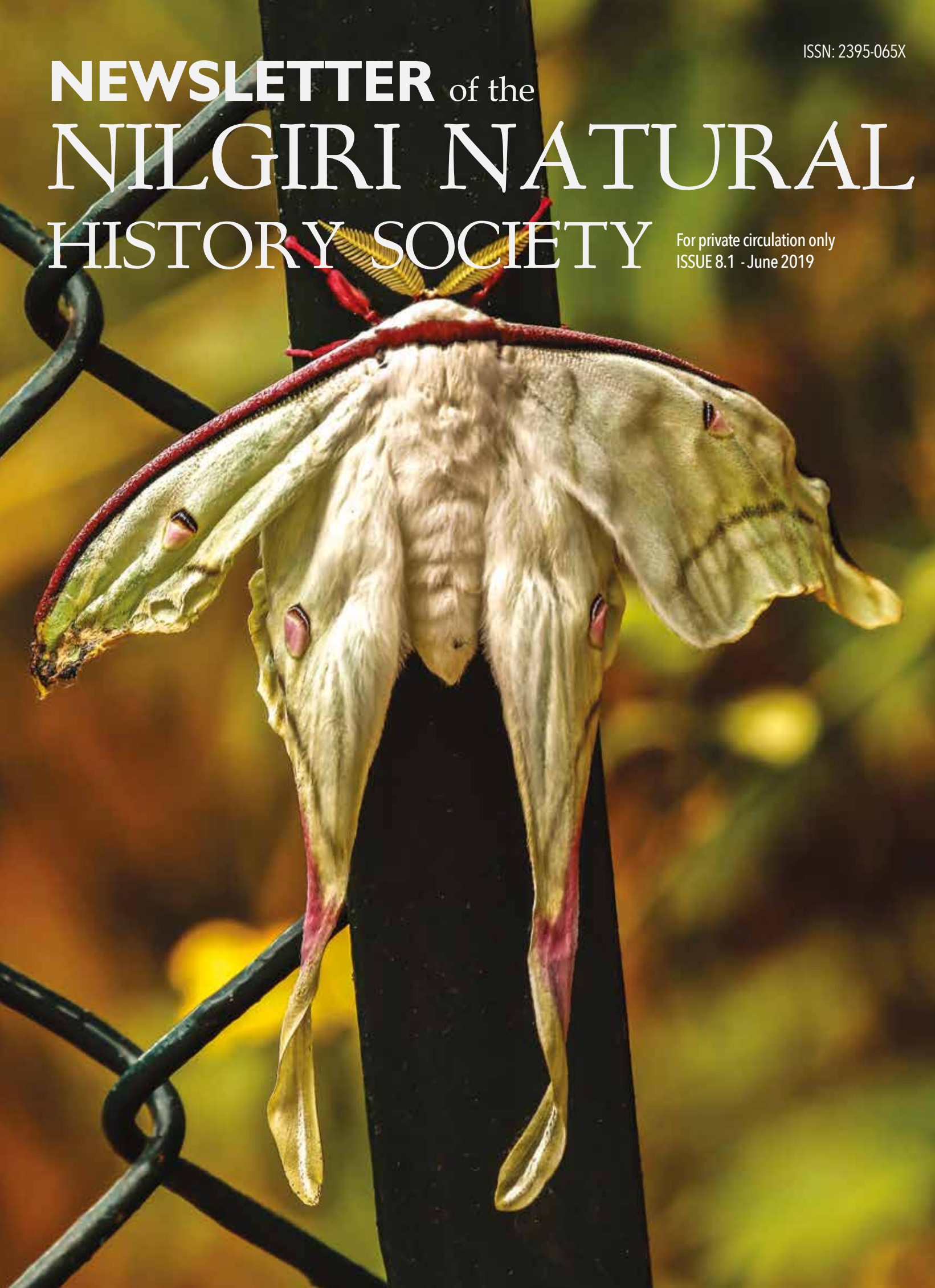


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# NEWSLETTER of the NILGIRI NATURAL HISTORY SOCIETY

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# EDITORIAL BOARD

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### Indian Moon Moth / Indian Luna Moth

(*Actias selene*)  
Coonoor, Nilgiris

These large moths with their beautiful trailing tails make for some of the prettiest moths you can hope to see. First described in 1807, this species is found across Asia, and commonly reared by many amateur entomologists from commercially available eggs or cocoons. They also produce silk and are crepuscular or nocturnal favouring dim light or night conditions to fly. They are widespread, with many subspecies in different countries across Asia. The males are supposed to be able to detect female pheromones from long distances (anywhere between 4-10 km). They can produce up to three generations of young ones in a year. Considered widespread before, there have been reports of its decreasing numbers in recent times.

Photo Credit : Samantha Iyanna, Coonoor

Text : R Sharada, Kotagiri

# EDITORIAL

Dear Readers

We are trying our best to keep the newsletter on time and schedule and we are pleased to bring this edition which is a mixed bag of natural history tales from the Nilgiris. We have articles about all creatures great and small in this edition - from moths, butterflies, fish, gaur to fungi ... we have quite a diversity.

We are happy to have local naturalists from the Nilgiris put out their best photos as we see in the feature on fungi called morels and about moth diversity. The stunning winged dwellers of the night, the moths - rest in the day making them relatively easier to photograph than the butterfly who wants to flit about all the time!

Other sentinels of the day are the Gaur and today they have become so common place that local people go about their lives as if it is normal to have a 1 tonne weighing animal from the wild as your neighbour. The team from Keystone who monitor them on a daily basis share their experiences.

Morels are a distinct group of Fungi with a pointed shape and honeycomb surface and we have an article giving more details of this life form. This is also a new record for the Nilgiris.

From the natural world we focus on natural ways of farming to highlight efforts by local farmers in the Kukalthorai valley who are determined to grow food organically.

A local student writes about his research study on wild edible plants and how he rediscovered his own community's interaction with the forest through his research.

