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### LION-TAILED MACAQUE

(*Macaca silenus*)

Silent Valley

Photo Credit : Shanmugha Sundara Bharathi

## EDITORIAL

As 2020 draws to a close, the covid pandemic continues to weave itself around the human populace – even as lockdowns and unlock mechanisms come into force in countries like India; as a new variant and possibly more virulent strain of the virus appears on the horizon; as the vaccine development and testing is speedtracked on the super highway. The year might have felt like it slipped away from under us, but it taught us valuable life lessons. Of solidarity in adversity; of family and kinship; of community and compassion; and most importantly about the human dependence and impact on nature.

The lockdown took us all on the internet and virtual access mediums like never before, as the only way to keep the wheels of life moving. NNHS took to the same with the online covid art event to understand perspective of youngsters in this ‘never before encountered’ pandemic environment. And the results were revealing, to say the least. That health and wellness, happiness and family, man and nature were so interlinked and interdependent was very evident in the art works that emerged from the young minds.

From May through September, the new mode of webinars found NNHS members exploring remote ways of connecting and sharing effectively – be it about small cats, climate change or about stories of the earth and its people – from salt making in the salt pans of western India, or the struggles of tribal communities of central India in protecting their lands from modern industrial development. And you will find exactly those in the NNHS Diary section of this edition.

Ever wondered how to make interesting nature observations right in your backyard? Well, by simply observing, something as simple as a single flower, you can learn a lot, as our article will show; or that when you walk observantly, even a simple walk around your neighbourhood can be an eye opener to the landscape and its stories. The natural history knowledge of the Todas comes to you from our indigenous community members while new research in the region explores the past to unlock the answers for future bird conservation.

In the hills, where half the year post May is spent in a deluge of rains, the grassland, forest floor or hard earth – all wait for that first hit of moisture to spring up the magical world of the mushrooms. And this edition takes you into that lesser known but exciting world of fungi – what they are, who they are and where they are.

As Leo Tolstoy is supposed to have famously told – “ the two most powerful warriors are patience and time”. This is never been more true than now, as the new year brings with it new hope for the human perseverance against this pandemic. Time for humanity to bounce back and the patience to understand our environment better. And we at NNHS also believe the same – that with patience we can tide over this difficult time and get back to our normal events, with sensibility and sensitivity, for man and nature.

**Sharada Ramadass,**  
NNHS Co-ordinator

‘This issue of the newsletter is supported by a grant from Rohini Nilekani Philanthropies to Keystone Foundation’



# ART IN THE TIMES OF A PANDEMIC

- Sharada Ramadass

2019 came as a shock to everyone who had just gotten to a hopeful start for the year ahead. The Corona virus pandemic slowly but surely spread across the globe, came to the nation, state and district as well, leading to a social lockdown and halt to all 'business as usual' matters.

Like everyone else, NNHS was also learning to adapt and work with the situation through the early months of the lockdown. Outreach and working with children being a key focus of NNHS, as we explored ways to engage with children who were experiencing these social circumstances for the first time, Gallery One Two (based out of Ooty) and NNHS came up with this idea of an art event for middle and high school students. After some exploration of logistics (keeping social distancing and movement restrictions in mind), it was decided to run this event for children across communities in NBR through Keystone Foundation, with the area co-ordinators as the site facilitators.

The event was roled out as an art event titled, 'Through a youngster's eyes', and sought to understand how children experienced the pandemic at home. Children of ages between 12-18 could submit their art creation as a digital copy. The event was run through the whole month of August across 6 work areas of Keystone Foundation – Kotagiri, Kookalthurai, Konavakkarai, Sigur, Aracode, and Hasanur. We got very good response with over 100 children from across these regions who sent in their entries.

Through September, the entries were reviewed by a Jury consisting of Madha-

van Pillai and R Solomon, both artists based out of Ooty. The selection was based on the following criteria -

1. Creativity, self-expression and visual awareness
2. Confident with the chosen medium as a means of communicating and generating ideas
3. Understanding of the theme
4. Understanding the basic principles of colour

The outputs from children were powerful portrayals that exhibited the varied emotions and understanding they were going through, during this period. While various elements relating to the corona virus such as the virus itself, mask, social distancing, hand wash hygiene were the prominent feature in many artworks, a closer connect with nature, working towards a greener and safer environment was also very starkly evident in the children's visualisation of a world they foresee to live in. Also visible in their expression was the idea of coming together and spending quality time as a family – an unintended consequence that social distancing brought people closer to each other than before.

The 3 winners were awarded cash prizes while art supplies were given away as consolation prizes for other equally good attempts. The art event provided children with an opportunity to stay home, while reflecting upon their surroundings and happenings that affect us. It also brought out the visionary in them for a future that we believe will be rooted in respect for both nature and people.

