic relationship is at the heart of our being as indigenous people. The forest Kovils are remnants of a past life and in these spaces the elders experience the deep relationship they have to the forest. It is difficult for us to let go of the forest.



Alamalalai kovil, Mavanatham



A view of kambathrayan giri, the highest peak

View from Kambathrayan Giri



WHEN EVOLUTION IS NEGOTIATED THROUGH SEDUCTION..

- Jenner Prince, Keystone Foundation

Photos: Jenner Prince

Animals have indeed been evolutionarily gifted with an intricate system of communication. Male crickets and cicadas call out loudly to attract females within hearing distance. In case of fireflies, males fly freely at a dangerous risk, flashing their light at regular intervals. Female's light can be seen perched safely on some tall grass. When a female desires to mate, she winks back, answering to the courting male, guiding him to her presence. Each of the several species of fireflies has their own flash code, or rhythm, which eliminates any chance of interspecies mixing (usually leading to sterile progeny and wastage of gametes).

Multi-modal communication is a very common way of life for most animals. Even though some animals prefer a particular mode of communication depending on the seasonality and functionality, they don't strictly restrict themselves to just one mode (like vocalization in humans). Displays are (visually relevant cues of) social signals that not only transmit information but in the course of evolution, have undergone "ritualization" (Cullen, 1966; Smuts and Watanabe, 1990; Zahavi, 1980). Such signals have become exaggerated in form and function that they effectively

promote a certain type of specialized (visual) communication. Obviously, the display exhibited by the sender depends wholly on the sensory receptors of the receiver and on the environment because there's always a possibility of distortion of signals when it passes through the medium. Communication can be simple; often involving only one sensory modality or it can be multi-modal, embracing multiple sensory modalities, including chemical, visual, and auditory stimuli. Insects and arachnids often use different signals such as movements, gestures, touch, and even light during courtship. Some spiders dance and jump. Butterflies flit and float in the air. Fireflies light up. Some arachnids (love tactility and) touch tails or antennae to communicate during courtship. Each of these signals work to help them recognize others of their kind. Some organisms exhibit their readiness to mate through the use of "pheromones" (not specifically olfactory, in this case). It was thought male spiders searched randomly for females; however, later findings suggest that females are capable of

emitting sexual pheromone that aids in attracting males (Richter, 1966; Gaskett, 2007; Stoltz et al., 2007; Chinta et al., 2010). The pheromone is found to be embedded in dragline silk of females, but the odor is found to be persistent, sexually stimulating males even after all the silk are cleared (Hegdekar, 1969). Mammals depend primarily on their sense of smell (specifically olfactory, in this case), being generally color blind. The scented sex appeal of a cat in estrous excites all the males in the vicinity. Other animals, like the hippo, spray females with feces and urine to announce their intentions. Giraffes even lower their long regal necks just to sniff each other's urine to determine if the female is in estrus.

There are some opposing behavioral natures to be aware of. Like in the case of humans, tactility (physical contact) is immensely valued; this is mainly attributed to our social nature. To us, touching something means "intimacy" and "completely-knowing" (to have "touched" an animal means more to us than to have merely "seen" one, see the flaw here?). But, many animals have developed a strong aversion to intimate physical contact, which is clearly an anti-predatory mechanism because close physical contact signifies being caught or preyed on. In some cases, the conspecifics (in case of solitary animals) do not interact with each other except during a brief period of mating, this

The (blushing) female here lacks the aggressive coloration of the male and closely resembles a juvenile



This male jumping spider is "somehow" lacking a palp (sperm-transferring organ), somebody's probability for a shot at fatherhood looks promising!!



can be period of lingering confusion, not knowing whether someone wants to kill you or desire to be your mate. In the animal groups, in which the males change their appearance drastically during the breeding period, natural selection has eliminated the appearance of “aggression” from female’s morphology that might provoke hostility (Pfaff, 2002). Hence, it is not a coincidence that the appearance of an adult female is mostly like that of a juvenile in many species.

This effectively reduces the chances of aggression among potential mates during breeding (Pfaff, 2002). In few courtship behaviors of birds, eloquent gestures are employed to conceal the bill from a potential mate, because beak is usually their primary weapon (Stokes and Williams, 1971). Certain aspects of nest building are also employed in the courtship ritual of some birds (Lehrman, 1958) and in most cases; courtship displays mimic functional behaviors that are friendly and non-threatening. Usually, one sex (either a male or a female) is physically superior and aggressive during breeding times, this further increases risks and uncertainties to the vulnerable sex. This often leads to “forced-mating” and ritualized sexual-cannibalism. In some species the male can dominate the female completely and unceremoniously mount her at will (Cooke, 1965), but in majority of spider families, the female is many times larger than the male.