We want to share the story of a woman farmer who grows millets and is a protector of the seed diversity of her community. For several of us who know her personally - she is an inspiration.

From the terrestrial we take you to the fresh water dwelling orange-finned mahseer which has long held a fascination for anglers and researchers alike. Here we are happy to bring you some updates on its status

The NNHS has once again been buzzing with activities that range from making safe detergents to taking people out on walks to the sholas. We hope you enjoy reading this diverse newsletter and we look forward to your feedback.

Best wishes

**Anita Varghese**

Chief Editor



# THE WANDERING BOVINES AND THEIR TRACKERS

Nayantara Lakshman

Adult female gaur that joined the herd

Walking past over grown tea bushes, on a path that was carved out by Chandrasekar just moments ago, we finally spot the gaur herd down the valley. I quickly looked at the time to see how long it took us to find the herd. As anticipated by Chandrasekar, the herd was moving west, taking breaks at refuge sites. Usually less time is spent finding the herd in the afternoon because the direction in which the herd is moving can be gauged based on morning observations. Chandrasekar and Beeman spend a total of 6 hours (3 hours in the morning and 3 hours in the afternoon) a day, five days a week tracking and monitoring gaur herds. This activity has been going on for the last ten months to understand routes and seasonal movements around Kotagiri town. According to local citizens, spotting gaur around town ten years back was unheard of. One hypothesis is that the rapid rate of urbanisation has led to land use change, converting forest areas and grasslands

into built up areas, fragmenting forests. This could be one of the reasons why wildlife strays out of forests, into human settlements in search of food and water, subsequently increasing human wildlife interactions. Being the largest bovid, gaurs prefer relatively undisturbed large forest tracts with abundance of a variety of grasses, trees and shrubs to feed on, and of course, availability of water. To improve access to natural resources

like food and water in the changing landscape of Kotagiri and understand human wildlife interaction over these shared resources, the wildlife team is tracking gaur routes and monitoring their behaviour through the day, with regular intervals. A total of eight herds have been identified where four herds are being monitored regularly by Chandrasekar and Beeman.



Monitoring the herd from a safe distance

### Monitoring the herd from a safe distance

Chandrasekar who is now familiar with the routes to track his herd says this wasn't always the case. In fact, he learnt and improved his routes after monitoring commenced by asking locals around the area. Initially he faced issues while monitoring as people were suspicious about the nature of work and kept questioning him. Now familiar with the work that he does, some locals even call him and tell him the location of the herd when spotted, making it easier for him to observe. We slowly move towards the herd, keeping safe distance, picking a shed which served as a vantage point. For animals to be truly observed without being influenced by our presence, they need to be kept at ease. Counting the number of gaurs, Chandrasekar realises that an adult female has recently joined the herd. Apart from the size, the horns are another way to distinguish between male and female gaurs. Male gaurs have larger horns, especially at the base, curving less at the tips, as compared to female gaurs. After his initial observation, Chandrasekar realised that the whole herd was not there. To further investigate, he disappeared down the valley, only to return shortly, with speculation that the rest of the herd

must be in Longwood shola, the only reserve forest in Kotagiri. According to him, the herd was together last evening but split by this morning, probably to mate. Another hypothesis is that when the herd becomes too big, they split. To add to this, Beeman has observed herds merge for as long as six days but is unsure of why this happens. Chandrasekar feels that monitoring herds regularly over a long period of time will give them some clarity as to why herds split and merge.

### Beeman capturing individual gaur photos to use to create gaur ids

Meanwhile, Beeman continued to fiddle with the camera to get shots of gaurs to create individual profiles of gaurs in each herd. These profiles or ids, once compiled, will help us identify each individual from different herds better. In fact, both Chandrasekar and Beeman are quite familiar with the different personalities that constitute the herds they track. They lament about the naughty nature of calves with distinguished characteristics which makes them stand out. Their scent has been familiarised by the herds allowing the two of them to enjoy the company of these large bovines from a safe distance despite the presence of calves. However, both Chandrasekar and Beeman recall

experiencing aggressive behaviour from unfamiliar herds while doing an inventory.

Just as Beeman was to enter the last entry to end our sessions for the day, a sub adult male slowly made its way to a pear tree and started to chomp on the leaves. Being predominantly classified as grazers, these large herbivores have been observed exhibiting browsing behaviour. Grazers are herbivores that feed on plants like grasses and other multi-cellular organisms like algae, whereas browsers are ones who feed on leaves and twigs from shrubs and trees. Their diet constitutes trees, shrubs, bamboo and grasses, requiring abundant water to sustain. This varied diet has enabled them to colonize a wide array of vegetation ranging from wet evergreen to dry thorny forests. They need water every day, making obligatory visits to water bodies at least once a day. With enough information collected through monitoring activities, we hope to improve access to food and water for these large creatures by creating spaces with favoured vegetation and corridors to water sources.

Nayantara Lakshman is a Technical Coordinator at Keystone Foundation ([nayantara@keystone-foundation.org](mailto:nayantara@keystone-foundation.org))



Beeman capturing individual gaur photos to use to create gaur ids

# NEW RECORD OF MOREL

IN NILGIRI HILLS, TAMILNADU INDIA N Moinudheen

## Abstract:

**M**orchella Galilaea Masaphy & Clowez 2012 true morals have been recorded in south India In Nilgiri Hills, Morchella research in South India has not taken place.

Key words: Nilgiri Hills, Fungus, Morchella, Morals

## Introduction:

Fungus is any member of groups of eukaryotic organism, that includes microorganism such as yeast & molds, worldwide fungus recorded 3.8 million species. In India 27,000 species are recorded from till date (Sarbhoy et al 1996). Tamilnadu is one of plant rich states in the country that shows enormous diversity in various plant groups, and fungi, linches and algae. A total of 1077 species in about 370 genera have been recorded from tamilnadu till 2002 (Natarajan 2007). Nilgiri hills had a rich in fungal diversity. Morchella true morel is a genus of edible wild fungi. It's also of economic importance and medicinal uses. Morchella species have been used traditional Chinese medicine from 2000 years as well as in Malaysia and Japan for the treatment of many diseases (Hobbs, 1995). It is a laxative and can be used as emollient (Sher et al 2011). Worldwide morels are estimated 1069 species of mushrooms have been reported as being used for food purposes. (Boa 2004).