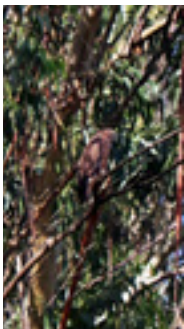
Photo Credits: Keystone Foundation





# A WALK IN THE WOODS

- Ajay Ludra



The day promised to be fine - cloudless, bright sun, light breeze. The plan was to take a walk through the Ralliah Reserved Forest, to the north-west of Coonoor. The walk starts from Betatti, a small Badaga hamlet on the MDR 1073 from Coonoor to Kotagiri. The tea-shops hadn't yet opened their shutters, and the roosters were announcing the rise of the sun. The sky was a clear copper-sulphate blue; not a speck all around. The slight nip in the air was bracing; for me, I needed it after the 40-minute of cycling.

As we continue onward, the surrounding tea-plantations give way to the reserved-forest on the left, and the sound of falling water. In the distance to the right, there is a stream of white quite visible - evidence that the dam is more than full. This stream runs off to join the Kallar near Catherine Falls. With the rising trees immediately next to the road, there is a sudden dip in temperature, a mild darkness - an unwelcome shade at this time of year! But the body is warmed up enough not to feel the drop in temperature.

At Betatti, we break off the main road, and commence climb towards Ralliah Dam. This is a slightly challenging climb, a length of 2.3 kilometres. By about a kilometre and a half, the ascent peters off, and the density of habitation reduces, too. At the top of this ascent, the views on all sides are breathtaking. One can see Kotagiri to the North, Drumella to the East, and Betatti, Aniyada, and Ellithorai to the South-West. It is initially difficult to visualise that the habitation in the valley below is the one that we commenced the walk from.

As we walk along the spur-ridge towards the dam, Kattabettu comes into sight, and so does the colourful Aruvah Osahatty. In the depths of the valley, one can even catch a glimpse of Nadu Hatty. But the sight that really catches you is that of the dreamy bungalows of HillsBorough - they line the ridge, resplendent in the rising sun. A short distance short of the dam, we notice a creeper along the fencing; there is a

bit of an initial debate as to whether it is Aristolochia, on account of the large leaves, but the fruit gives it away. The fruit is half-way ripe; one is plucked to be tested, and the gate-keeper joins in to tell us that it is indeed passion-fruit, and not something else.







Short of the dam, where the road continues towards Aruvah Osahatty and Kattabettu (a jeep track, now repaired with paver-blocks), there is a pond. The pond has water-lilies. If you are lucky, they would be in bloom; this day, there were only buds! The pond has some frogs, and these caught the attention of Sharada! This day, there was so much run-off from the dam that this pond (which collects some of the trickle from the dam) was overflowing, and what a current! What was sad to see was the number of frog roadkills near the pond.

At this point on the road, we break off onto the unpaved track that leads to the Toda hamlet of Bittimund. By now, the forest has thinned out, and there is some tea on the right, interspersed in the tall trees. And sure enough, Sharada's keen eye spots a Brahminy kite (juvenile) perched on a tall Eucalyptus tree across the swamp. It is a marvel how she spotted it. It took Saro and me time using binoculars to locate it, but locate it we did.

Sound of water flowing from the dam had by now started to increase; it sounded more like a water-fall. The first glimpse of the dam was of foam flowing down the overflow wall. But the real treat was awaiting as we topped the climb and pushed through the brush. My! What a sight - clear blue skies, no wind, a glassy water surface, the dam filled to the brim. The view was fit for a painter's palette! I am a panorama-freak; so I clicked five overlapping shots to capture the most angle. This picture is the 'stitched' panorama, spanning 80° x 55°.

Across the dam to the west, the Ralliah Reserved Forest starts. Across the dam lies a foundation stone and a pillar. The foundation of Ralliah Dam was laid in 1938 for the Government of Madras. The road on the other side of the dam, laid in 1938-41, is in such a state of disrepair, that one gets an impression it has never been done up again. Nature has taken over, and in parts, the tarmac-dum is not even visible. The road has distance-markers (mile-stones), still showing miles to Coonoor.

As the road winds its way along, there is a gradual climb, for nearly 2 kilometres. There are trees that have fallen to weather and age, across the pathway. No one clears them, and in a way, it is good - they go back to mother earth, to nourish the next generation. By way of vegetation, there is very little native flora. Mostly Eucalyptus interspersed with Acacia, Casuarina, and Juniper, the undergrowth is scanty, and the canopy tall, but not full. A traditional shola gone waste with forced forestation by Eucalyptus planting.

Interestingly, the pathway is strewn with pine needles, forming a soft tread, almost like walking on a carpet of brown. After about two kilometres on this path, the climb gives way to a descent. Here, it is evident that the sun is difficult to come by. The forest-floor is damp; there is moss all around, even on the road. Inside the moss-gardens, are fungi - little mushrooms popping their heads, getting themselves some fresh-air. Star-moss also grows in abundance. This descent is also strewn with fallen trees across the pathway. Most of these form obstacle-tracks - crawling below, vault-over, push your way through. At one place, we had to search for an alternative path skirting the trees, for nearly a hundred metres - there were so many fallen trees in a row.