To a female unprepared for mating, any suitably sized live animal is interpreted as a possible meal. Many males fit that description, and some even end up as meals (Andrade, 1998). To minimize this threat, many males have evolved intricate courtship rituals which is found to serve three purposes: they allow the male to test the mood of the female from a safe distance; they seem to assist in arousing the female to a state of sexual receptiveness; and they permit the female to discriminate a courting male from a possible prey (Dondale, 1964).

There are some parallels in the behavioral natures too. Xenophilia, attraction towards something very novel (or weird, in casual human lingual context) in the opposite sex is documented both in humans and non-

human organisms. Depending on the male: female sex ratio, one (either the male or the female) must do the needful to be noticed among the masses. Mostly it is the females that are extremely picky, males are not at all discriminating (siding with the most famous phrase “Eggs are expensive, sperms are cheap”). In spiders, they may even court females of other species (Cooke, 1965), other males, or even their own reflection in a mirror (Lim and Li, 2006). Being easily noticeable (and flamboyant) may help with sexual selection, but it comes with its own big bundle of risks such as, higher probability of predation, higher conspecific competition (for mates and resources) and fights, etc. No matter what, a desiring individual is always doing its best to get a stamp of approval from its chosen mate.

In the fight/race for sexual selection, animals go to great lengths (and pain) to make sure their genes survive the next generation. From head-on bloody, fatal fights to deceptive, sneaky and cunning strategies, there are several ways of cementing and securing one’s paternity. In spiders, Mating plugs (Uhl, 2010) are formed from some sort of amorphous material or by breaking the male sperm-transferring organ (pedipalp) as whole which is used to seal off the epigynal opening (female genital organ) of females. This can act as a direct barrier preventing the female from physically mating with multiple males. This is a high-stake gamble for the male because without its palp (sperm-transferring organ), the male cannot mate again but by sacrificing/mutilating a part of its body, can increase the probability of its (own progeny or) fatherhood and outrun other males (by tripping their legs, metaphorically speaking) in the race of sexual selection.

Reading through this, some might feel very lost and the article incomplete and riddled with gaps (on which you would be completely right). The complexity and the “aliveness” of the “animal world” cannot be dissected as something static (or decodable). It needs a strong cocktail of philosophy and theoretical biology to fill in the gaps and unveil the big picture, both of which we intend to discuss in the further issues of this newsletter.



The male here is several times smaller than the female

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Goodearth School @ Nilgiris

Highland' followed by the workshop which included planting of saplings in the school premises. In October a second organic cleaners workshop was conducted in Ooty with many SHG members from the TNSRLM program attending the event.

School/ College visits and Conservation Education

Mt.Carmel from Bengaluru who postponed their August visit, finally made it to the Nilgiris early September with their Masters students on an ethno-botanical field exposure trip. Their Kodithenmund mund and Banagudi visit was most cherished by the students and teachers alike. Next was GoodEarth school from Chennai in September with their senior students who enjoyed a day long activity cum exposure visit to Garkiyoor, besides their toda and kurumba visits during their 3-day field exposure trip. Early October, Kodai International came with their high school students for a field learning trip. The students got involved with various projects run at Keystone and other local NGOS to understand what it meant to work in these landscapes. The rains did not make it easy, but the experience was rewarding, nevertheless. In December, The School, who always visit the Nilgiris with us, took to the Sathyamangalam region where over a span of 3 days they got a sneak preview by working with the Keystone team on the various projects in the landscape – smokeless chulhas, Aadhimalai production centre, wild edibles, nursery keeping and cropping patterns.



Walking the pastoral lands of the Todas

This year, the Nilgiris saw an unusually heavy monsoon, that brought in a deluge of sorts – leading to hardships and losses for people and the land. It was in this backdrop that we bring your this NNHS diary edition.

Trails, Talks and Workshops

The walk at Bikkapathimund in July was filled with stories of Toda culture and foraging for wild fruits. In August, a birding trip at Mullur opened up a colourful world of endemic and rare birds – hornbills, Malabar parakeets, Asian fairy bluebird, grey headed bulbul, rufous babbler to name just a few. We also ran a bee safari to Semmanarai for the first time. It was very well received as visitors got to see and handle bee boxes for the first time, not to mention listening to stories from legendary honey harvesters of the region.