Morchella species commonly called as guchi in India. Most about this morchella genus of morels has been reported in the north provinces in India, temperate Zones in Himachal Pradesh, Punjab, Jammu & Kashmir, Rajasthan and Uttaranchal, Maharashtra, Morchella required undisturbed natural condition but very rarely linked with agricultural ecosystem (Lakhanpal & Shad 1986). Six species of morels have been identified in India *M.esculenta*, *M.conica* (pers) Fr. (syn. *M.elata* Fr.),

*M.deliciosa* (Fr.)Jct., *M.angusticeps* peck, *M.classipes* (vent.) pers and *M.semilibera* (Dc.)Fr. (Chandra Singh Negi 2006). *Morchella galilaea* is one of species in morchella genus, this species was described as new to science in 2012. (Masaphy & Clowez 2012).

The Vegetation of the Nilgiri hills is Thorny scrubs and shola grass land. The morchella galilaea specimen was found under *cycas circinalis* L. in Coonoor Nilgiri Hills. *Cycas Circinalis* L. is endemic to Western Ghats, IUCN red list data base of threated species as data deficient. It was transformed early in the fall of autumn. Although morel fruiting season occurs generally during the spring season (Sturgis 1905) and (Masaphy et al 2009). *Morchella galilaea* give the phylogenetic cod Mes-16) was observed in autumn in the mist units of the Horticulture Research and Application Area of kurova University, Adana Turkey (Taskin et al 2012).

## Distribution:

China, Java, Hawaii, Isreal, New Zealand, Turkey and three countries of Africa, North province & South province in India.

## Systematic Account:

Order : Pezizales

Family : Morchellaceae

Genus : Morchella

Species : *Morchella Galilaea*

(Masaphy & Clowez 2012)

## Species Description:

Size: 6.5 Cm tall. Stem color is white and Cap color brownish with yellow color. *M. Galilaea* looking honey comb appearance (Fig.1). *Galilaea* species are thin, elastic simple, or forked anastomosing to form elongated hymenial pits, white, bluntly rounded when young. (H. Taskin et al 2015).



(Fig.1) All *Morchella galilaea* are looking honey comb appearance.

## ACKNOWLEDGMENT

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## References

- Boa E. 2004. Wild edible fungi; a global overview of their use and importance to people. Non-wood forest products, No. 17, FAO, Forest Department, Rome, Italy.
- Chandra Singh Negi 2006 - Morels (*Morchella* spp) is kumaun Himalaya. Natural product Radiance Vol. 5(4) pp.306-310.
- Hill, KD., C.J. Chen & P.K Loc (2003). In: Donaldson, J (ed) Cycads: Status survey and conservation action plan. IUCN/SSC Cycad specialist group. IUCN the world conservation union, cambridge, UK. Regional Overview: Asia Chapter 5: pp 25-30.
- Hobbs. C 1995. Medicinal Mushrooms. Bot Press, CA, USA.
- Lakhanpal, TN and O.S Shad, 1986 studies on wild edible mushrooms of Himachal Pradesh (North Western Himalaya II. Ecological relationship of morchella species. Ind.J.Mush., 12: 15-20.
- Masaphy S, Zabari L, Goldsberg D. 2009. New long season ecotype of *Morchella rufoburunea* from northern Israel, Mycologia Aplicada Internation 21: 45-55.
- Masaphy & Clowez in Clowez 2012 *Morchella galilaea*. Bull Soc Mycol France 126(3-4): 238.
- Natarajan K. 2007 List of fungi reported from Tamilnadu. A database available at <http://www.tnenvs.nic.in>.
- Sarbhoy, A.K., Agarwal D.K and Varshney, J.L, fungi of India 1982-1992, CBS publication and Distributors, New Delhi, 1996, pp:350.
- Sher, H., Elyemini, M., Hussain, K. and Sher, H.2011. Ethnobotanical and economic observations of some plant resources from the northern parts of Pakistan. Ethnobot. Res., Appl. 9:27-41.
- Sturgis wc. 1905 Remarkable occurrence of *Morchella esculenta* (L) Pers. Journal of Mycology 11:269.
- Taskin H. Buyukalaca S. 2012 Morel (*morchella*) mushroom, Bahce 41: 25-36.
- Taskin H. Hasan Huseyin Dogan & Buyukalaca S. 2015. *Morchella galilaea*, an autumn species from Turkey. Mycotaxon Vol-130 pp:215-221.

N Moinudheen

Defence Services Staff College, Wellington, The Nilgiris, Tamilnadu,643231

# MOTHS

Photographs: Samantha Iyanna, Text: R Sharada



## *Actias selene*

- Family : Saturniidae  
Common english name : Indian moon moth, Indian luna moth  
Habitat : Temperate, tropical and humid mossy forests  
Distribution : widespread across Asia (India, Pakistan, Sri Lanka, Myanmar, Afghanistan, Nepal, Bhutan, Thailand, Vietnam, China, Indonesia)  
Description : The family has some of the largest moths. Luna moths have a large wingspan of 18-20 cms with females larger than males. It has a lot of subspecies across its large range which show a lot of variation depending on origin. Feed on prunus, quercus, rhododendron, hibiscus

## *Attacus atlas*

- Family : Saturniidae  
Common english name : Atlas moth  
Habitat : Dry tropical forests, shrublands  
Distribution : South Asia, East Asia, South East Asia  
Description : Large moths with wingspan of 25-30 cm. Females are larger than males. They have a very short lifespan of 1-2 weeks. Larvae feed on citrus, cinnamon, guava and evergreen trees. Adults lack mouth parts for eating and are weak, unsteady fliers. They conserve energy by resting during the day and fly by night.