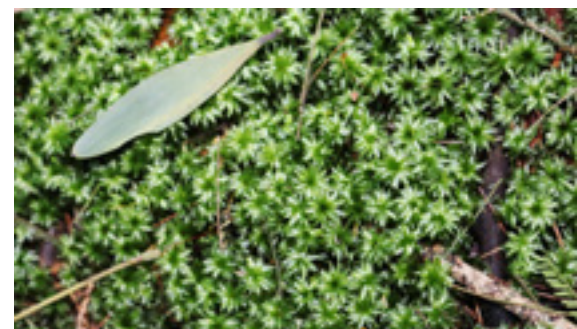
As the path winds down, sounds of vehicles in the distance catch you once again; an indication that habitation is around the corner. And then, all of a sudden, the vegetation changes from pine to deciduous and scrub. The undergrowth is denser, and for the first time, one notices Datura bushes - an indication of landscape disturbance. Here, one can hear the distinct rat-a-tat-a-tat chatter of the Nilgiri Giant Squirrel.

Nests are visible in the tall Eucalyptus canopy, and a few flitty squirrels are visible in the trees; nibbling, scampering, chatting - just being themselves.

As one exits the reserved-forest (above the Badaga village Bandumai), there is a traditional Badaga shrine. Placed on a rocky outcrop, the shrine looks due East, and overlooks the Badaga village. From the rocky outcrop, the entire bowl of Betatti, Aniyada, and Ellithorai is visible. The million shades of green from the tea-plantations and forest are again a sight to behold.

About three hours, almost nine kilometres, and lots of photographs later, it was a grand end to a lovely Sunday morning. There will more such walks; and stories of these walks will follow.

**Ajay Ludra** is an ardent weekend walker, and an amateur photographer. Nature walks are a forte, and finding new paths is a passion. Where there isn't one, it will be made! He carries his Canon 200D, and is picky with his photographs. Ever since learning to stitch mosaics of panoramas, wide-angle panoramas without a wide-angle lens are a necessity in every walk.



# 'SHROOM WORLD - IT'S A MAGICAL WILDERNESS OUT THERE!

- Sharada Ramadass



Said the 'shroom, to the pine, "I am new, are you fine?"  
Said the Pine, "I am old, wise and tall, But you my friend, are so very small!"

Said the Toadstool, "Oh, but do you not know that I am magical – both long lived and ephemeral?"  
"And with my mycorrhizal connections with you over the years, I have so many old tales to tell!"

Anyone who has read fairy tales of the 'Alice in Wonderland' kind will immediately know that we are talking about the fantasy world of magical mushrooms. But did you know that they bring the magic into the real world too?

So what exactly are they? They are not plants. They are not animals. Up until the 20<sup>th</sup> century they were so little understood to be considered as 'inferior' plants. And the cultural reputation of being associated with spirits (including the mischievous kind) did them no good. Only recently have fungi gained importance and significance with a kingdom to call their own, alongside the plants and animals.

What then, if any, is the difference between a fungi and a mushroom? To put it simply, 'all mushrooms are fungi, but all fungi are not mushrooms'. And what of the famous toadstool? Turns out, mushrooms are a generic term given to fungi of the type that have caps and stems and are usually referred to or considered the edible kind. The word 'Toadstool' however, might have darker connotations with toads and their poisonous skins and likely relate to poisonous fungi.

Now that that mystery is somewhat solved, let's see what makes them so unique. For one, not being plants, they lack chlorophyll to make their own food; not being animals, they cannot ingest their food; instead, they are saprotrophic, that is, obtaining their nutrition from dead plant and animal remains. This makes them important as decomposers in ecological systems releasing nutrients back into the environment. Some may be parasitic (depend on other living organisms for food) while some others are symbiotic (mutually beneficial re-

lationships like in lichen). They grow in moist, warm conditions with an amazing diversity in colours, shapes and sizes. What's more, scientists believe that what we have identified so far amounts to only about 10% of their total diversity on earth. In India alone, over 27,000 species of fungi have been reported with many more likely awaiting their discovery.

The visible portion that shows up as a mushroom in the soil or bracket on a tree trunk is the fruiting



Agaricus on forest floor





Parts of Mushroom



Phallus on leaf litter

body. The microscopic structures are the hyphae, cylindrical thread-like structures that form a network called the mycelium that can span a vast area. When they form mutual associations with root networks of plants, they are called mycorrhiza. The Amanita or fly agaricus is such an example of association with pine forests, besides other deciduous and coniferous trees. Its bright orange-red and white cap has made it iconic in fairy tales and is the most popularly referred to as toadstools. It has psychoactive components that make it hallucinogenic and somewhat poisonous. While they have a worldwide distribution, they can be seen after rains, popping out brightly from under the pine needles in the Nilgiris.

The stinkhorn are another fascinating family found across tropical regions of the world. True to name, they have a faintly pungent stink or smell when they suddenly pop out of the ground

and attract flies that help disperse the spores. While the bridal veil stinkhorn (*Phallus indusiatus*) has a dainty net, the *Lysurus gardneri* has a realistic looking claw shape. Their striking looks and more importantly, the dung or carrion smell is their dead giveaway on the forest floor and leaf litter.