August was our month for talks and workshops. To commemorate the world indigenous day (9th August), we had Reverend Mulley give a talk on the indigenous inhabitants of the Nilgiris and how they co-inhabited the difference landscapes in these mountains. Reverend Mulley also led the first Kotagiri heritage walk

in September, around the town area in Kotagiri – an initiative that was appreciated and welcomed by many of our participants.

In August, in partnership with other NGOs and the forest department, NNHS helped facilitate a community based ecological restoration and monitoring workshop at Millidhane Govt High School. The event combined a book reading by Vasanth Bosco from his recent book, 'Voice of a Sentient



Visiting the Kodanad mund

NNHS started new conservation education activities with local schools, starting in July. We ran a nursery basics hands-on program and a birding basics for students of CSI school, Kotagiri. We followed this up in November with the CSI students with an outdoor birding trip in Keystone campus. In October, to commemorate wildlife week, we ran one day events with CSI school and Kookalthurai Govt School to raise awareness among students about the wildlife in their landscapes, the interactions with people and its implications/ impacts on either.

NNHS Film Festival

In November, NNHS brought the first ever nature based film festival to the Nilgiris, under the theme of 'Nature and People,' at two locations - Coonoor in the upper Nilgiris and at Bannari Amman Institute of Technology, Sathyamangalam. The

event saw good participation from local citizens and schools alike. Premiering two movies from the Indian coasts, the event told stories of people and their lands - from the deep sea diversity to the agrarian richness of our cultivated fields; Indigenous knowledge, rich and replete with an understanding of the ecological balance of resource consumption and sustainability; and current day challenges of development in fragile ecosystems.

Needless to say, we have had a packed year, this 2019. We look forward to what we can bring you, our passionate readers and nature lovers, in 2020. Till then, stay safe and be one, with nature. There isn't any other.



Nursery training



Planting at Milidhane Govt School



Bee stories at Semmanarai



Uma Mani with the students



ICS school visiting Keystone

The newsletter of the Nilgiri Natural History Society (NNHS) aims to cover the many dimensions of natural history - conservation issues, lay observation, cultural representations and traditional knowledge. The newsletter will carry communications about research in Keystone Foundation in the areas of conservation, environmental governance, culture, livelihoods and enterprise. In keeping with the pan Nilgiri Biosphere Reserve (NBR) nature of the Society, space will be allocated for reporting of events/views from elsewhere within the country and from outside the country. Additionally a section will be devoted to research summaries by students who work in the region of the NBR. Guest editors will be invited for special editions. News items gleaned from printed sources about the NBR will be featured. Separate sections will carry information on NNHS and Bee Museum activities. The species focus will feature species of special conservation status, endemic to the Western Ghats and present in the NBR.

SUBMISSION OF ARTICLE

The NNHS newsletter articles are reviewed by the Chief Editors and a member of the editorial board. Articles are invited for the following section: i. Natural History News from India (400 words); ii. Natural History News from the World (400 words); iii. Research Initiatives in the NBR - student contributions (400 words); iv. Species focus (250 words). Articles should be submitted by email to: contact@nnhs.in

Authors should provide complete information including an email address and phone numbers. Articles need to be submitted in standard word processor formats only. Rich text content and other forms are not accepted. Figures and texts need to be sent in separately with adequate labelling and numbering in context to the articles sent. Pictures in the manuscript also need to be sent in separately in TIFF, JPEG or PNG formats with resolution not less than 250 dpi

Reference style:

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Photo credit: N Moinudheen, Wellington

Sholicola major (Jerdon 1841) – Nilgiri sholakili

The Nilgiri sholakili is an endangered and endemic bird species found in the Nilgiris at altitudinal ranges of over 1000m, mainly north of the Palghat gap. Also known as the Nilgiri shortwing or Nilgiri blue robin, it is a song bird found in the shola forest lower canopy and forest floor, a threatened habitat. The two subspecies of shortwing distributed in western ghats are the *Sholicola major* (Jerdon 1841) and the *Sholicola albiventris* (Blanford 1868) also known as the white-bellied shortwing. The white-bellied shortwing is found mainly around the Palni hills and south of the Palghat gap. The Nilgiri sholakili is a small dark slaty blue bird, with a buff white upper belly and tan/ rufous towards the flanks. For a bird its size, its song is longwinded, composed of high warbling notes and buzzy whistles.



Photo credit: N Moinudheen, Wellington