## *Erebus macrops*

- Family : Erebidae  
Common english name : Indian owl moth  
Habitat : Diverse habitats - forest, wooded and urban  
Distribution : Sutropical regions of Asia (south Asia, east Asia, southeast Asia), Africa  
Description : The family has the largest count of moths by species. Wingspan ranges from 13-16 cm making it exceptionally large for an Erebidae species. Larvae feed on acacia and entada species.

### *Nepita conferta*

Family : Erebidae  
Common english name : Footman moth  
Habitat : Wet moist habitats  
Distribution : India and Sri Lanka  
Description : Larvae feed on mosses and lichens. Easily adapts to domestic conditions.



### *Nyctemera coleta*

Family : Erebidae  
Common english name : Marbled white moth, white tiger moth  
Habitat : Secondary growth and various habitats from the lowlands to 1200 m.  
Distribution : Widely distributed across Asia from India to China, Japan, South Asia and Papua New Guinea  
Description : These are small day-flyers, with a wingspan of about 2.5-3 cm. It has beautiful symmetrical markings. Host plants are Gynura and other Compositae.



### *Utetheisa lotrix*

Family : Erebidae  
Common english name : Salt and pepper moth, Crotalaria moth  
Habitat : Secondary growth and various habitats from the lowlands to 1200 m.  
Distribution : Widely distributed in all of the old world tropics.  
Description : These are small moths with a wingspan of about 3 cm. The larvae feed on crotalaria species.





# ORGANIC MOVEMENT IN THE NILGIRIS

Thanvish V

The organic movement is bringing in a drastic change in the farming practices of The Nilgiris, with the district administration planning on veering the whole district towards organic farming. In the past one year, the district administration has been actively spreading awareness on the importance/benefits of organic produce on biodiversity and human health. The district has also provided unique marketing strategies like introducing farmers market within the local market space where the farmer directly sells his produce directly to consumers, as a way to improve the farmer – consumer relationships. Keystone Foundation has been working in promoting organic farming by providing the farmers with support along various broad areas - trainings on preparation of bio-inputs, traditional practices, crop rotation, crop companions; creating model organic

plots within the existing farms where the farmers can see the change first hand and integrated farming methodologies such as having bee boxes which would help in pollination of the crop as well as providing honey for the farmers; having herbs or medicinal plants which can be used to produce essential oils; fruit trees to control wind, dust, chemical infiltration from nearby fields therefore acting as a buffer for the field etc. The main focus points that farmers should try to implement for organic farming is farm management systems that are beneficial to local environment by using techniques such as soil conservation measures, crop rotation and application of agronomic, biological and manual methods instead of synthetic inputs. Every farmer should understand the importance of soil fertility, water resource management and it's relation to crop health. The easy availability

of harmful chemicals is one of the main reasons for farmer's to use as precautionary measures for their crops from diseases and pest. The chemicals (fungicides, pesticides & herbicide ) used are systemic, spread on contact and persistent which infiltrate the ground water and nearby water sources contaminating flows from upper to lower catchments which causes further







damage to the ecosystem. The farmers are looking for immediate results thus giving advantage to the chemical industries to target the farmers. In order to tackle this issue the district administration has to slowly change these chemical inputs into organic bio inputs like Sikkim has successfully done on its way to becoming “the first organic state in India”.

The Nilgiri district authorities have elected a local governing department called TOHFA (The Nilgiris Organic and Horticulture Farmers Association)

for initiating and implementing the organic movement through awareness campaigns, training programs, subsidy for farmer under conversion, policy making within the district and etc. Keystone Foundation is also working with the farmers of various communities to provide knowledge and training on sustainable practices. Keystone Foundation is working on creating a model plot in government school to provide nutritional mid-day meal for the students where it would be a learning module for the



students and farmers in the region. The organic movement is taking shape albeit slowly, as it involves many stake holders. In the long run, to meet the food grain requirements, the most desirable way is maintenance of good soil health and stability in production, which is possible only through the use of organic and biological resources. Organic agriculture constitutes only a small portion in the world’s agriculture, constituting a few percent of a country’s farming sector. Nevertheless organic farming at present has promising growth rates all over the world.

Thanvish is a Field Coordinator at Keystone Foundation  
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# WILD EDIBLE PLANTS: JOURNEYS THROUGH A DRY DECIDUOUS AND SHOLA FOREST

Monthis K

Many studies are being done on the interactions between local communities and their natural resources. In the months of March and April I had a chance to study these interactions by focusing on wild edible plants in the Nilgiri mountains. It was quite an interesting research for me since my education is in engineering. Before this I did not know about Keystone Foundation or about the Nilgiri Field Learning Center, where I did a four month study program. The course was about different subjects like water and sanitation, livelihood and ecology and I got interested in ecology studies. My research partner from Cornell University and I undertook this study as part of the NFLC program.

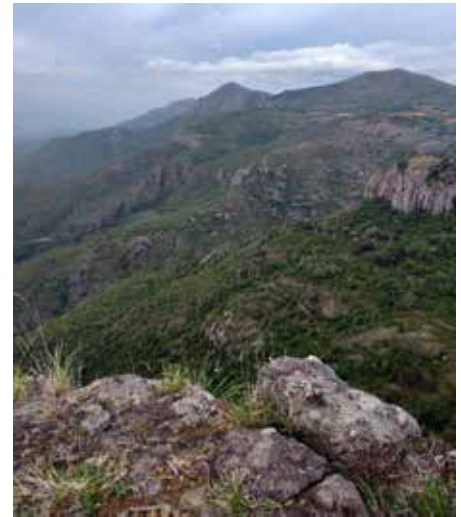
We selected five villages –three in higher elevation shola grassland complexes and two in mid-elevation dry deciduous forests. We wanted to understand how people in dry and wet forest areas use and what are their perceptions about wild edible plants. We collected inventories through 52 semi-structured interviews and participatory walks, documenting the local name, habitat, season and method of preparation for each wild edible plant mentioned. We also held focus group discussions with men and women separately in each

village, in which participants ranked the use and availability of each species and how these have changed over time.