The *Resupinatus* species are on the other side of the size spectrum – with tiny cups like fruiting bodies not more than 1.5 cm in diameter. Saprobic in nature, they grow under moist conditions on the underside of decaying wooden bodies and can get quite easily camouflaged with their black-grey colour. Some *Coltricia* species, which are also saprobic, pop out like beautiful little tubular brown-ochre flowers from decaying wood, but are papery and stiff. They go by the common name of Tiger's eye.

But a fungi to keep away from, are the *Panaeolus* species which are inedible.

Several members of this genus contain psychoactive compounds like the fly agaric. They can be seen single or in dense clumps on compost piles in grassy areas. The ink cap fungi are another fascinating group of mushrooms that can be seen on moist wood, grass, dung, forest floor, etc. Most are very delicate and hardly last a day. They get their name from their black spores and their tendency to liquify into a black inky mass when mature.

And this does not even scratch the surface on the world of fungi. It is a fascinating one which has hardly been investigated enough. Many fungi are edible and a very rich source of protein that has been traditionally embedded in local cultural knowledge of mushroom harvests. However, for the uninitiated, it is never wise to try and identify them by external looks alone as many fungi look similar between the edible and poisonous kind. Also, some are only edible in the tender younger stages and turn inedible once mature. A thorough examination of spore prints, and microscopic examination and chemical tests are at times the only way for correct identification. But that need not deter the nature enthusiast to walk out after rains to observe these magical miniatures (and occasional giants) of nature. Just don't follow the caterpillar's advice from Alice in Wonderland.

Image credits: (All images taken in the Nilgiris)  
 Photo Credit for *Phallus* sp. on leaf litter: BFE  
 from Sigur, Keystone Foundation  
 Photo Credit for all others: R Sharada, NNHS



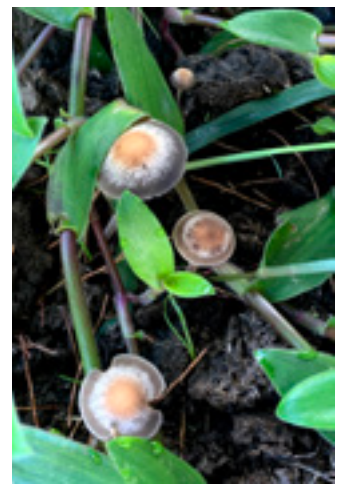
*Resupinatus* on wood



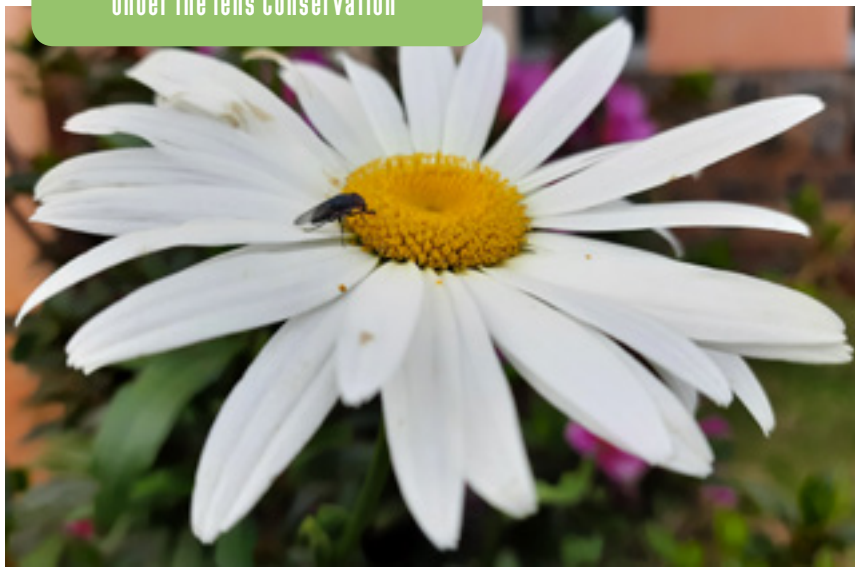
*Coltricia* on wood



*Coprinopsis* in grass



*Panaeolus* on dung



Blowfly



Jumping spider



Sweatbees



Ant



Red Pierrot

# BUZZING THE BREAKS

- Shiny Mariam Rehel

Keystone campus has a wide variety of plants on both native and exotic species. Flowering of these during their season is beautiful to admire and soothing to the eyes. I happened to see the Oxeye daisy (*Chrysanthemum leucanthemum*) in flower while strolling down the campus after lunch. It belongs to the Astereaceae (Aster) family. The flowers are characterized by a head with a mixture of central disk flowers and peripheral ray flowers. Oxeye daisy is a pretty little perennial flower though it is an introduced species from the European region. It thrives in a wide range of conditions but prefers a sunny or part-sun location and average soil that is damp for it to grow. It has flowers through the year and I have not seen any large animals, especially the Gaur foraging on it. The flower has an unpleasant odour especially when cut or crushed. The unpleasant odor is reminiscent of stale perspiration. Medicinally, the whole plant is used for treating whooping cough, asthma, conjunctivitis, bruises, and wounds. An acrid juice permeates from the flowers of Oxeye daisies and is said to repel insects. Maybe that is the reason making it unpalatable for any animal to graze on. The unpleasant odor of the flowers is similar to that of many other species pollinated by flies. I found it interesting to observe the flower because it had many insects visiting the flowers. For a couple of days after lunch I would sit beside the flower observing any insects visiting the flowers and taking pictures

of the insects. Here is a list I put together, of visitors having a feast of nectar and pollen in spite of the strong unpleasant odour. I was not able to find bees on it though; maybe spending more observation time would help in bringing a more diverse forager list.

