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NILGIRI LONG TAILED TREE MOUSE

(*Vandeleuria nilagirica*)
Photo Credit : N Moinudheen, Wellington

EDITORIAL

Anyone who has visited 'developed' countries comes back in awe of the cleanliness visible there - The Americas, most of Europe, Singapore, Australia, Japan; even China. Evidently, large swathes of concrete, wide roads, and no wild animals, is a clear definition of 20th Century development. Such development has pushed the lesser humans, and wildlife, into reserves, where it is expected to thrive on it's own.

There is now a conflict of interests developing - that of space for humans, and space for animals and plants; and the two cannot be mutually exclusive, as has been previously thought. Additionally, humans love to intrude into the space of animals, for entertainment - the 'been there, seen that' attitude; the desire to be seen with a wild animal, a selfie to put onto social media.

In the bargain, the animals have elected to demand their space - so human wildlife conflicts emerge, sometimes at cost to both.

The Nilgiris have seen a spate of development projects in the last year or so. Some of these have already started to show their effects on wildlife - widened roads are now isolating wildlife in narrow strips. A generation will survive, and gradually we will see the dwindling numbers of Gaur, Malabar squirrel, deer of various species. Carnivores, denied their natural prey, will become vermin, and the public at large will ask for their removal or culling.

On the flip side, any amount of education does not seem to give us any moral sense to keep what we have, clean. Habitation of all classes (urban or rural) is dirty, to say the least, with garbage not picked for days. It does not suit us to segregate at home; it does not trouble us that the roads are full of our own litter - my house is clean, the outside is someone else's problem is rife amongst all of us.

This time around, we engaged with Schools in the Nilgiris for students to write on "The Scourge of Civilisational Development and its effect on Ecology and Environment". It is heartening to see that the younger generation is equally alive to the threats that face the planet; unfortunately, most of them will grow up into professions, and little, or no solutions will come forth.

There is, perceivably, a line dividing development from environment. Environmentalists do not want development; and developers spite the environmentalists - the latter is always a spoke in the wheel, rather than a cog. Actually, the two cannot be mutually exclusive either, and need to learn to coexist. The developer must understand that resources are limited, and overstretching will lead to an unrecoverable disaster; the environmentalist must understand that the very ability to voice an opinion is wholly due to development. And so, working hand-in-hand is the solution. Unfortunately, development happens first, and environment impact assessment happens as an afterthought at the behest of the citizen-activists. While a fair number of correctives do happen over time, they are slow, sometimes ineffective, and are barely in place, when another development project overtakes them.

A case study was done in Ooty, just with this in mind. While the results will take some time to be seen, it is hoped that both sides of the coin would get addressed.

This issue is dedicated to sustenance and revival.

Ajay Ludra,
Secretary, NNHS

THE SCOURGE OF HUMAN CIVILISATIONAL DEVELOPMENT ON ENVIRONMENT AND ECOLOGY

By Ammer Kaur Pannu

There was a time that no one remembers when the trees ruled this earth. Animals were wild and free, and the only form of man that existed lived with nature in harmony. The story we celebrate is the evolution of humankind, modern civilization. As humankind stood up on two legs instead of four, the caves became homes, and the *Homo sapiens* were at the top of the food chain. But the earth was happy.

Quiet living, hunger satisfied, and contentment reigned for a while. Languages evolved, scripts were written, gods were created, and empires were built. Villages formed, then towns and cities. People left their homes in search of trade. But the earth was happy.

Humans traveled far and wide. Perhaps most were like Columbus, "civilized." Lands were conquered and developed. Populations increased, as did hatred and distrust. They worked for a profit; no loss, only gain. Greed and malice cut a wound in the earth.

The sholas and grasslands were replaced by acacia and pine. Eucalyptus consumed fertile soil; its branches covered the killings of tigers, the deer, the gaur, the jackals, and the elephants. A new word crossed our tongues: endangered. The wound had spread across the earth.

Great industrialization, factories spewing smoke, and grimy rivers. Dead fish, diminishing forests, heat waves, flooding, rising temperatures, fires, droughts, enormous tsunamis, hurricanes, and typhoons. Red is the color of anger. The earth is dying. The development of human civilization. Technological advancement. Connection with every corner of the world. The development of human civilization, it's true, but at what cost?

Biosphere reserves, national parks, and wildlife sanctuaries. These places exist, so humans do not entirely eradicate natural life on Earth. These places exist because human civilization's development is considered the planet's scourge by every other species.

Humans are killing this planet. We cannot continue to live, continue the human race. Climate change, global warming, the earth is crying out for help. Nature needs help. Our future needs help.

In a world filled with greed, we need to be selfless. If we were all to live sustainably, and reduce our carbon footprints, at the point we have reached, it still would not be the same Earth. Industries need efficient waste disposal, landfills must be stopped, liquid waste must be treated, and water recycling must happen. Our seas need to be protected, our air purified, the ozone layer hole healed, and the ice caps unmelted. "Save the polar bears!" We all post about it online while buying from unsustainable brands. "Save the turtles!" We chant while using plastic straws.