We documented between 28 and 42 wild edible plants per village. The plant part most frequently reported was fruit, although tubers, shoots, greens, stems, bark, and mushrooms were also mentioned. Forest was the most frequently mentioned collection site in both mid and high elevation village.

Trends in wild edible plant availability differed between elevations: in low elevation villages 35% of plants were perceived to be declining and 24% increasing, while these values were 63% and 8% respectively in high elevation villages. Despite these differences, we found decreasing rainfall, increasing agrochemical use, exotic plant invasion, and increasing use by wildlife were all perceived to be the major threats to the availability of many wild edible plants. We think future ecological research can complement these findings and help identify strategies to conserve declining species that are important to the communities.

Through this research we found that many plants were used by the communities for rituals and medicines. This was personally very interesting for me as I learnt that they can cure diabetes, tooth ache, stomach pain etc. In the five villages mostly their livelihood depends on livestock and agriculture. When the people take their cattle for grazing, they gather the edible plants which are uncultivated. Many greens are collected from the farms, though now-a-days this has changed, because of the increased use of chemicals in the farm land. This research opened my eyes to the importance of organic farming,

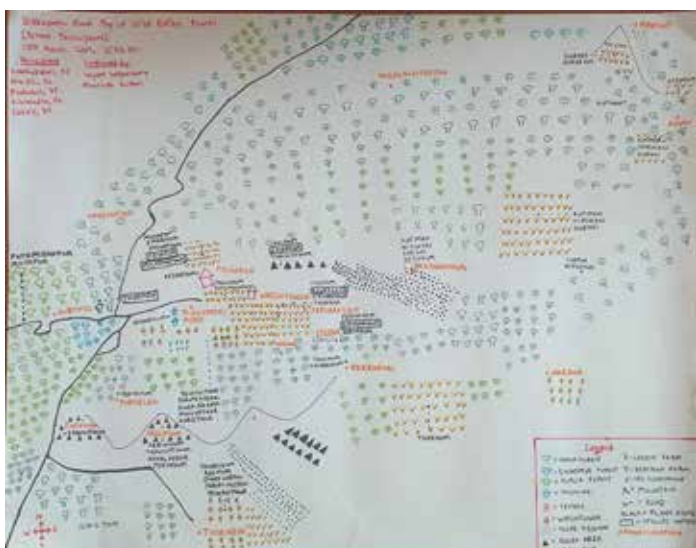


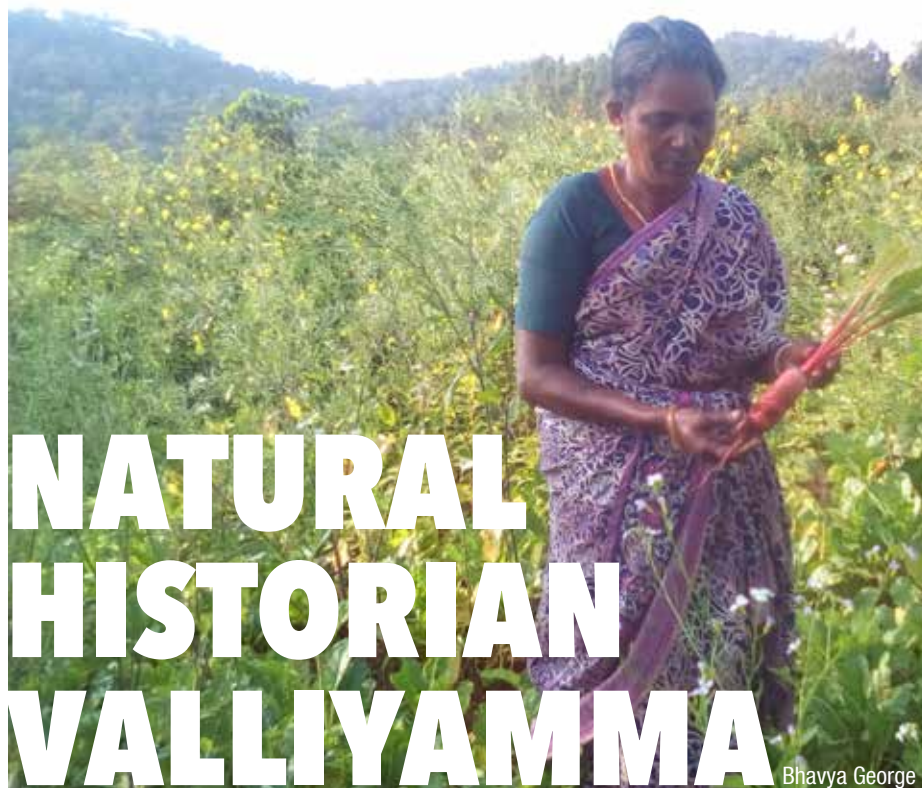
This study had an additional benefit when we got to sample many fruits and greens! But we were not lucky to get any tubers and mushrooms. One of my favourite fruit is Thavittupazham (*Rhodomyrtus tomentosa*) which is common in the higher elevations.

Personally I felt unhappy for the women in some communities in the high elevation villages since they were not allowed to visit the forest owing to cultural reasons and had never tasted the wild fruits. In the mid elevation villages they are not allowed to enter forests due to government restrictions since the forest was in a protected area.

I learnt that ecology means “everything is related to everything else”. When I was in the field I experienced it and in watching birds, bees, forest I felt the connection. Wild edible plants were perceived by a majority of the communities studied, to be decreasing in large number due to many issues such as climate change and intensive agricultural practices, indicating imminent threats to both local cultures and the ecosystem. We hope that future research can compliment these findings to better understand these changes so as to increase community and ecological resilience.