**Red Pierrot** (*Talicauda nyseus*): It was one of the commonly seen butterflies, observed collecting nectar from the flower. It is a low flying butterfly active during dawn and dusk.

**Hoverflies** (*Syrphidae*): As the name suggests, they are often seen hovering or nectaring on flowers; the adults of many species feed mainly on nectar and pollen and are important pollinators.

**Sweat bees** (*Halictidae*): They usually build nests in rotting woods and underground.

**Blowflies** (*Stomorphina sp.*) – Belonging to the Rhiniidae family, it is found to feed nectar and pollen from flowers. These distinctive, medium-sized blowflies are rather similar to the house flies, but they have a characteristic prominent proboscis, a longitudinally striped thorax and an abdomen with yellow and black bands. The tubular proboscis aids in sucking the nectar.

**Jumper spider** (*Salticidae*): They are active hunters or predators. They spend more time scanning their surroundings from one position, actively stalking any prey they detect.

**Ant** (*Formicidae*): The ant had a thin, linear shaped body feeding on nectar from the flowers.

Image credit: Shiny Mariam Rehel

Insect identification: Poornima Viswanathan



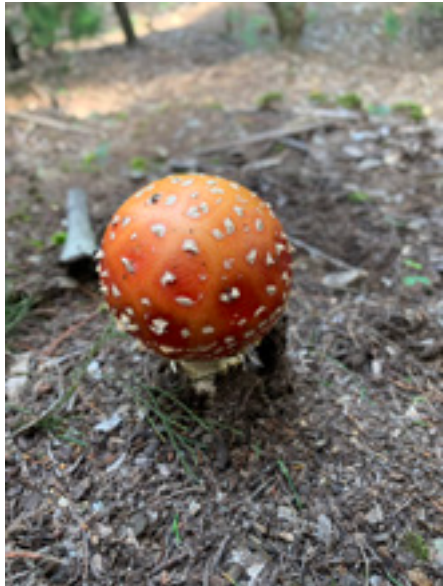
Hoverfly



# WORLD OF FUNGI

- Sharada Ramadass

All photos taken in the Nilgiris.



## *Amanita muscaria*

Common name : Fly Agaric

Habitat : Coniferous and deciduous forests in the temperate and boreal (colder arctic climate) regions.

Distribution : Native to northern hemisphere.

Description : An iconic mushroom made popular by children's fantasy stories, it is unmistakable in its orange-red cap with white-yellow warts. Classified poisonous because of the presence of psychedelic neurotoxic substances (muscimol), deaths from this mushroom is rare and it is consumed after some treatment in some cultures. They form symbiotic relationships with many trees, including pine, oak, fir, spruce, birch and cedar and can be seen under these trees, post rains.



## *Lysurus gardnerii*

Common name : Stinkhorn fungi

Habitat : grows on decaying organic matter across varied moist tropical habitats.

Distribution : across Asia (Sri Lanka, India, Asia, Indonesia) and Africa (South Africa and Democratic Republic of Congo).

Description : A poorly documented species, it belongs to the stinkhorn family of fungi. True to name, they have a pungent fetid smell that attracts insects to it, to help in spore dispersal. The fungi starts from a whitish egg that grows into a whitish stem and a somewhat brown. The head has 4-6 short thick whitish arms that join at the tips giving the look of joined fingers. The cylindrical stem is hollow, and wrinkled. The head is slimy which help attract the insects.



## *Schizophyllum commune*

Common name : Split Gill

Habitat : Grows on rotting wood.

Distribution : Global distribution.

Description : It is a beautiful looking fungi that looks like a coral out of water or a flowery chinese fan. Their gills form an intricate fan shaped flower like pattern with a dense spongy texture. It is known for its medicinal value and aromatic taste profile in some places, while considered inedible in other places. When the mushroom dries out, the gills split giving it the common name.





### *Macrolepiota dolichaula*

Common name : White parasol

Habitat : Wet grass, around dung.

Distribution : Widely distributed across continents.

Description : It is a good edible mushroom (when identified correctly) and widely consumed in many places such as India, Africa and China as seasonal delicacies. They can grow really big with closely stacked gills that give them a beautiful peach-cream hue on the underside. They have a soft and spongy texture when fresh and quite a photogenic mushroom with a beautiful whitish cap. They can be seen growing single, in groups or even in rings.



### *Parasola plicatilis*

Common name : Pleated inkcap.

Habitat : Grassy areas.

Distribution : Commonly widespread.

Description : This is a beautiful, dainty and delicate inkcap that crops up in grassy areas. Inkcaps in general are very short lived and this is no different, appearing after rains and decays within a day or two, leaving no evidence behind. Like ink caps, it is a decomposer, fading away into an inky mass. They may crop up single or appear as a clump.



### *Scleroderma citrinum*

Common name : Common earthball.

Habitat : Rocky soil and short grass.

Distribution : Commonly widespread.

Description : While they may be mistaken to look like prized truffles, the common earthball is inedible and can cause gastrointestinal distress if consumed. They are found on the ground, without a stem, a very unassuming ochre yellow in colour with warts on the outside and a firm dark interior.



Photo Credit: All Photos by Sharada Ramadass, NNHS

Text collation: R Sharada, NNHS

Text sources: Fungus around us (NCF); Fascinated by Fungi by Pat O'Reilly, Reliable internet sources



# TALES AND TRAILS OF ARADU KUTTAN

“When I was a kid I could see large expanse of grasslands and sholas. But now those spaces are taken over by invasive plants” laments Aradu Kuttan talking about the change in the Nilgiris landscape.

Aradu Kuttan is from Toda indigenous community which has a rich pastoral culture with a unique breed of Toda buffaloes. For him Natural History is imbibed in all aspects of Toda life as they live with nature itself with a feel of fresh air and taste of clear stream water.

His connection with the nature took a deeper route with walks in the forest with his Father. He used to take him and other kids in the mund to collect honey mainly from the *Apis cerana* bees. During those walks he learnt that Todas have named places in the shola forest in a distance of every km of their mund. Also those walks were the time to learn names of plants, climbers and trees important for cultural rituals. To mention one example, *Mappia* leaves are used to make the leaf cup to drink buttermilk in the temple.

But today he thinks it is not the same with the younger generation; there is a lack of elders in the community who could train the young about their traditional knowledge. Where as in his younger times, he got chance to be with elders and learn a lot about the nature around. That is where he feels the same kind of knowledge transfer is needed for the present generation too, especially on the temple rituals and linkage of it with the nature around. Only then the younger generation will become learned. Also, the important trees that is entwined with the Toda culture is not found in the mund today, and he wants

to raise nursery of those species and share it with the community.

If these are the changes he has seen in the community, there are also changes that he sees in the landscape. Speaking on the same, he remembers how during his grandfather time they used to have 100 buffaloes and when they were taken to grazing on the farther grasslands, they could see it grazing kms away from their mund. Today the view is blocked by non native *Acacia* and *Eucalyptus* trees. On the other hand he sees the grasslands in Mukurthi as still enchanting with least human footprints. Adding to the note he described how the sighting of Nilgiri Tahr in Mukurthi is an everlasting experience for him.

While he speaks about the invasives as the major problem, alongside he also touches upon lack of certain traditional practice that has brought about change in the fauna and flora. Years back it was a regular practise during the month of April to set controlled fire to the grassland and the grass that regenerates after is called as “Khor” in Toda language. This grass will be rich in salt content and is good for buffaloes wellbeing and other wild fauna that depend on the grass. But today there is no fire and there is no nutrition rich salt content high grass available. He also thinks somewhere the loss of fodder in the wild for the fauna has changed their behaviour leading to increase in negative interactions.

One of the observations that he has made being in the grassland and sholas is that though the invasives are spreading in the grassland, the seeds of it are washed into sholas during rains. After that invasives get a stronger foothold



Kuttan

in a completely different ecosystem of sholas. He has seen how *Cestrum aurantiacum* is overarching the native tree and plant population in the sholas.

Apart from all these talks he loved to say about his leisure time favourite activity-honey collection. Toda community is well versed in sustainable *Apis cerana* honey collection and he would love to teach the young the natural beekeeping in the shola forest.

As an endnote he said that there is a joy in seeing everything that is natural and looking at the destruction made by invasives to the grasslands and sholas makes him feel low. But he hopes in restoring the landscape to the same old by carrying on his work on removal of invasives, planting of natives and wetland restoration. Though he is happy about his work, he says that is not enough and there is much to do for the good of the landscape.

As told to Bhavya George,  
Natural historian, Keystone Foundation.

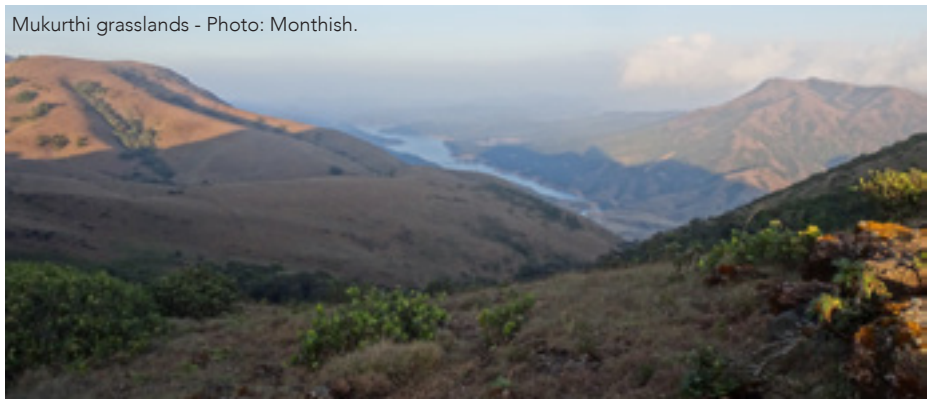


Kuttan at the Toda conical temple



Kuttan at nursery work

Mukurthi grasslands - Photo: Monthish.