Monthis is a Community Fellow  
at Keystone Foundation





“Hurrriiiiiiiiiiiii, heigh, heigh..... is the way we give call to our cows and buffaloes to drink salt water during the salt pouring festival” explains and enacts Valliyamma enthusiastically standing beside the water pond kondejore in Thadasalatty Village.

She is a tribal lady in her late thirties, grown amidst the forests of Nilgiris before marriage and then in lush greens of Sathyamanagalam, now a Tiger Reserve. This very continuous engagement with the forest has made her a rich repository of Traditional Knowledge like any other Tribal living with the forest. The fact that makes her stand out from the crowd is her usage and expression of the same Knowledge from the farm and wild.

Her day is divided in farm and forest. She converses with both and experiments with her own knowledge. Small cups made from cow-dung to store the vegetable seeds from the farm are one such act. It actually keeps pest far from stored seeds. As a seed keeper of the village she is putting in her effort to sustain the traditional seed varieties of the locality. Seeds are not just stored but brought to life in her kitchen garden not bigger than a square dining table and farm in the fringe of the forest. The beauty lies in its biodiversity and care tended in nurturing them to reap benefits.

Later in the day, she roams in the forest with her lovely companions, Goats. While they feed and chew on their fodder, she feeds herself about the facts from the nature around. It is during this time, she observes nuances in the forest and raises enquiry in group meetings and other platforms. Like change in the forest, fruiting and flowering pattern of trees. Also, it is her daily dialogue with the nature around and knowledge passage from elders that aids in treating her goats during sickness. For which she uses herbal medicines and home-made remedies and sees the health of her loved ones, whom each she calls by name.



Few miles of walk with her in the woods will let one know that each object on the way has a story. One of the stories was about the salt pouring festival mentioned in the beginning of the article which got its start from the enquiry about the wooden log carved to a trough beside the pond. The other which is worth describing is about the ferns grown at the edges of the wetlands. She asked to guess on its use and in few seconds, cut few fronds of ferns and then articulated her hands into different moves and finally turning it into a small handy basket. The same she inserted onto a small plant nearby and said with wide open eyes that is how they guard tender plant saplings from over heat and rain.

Though action speaks more than words, sometimes we need words to justify actions. Her natural skill to converse with people and discuss the matters related to agriculture and forest instigates the interest in others and also builds on her knowledge.

Charles Darwin, Da-vinci, John Ray, Thoreau, David Attenborough, Steve Irwin etc are some of the high names that comes into our head and also on Google, if we ask who is a Natural Historian. But there are people who stay amidst the nature and observe the nuances of it and try to record it in their own way. Valliyamma is one of the Natural Historian of that kind who is to be encouraged and kept in note.

Bhavya is an Additional Programme Coordinator at Keystone Foundation ([bhavya@keystone-foundation.org](mailto:bhavya@keystone-foundation.org))



# EMBRACING THE NILGIRIS' UNIQUE FISH

Steve Lockett

River Moyar in Sathyamangalam, currently the only known breeding habitat for hump-backed mahseer - credit Dr Andrew Harrison

Two arms girdle the Nilgiri Hills, providing nourishment to the many forms of life in the area. They are the River Bhavani to the south and the River Moyar to the north, both meeting at Bhavanisagar Reservoir, to the east of Rangaswamy Peak. They have a critical and historic part in the story of the Critically Endangered hump-backed mahseer, *Tor remadevii*.

This giant fish is endemic to the wider River Cauvery basin, but the only certain, remaining breeding population lives in the Moyar, in the almost impassable Sathyamangalam Tiger Reserve forests.

In the angling books of the British Raj, the River Bhavani is mentioned as a place where mahseer grow “as large as portmanteau”. Recent investigation in remote parts of the Bhavani by Wildlife Association of South India (WASI) could find no trace of hump-backed mahseer, despite regular reports of them until as recently as 20 years ago.



River Moyar in Moyar Gorge, home to hump-backed mahseer and almost inaccessible but relies on streams from Nilgiris for health - credit Dr Andrew Harrison

Connectivity is crucial to the survival, in good genetic health, of all species, but, paradoxically, the building of Bhavanisagar shortly after Independence may have been an unwitting saviour of the tiny Moyar population. Stockings of invasive fish throughout the River Cauvery basin have likely impacted upon the breeding success of the hump-backed mahseer, but these rogue fish could not pass the physical barrier of the dam.

There were attempts to stock non-native fish into Pykara River in the mid-19th century, with trout from Europe and mahseer from other parts of India. Luckily, it seems that this was not a success, or that the building of Pykara Dam has restricted the impact.

For Mahseer Trust's work in attempting to: firstly, study the wild populations in River Moyar; and then, find ways to ensure the long-term survival of this population; followed by steps to extend and rehabilitate into areas formerly populated, habitat protection is paramount. A pollution incident

upstream on the River Moyar, or on any of the tributaries, like Sighur River, that plunge off the Nilgiri Hills, could wipe out the only breeding population on earth.