Velvet Fronted Nuthatch.  
*Dendrophila frontalis* 253-ferdau-

# HIDING IN PLAIN SIGHT

UNLOCKING THE POTENTIAL OF HISTORICAL DATA TO INFORM AVIAN CONSERVATION IN THE WESTERN GHATS

Vijay Ramesh, PhD candidate,  
 Columbia University

A sketch of the velvet-fronted nuthatch by Margaret Cockburn, one of the few colonial women ornithologists in India (circa 1860-1880)

Source: Natural History Museum, London

Have you ever wanted to travel back in time and imagine what a landscape might have looked like a century ago? Do you ever wonder what species of birds you might have seen in your backyard? India's rich history of scientific exploration allows us to answer these questions. Specifically, the hill ranges of the Nilgiris of southern India are home to some of the most endangered and majestic birds. This is a region for which a detailed historical record of scientific data exists. However, this treasure trove of data has seldom been studied to inform biodiversity conservation.

Home to the endangered tiger and majestic birds, the Nilgiris are also home to high human popu-

lation densities whose livelihoods are dependent on these landscapes and the ecosystem services it provides. Wildlife and humans have shared this landscape for centuries, but the changing magnitude and nature of human pressures are transforming these landscapes rapidly. By tapping into a rich resource of information that exists within historical datasets, one can now uncover the response of biodiversity to long term changes in this landscape.

Historical datasets such as maps, museum collections, field notes and personal journal entries can now be quantified with advances in statistical methods to document species range declines,





A map of the route traversed by William Ruxton Davison in 1881 across the Nilgiris, as he collected specimens of birds for A O Hume  
Source: Stray Feathers

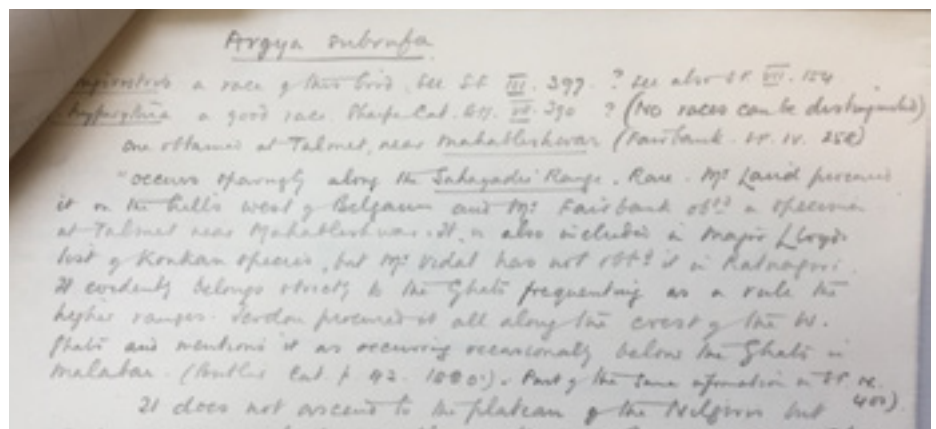
landscape changes and even inform forest restoration efforts. For example, scientists at the University of California, Berkeley revisited sites that were previously surveyed by Joseph Grinnell (between 1914 to 1920) in Yosemite National Park and parts of the Sierra Nevada mountains to show that many small mammals and birds have shifted their distributions because of a century of climate change. Closer home, an archival study from the Nilgiris showed that colonial foresters identified shola grasslands (high elevation grasslands) as “degraded ecosystems”. This misperception resulted in widespread plantation of exotic species such as eucalyptus and acacia to “forest this land”. Such types of research are now possible with the availability of long-term historical records and the use of novel analytical techniques to unlock their potential.

A hundred and thirty-seven years ago, William Ruxton Davison, a British naturalist, was wandering through the Nilgiris collecting specimens of birds (for A O Hume). It was a landscape that would be impossible to imagine today. Over the last century, this land has transformed, rivers have moved, some

forests have been cut down, and some have regrown. We have encroached upon large tracts of these virgin forests; and evicted many others. But is it possible to revisit Davison’s Nilgiri from 1883? Can we, with our current conservation tools, walk the same forests he did? How much of it remains? Are the species of birds that Davison collected then still present at the locations he surveyed?

By using the latest analytical tools in conjunction with historical datasets, my study aims to quantify the impacts of a century of climatic and landscape changes on the birds of the Nilgiris.

Biodiversity conservation and human development are intrinsically linked in this Indian landscape, as populations engage in forest resource collection and farming and live with wildlife in their backyards. To this end, the incorporation of a historical perspective will provide an increased understanding of the dynamic nature of landscapes, and thereby, a frame of reference for assessing modern patterns and processes. The resulting data will help paint a vivid picture of the past, and act as an invaluable baseline for future conservation planning in this region.



Meticulous field notes were maintained by Hugh Whistler, who along with Salim Ali, spent decades collecting and studying birds across the Indian subcontinent. Source: Natural History Museum, Tring



# THE BUZZ

## NNHS DIARY



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The modern world of social connects, both physical and virtual have made the globe a shrinking one, so far as social experience goes. In that context, 2020 was a shocker year, with the coronavirus pandemic forcing everyone out of the streets and into their homes. Introduced to this suddenly alien concept of social distancing and isolation, people had to adapt business models to work in accordance with the social circumstances.

NNHS, like every other outreach and field based organisation initially grappled to understand how to effectively engage and communicate with citizens and students. Going online was the only option available and so we did.

We started with a week long online event through social media (Facebook, Whatsapp) for children to commemo-

rate bee day that falls on 20th of May every year. Through the week of May 18-24, we ran a series of interesting activities – from quizzes to art events that

revolved around bees and their services. Interesting prizes were given away to young artists and keen respondents.

### Congratulations, art event winners! ONETWO



#### Well done, our 5 runners up!







A FILM BY FARIDA PACHA



11-13 September, 2020



Buddhist teacher, Pema Chodron, succinctly captures the human emotion in this short quote – “It’s not a terrible thing that we feel fear when faced with the unknown. It is part of being alive, something we all share.”

And so we look ahead, with hope in eyes for a new ‘normal’ way to see, come together and work, in 2021.

Text, Photos by Sharada Ramadass, NNHS

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 (250words). 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.

Another online outreach mechanism was a series of online webinars that we ran starting May through September 2020. These ranged from talks on biodiversity from flies to butterflies; from birds to small cats. The talks were across a broad spectrum of themes and perspectives – from climate change impacts on biodiversity, walking the river Cooum as an artist to understanding the green skills development program from the MOEFCC.

We also ran two films over weekends in August and September that showcased socio ecological systems and the struggles therein.

In August, NNHS ran an online month-long art event for children between the ages of 12-18 (middle and high school) in Keystone work areas that sought to obtain their perspective on the pandemic. The event saw a good and vibrant participation and artwork. Prizes and art supplies were given away and we hope to see more such artistic expressions from children in the future.

2020 has undoubtedly tested the human will but humanity has also risen to the occasion – with community networks, innovative and adaptative approaches and resilience that has proved the human mettle.

NNHS PRESENTS



**CLIMATE CHANGE- EXTREME WEATHER EVENTS OVER INDIA AND IMPACTS ON BIODIVERSITY**

What do these images have in common? what bigger story do they tell, connecting the oceans and land?  
 Listen to Dr. Roxy Mathew Koll, Climate Scientist, IITM



Saturday, 5th September  
 4 pm on Zoom





Photo credit: Chandrasekar Das

## *Raorchestes Signatus* (Boulenger, 1882)

The first thing that strikes anyone seeing this frog is its starry eyes which gives it, its common name – the star-eyed frog. The eyes are brown with a characteristic striking radiating stripes. It is also called the cross-backed bush frog because of a prominent dark brown X mark on its back. The amphibian is endemic to the western ghats and found in evergreen to moist deciduous forests and shola patches in the Nilgiris. Its restricted distribution and threat from habitat loss, has put it on the IUCN red list of threatened species as 'Endangered'. Not much has been studied or known about this amphibian and it warrants more studies. Frogs are indicator species that can help us gauge ecosystem health.

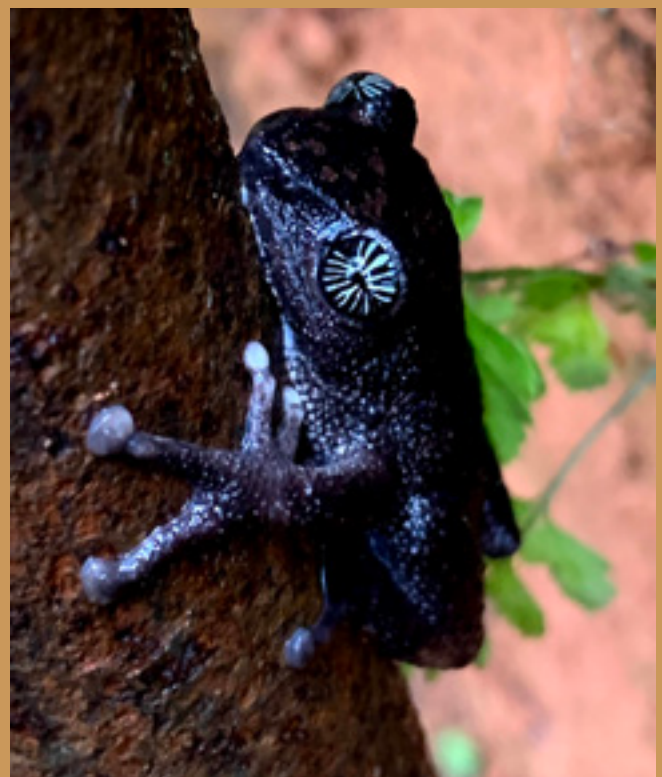


Photo credit: Sharada Ramadass