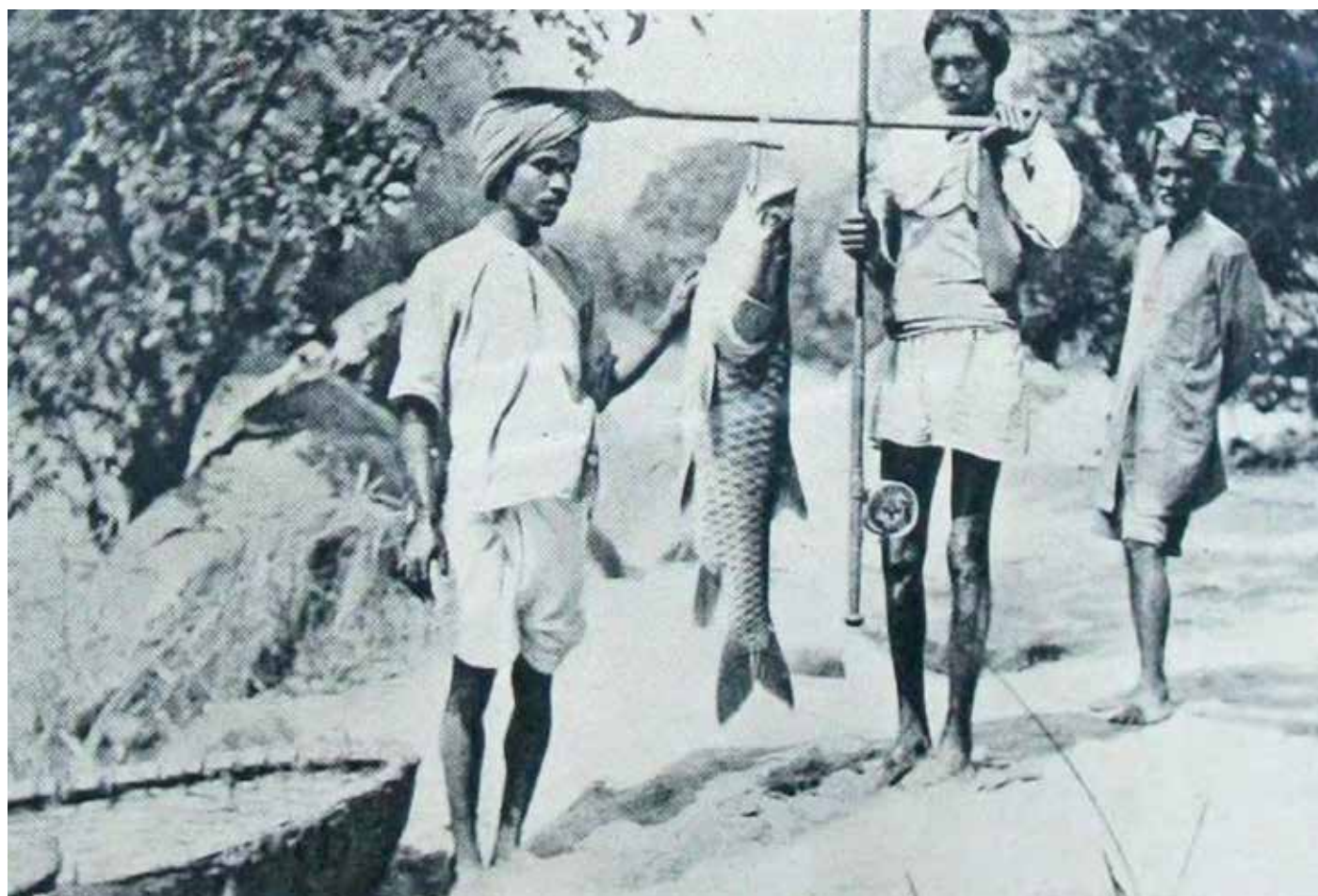
It is imperative that the hump-backed mahseer is protected and allowed to flourish. This 'tiger of the river' is a perfect umbrella species, being a mega fauna (potentially 30kg or more) within its habitat, and a top-end predator that thrives in well-oxygenated, clean water. While it remains a viable part of the riverine ecosystem, all the other building blocks should be in good health. From the smallest diatoms and algae through invertebrates and amphibians, past mammals large and small to the ultimate predator, humans; if rivers are clean, we all benefit.

One arm still has the Nilgiris in a warm embrace; the River Moyar continues to allow hump-backed mahseer to thrive. Can we clean up the Bhavani river such that the hump-backed mahseer can return? And complete the riverine hug that the Nilgiris deserve?

Between Mahseer Trust, Shoal - a worldwide freshwater conservation organisation - and multiple local partners, our Project Mahseer will use scientific study, habitat awareness and education outreach to reach the goal.

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See also: <https://shoalconservation.org/expedition-mahseer/ends>



Bhavani mahseer, photograph of a hump-backed mahseer caught in the River Bhavani by Burton. Photo credit Bombay Natural History Society



After a long hiatus, NNHS is back on its feet! In June 2019, we had the first walk for the year, into Longwood shola, with an enthusiastic group of young and old amateur naturalists. Amidst the mild drizzle, we were treated to a variety of plants and animals, including the often feared little leeches that made their appearance on top of the leaf litter. The forest watch pointed out the wild edible plants - stems, fruits or leaves that were consumed. It was a riot of flavors in the mouth – some peppery, some sweet-sour, and yet others fresh and juicy. As we admired the beauty of the tall old trees, the ferns of all sizes



## 'Chemicals in detergents polluting waterbodies'

Need to switch over to eco-friendly household detergents stressed

STAFF REPORTER  
UDHAGAMANDALAM

A workshop to sensitise people about how soaps and detergents used in households pollute water systems and impact the environment as well as human health was organised in Kotagiri on Saturday.

The workshop on "Eco-Friendly Alternatives to Soap and Detergents," was organised by the Kotagiri Citizens' Collective (KCC), a group of volunteers working on environmental and civic issues in Kotagiri town, and was attended by over 25 people from across the Nilgiris who were interested in learning how to use natural, non-polluting substances to keep households clean, and to also ensure that water from residential areas do not contribute to the pollution of rivers and water systems.

R. Sharada, Technical Coordinator for the Nilgiris Natural History Society, who



Residents of the Nilgiris attending a workshop organised to create awareness about the alternatives to chemical detergents.

was the key resource person at the workshop, lectured those attending about how soaps and synthetic chemicals used to keep households clean were impacting not just the environment, but also the health of the people using it.

Ms. Sharadha pointed out that many household cleaners and detergents contained phthalates, paraben,

lead, triclosan and oxybenzone. Many of these chemicals impact our health, she explained, adding that it is known that phthalates disrupt the human endocrine system, while other chemicals such as parabens lead to hormonal imbalances.

She also detailed various other compounds found in household detergents which lead to respiratory illnesses

and affect the thyroid, while some are even known neurotoxins.

A member of the Kotagiri Citizens' Collective speaking to *The Hindu* said that as an alternative, Ms. Sharada demonstrated 'how effective disinfectants can be made at home using bioenzymes, made from jaggery, fruit peels and water. She also detailed how soap nuts, shikakai, baking soda, lime, and other products produced by organisations promoting eco-friendly alternatives can be used by conscious shoppers.

A member of the KCC, which has been working on cleaning up wetlands in Kotagiri, said that embracing eco-friendly alternatives will ensure that water which gets used in households does not contribute to the pollution of rivers and streams, and could play a vital role in protecting the district's ever-dwindling water resources.



and shapes, other wildlife made its appearance through holes in the canopy - the prinias, barbets and Malabar giant squirrels, going about their business. On the forest floor, and tree trunks, another kind of life was kicking into action. With the monsoon, fungi of different colours and types – bracket, jelly in brown and orange offered numerous opportunities for exclamations and phone clicks. As we discussed tropical forest ecology at the stream, red mud crabs were seen digging into the soil while our amphibian friends kept jumping into nooks and crannies, the moment we spotted them. All in all, it was a wonderful experience in what is one of the last remnant patches of shola forest in Kotagiri.

We are all too familiar with the plethora of household cleaning products that adorn our home cupboards. How many of us know of their impacts on the environment and ourselves? And for those who do, what alternatives are out there, so that our needs are met sans the negative impacts? A workshop conducted in June this year, addressed

just that. Facilitated by the NNHS coordinator, it was jointly organised by NNHS and the Kotagiri Citizen's Collective. It showcased how to make natural home-made cleaners that could replace store bought ones. The event saw active participation from nature enthusiasts and groups working on environmental issues from across the Nilgiris - Ooty, Coonoor and Kotagiri. An interactive and information packed workshop, the participants were surprised to learn of the cascading effects of many of the chemicals, from man to water to wildlife. The session was extremely well received with many participants pledging to adopt the natural cleaners for their homes and businesses. A very timely effort for the region, which is currently battling water crises, both in terms of quality and quantity.

It sure feels good to be back again! We hope to see more participation and involvement from enthused NNHS members, as we unravel the natural beauty of this region!



# NILGIRI CLOUDED YELLOW - LIFE CYCLE

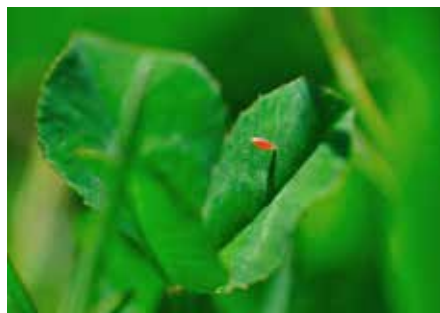
The Nilgiri Clouded Yellow is a dimorphic butterfly which has differently coloured male and female. The male is lemon-yellow in colour with the lower border dusted with black scales and a large black oval spot at the centre and wing bordered with pink lacing, green eyes, pink red antennae and legs. The female has white coloured wings with more greenish dusting than black as in male and other markings as in male.

Larval host plant and nectar feeding is an important aspect of butterfly ecology. The larva of this species till date was believed to feed on the traditional *Parochetus communis*, commonly known as Blue Oxalis. However, it has come to light the species also feeds on another host plant. The Wynter Blyth Association is the first to identify & describe its feeding on a new host plant called *Trifolium repens*, in the Southern India. Its new host plant *Trifolium repens* belongs to the family Fabaceae. Widely spread in wet areas and waste lands above 2000 m msl. Flowering occurs in monsoon, post monsoon and winter to continue in summer.

The eggs are spindle shaped, standing on one end, strongly ridged, longitudinally and striated finely transversely, cream white in

colour initially which turns to orange blotched with red and purple as it matures after 3 to 5 days and hatches. The larva passes through five instars (stages) moulting into different size and shapes before it converts itself into a pupa after 33 to 35 days. The pupal stage lasts for 25 days before it ecloses as the adult butterfly. In all it takes 55 to 62 days for the life cycle from egg to adult.

Butterflies are primary indicators of any ecological disturbance. In this case especially so, as the Nilgiri Clouded Yellow is a high elevation species, found only on the higher altitudes of



Mature egg



Adult butterfly environment

the Southern India, and is dependent on open grass land and shola related ecology. Any disturbance to its home terrain may ultimately eliminate the species from the face of earth.

(Wynter Blyth Association)

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](mailto: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:

Papers in Journals and other periodicals  
Hanley, T.A. and Hanley, K.A. 1982. Food resources partitioning by sympatric ungulates on Great Basin rangeland. *Journal of Range Management* 35: 152-158.

Papers in Edited Books, Symposia Proceedings, etc  
Cole, D.W. and Rapp, M. 1981. Elemental cycling in forest ecosystems. pp. 341-409. In: D.E. Reichle (ed.) *Dynamic Properties of Forest Ecosystems*. Cambridge University Press, Cambridge.

#### Books

Lieth, H. and Whittaker, R.H. (eds.). 1976. *Primary Productivity of the Biosphere*. Springer-Verlag, Berlin.

Reports, Dissertations, etc

Sollins, P., Reichle, D.E. and Olson, J.S. 1973. *Organic Matter Budget and Model for a Southern Appalachian Liriodendron Forest*. Oak Ridge National Laboratory, Oak Ridge, U.S.A.



Female. Photo credit: Wynter Blyth Association

## *The Nilgiri Clouded Yellow* (*Colias nilagiriensis* C. & R. Felder)

The only species of the three occurring in India in the genus *Colias*, it belongs to the whites and yellows family Pieridae and sub-family Coliadinae. It is a small butterfly endemic to hills of Southern Western Ghats of India found only at an elevation 1,900m above. It is an inhabitant of open hill grasslands, Shola forest fringes and surroundings. Larval host plant includes the blue oxalis.



Male. Photo credit: Wynter Blyth Association