We tour the mountains, marveling at the greenery with awe. When our bus comes to the next stop, plastic wrappers fly in the wind. We go for seaside vacations and remark on the beauty of the sun setting into the sea at the horizon; while ignoring the dirty waters of Marina Beach. We sit in our cozy little apartments, day after day, hoping to hear the birds singing. All we hear is the sound of traffic from the highway below.

"I love animals," we say, smiling as we pet a stray dog. The leather jackets on our backs say otherwise. The trees that have been butchered sing their funeral songs. You cannot hear it; the sawing is drowning them out. Houses are built as more people appear. House plants are brought in to clear the air.

The smoke from the factories chokes our lungs. What of the wildlife? It cannot breathe. Majestic valleys, mist-topped hills. At night, we can see the lights of the distant plains, almost a reflection of the clear, starry night that we cannot see.

Power, hunger, and greed for which the price we pay in leaves of Banyan, Teak, Rosewood, and Sal. Cornfields replace the grasslands of old. In pictures, we see

the earth's beauty where now concrete jungles stand.

Taps go dry and mouths are parched, yet we are polluting fresh water somewhere.. When the fields are barren, and the masses are left hungry, perhaps we will understand the earth's plight.

The earth has long suffered these indignities. Extinction of species killing, violence, pollution, waste, and want. The question remains, how long will it take? Will the Earth outlive us, or will we outlive the Earth? The rivers that used to run clear now run red with blood. The earth's wound has gotten too deep; no bandage can heal it now.

Some of us have no hope left, "Scientists found a planet like Earth." Some of us do not believe "Climate change is not real." We are sitting in a house on fire and telling each other, "Everything is fine. It is just a little warm, but Everything is fine." Even when the flames engulf us, slowly but surely, the others will smile.

When the soil cracks and the plants can no longer grow, the sun beats down on the sweat-soaked backs, hands cupped for water, facing the cloudless sky. Where the soil is submerged, meters underwater, children go to school on boats with their peers. Daily life is interrupted.

Perhaps then you will realize the fire has spread to the living room. When the ice caps melt, the water levels rise, and islands submerge. Maybe then you will realize that the fire is nearing the dining room. When the bedroom burns and the hearth crumbles. The walls finally fall through, then would you realize your home is gone?

The youth's future is forgotten, and the world they will inherit; decaying and in shambles. So selfish we are, humanity, "superior" to every other.

The earth is dying, a reiteration, and it is all our fault. Gone are the old days when the sun shone down on emerald hills. Vast expanses of forests and lakes are lost to the inhumane development of humanity. We are in a burning room. It is time to put out the fire.

Ammer Kaur Pannu, Class: 11-C
The Lawrence School, Lovedale, Ooty

CAN WE REVIVE OUR LANDSCAPE?

By Ajay Ludra



Pic-1.

There isn't very much recorded history of the Nilgiris plateau from earlier than when the British made their way in, early in the 19th Century. There is a record of some Portuguese Jesuit Priests making a visit in the early 17th Century; but that was in search of a missing (or lost) tribe of Christians, or so they thought. For nearly two centuries in between, there have been scanty visits on behalf of the ruling families to Todamala - the land of the Toda peoples, the plateau region between the Moyar gap and Palakkad gap in the string of western highlands, now called Nilgiris (Neilgherries^[1]).

With the British settlers came technology. In addition to writings of the time, lithographic plates and water-colour renditions depict rolling downs that didn't need mowing^[2], and clumps of dense thickets in the combs^[3] and recesses of the slopes, populated with endemic deciduous trees^[4].

Tea was brought in via Ceylon, since the highlands of Munnar and the Nilgiris had ideal weather for the beverage of



Pic-2.



Pic-3.

global repute. Tea replaced the rolling slopes on commercial scales, nearly 5000 hectares under tea-cultivation. But, supposedly, very few trees were felled to plant tea. As a matter of fact, tea would have invariably been planted in the erstwhile grasslands, felling very few trees, if at all. Since tea requires some shade, there would have now been more trees than previously, compared to the near-bald erstwhile landscape.

After independence, while most of the large estates of tea and coffee passed on to Indian masters and were expanded, some estates went fallow. In the mid-1960s, the Tamil Nadu Forest Department decided to go commercial, and from the drawing board emerged

the plans to "forest" large tracts of land not under agricultural use, and not under direct control of the Revenue department. This led to a two-fold activity - Eucalyptus plantations (and the consequent designation of these plantations as reserved forests), and the establishment of Tamil Nadu Tea Board's own TanTea^[5], which provided for commercialisation of forest lands to grow tea.

Eucalyptus is arguably not a very good forest-tree. It has commercial value for pulp, timber, and essential oil. Tea, conversely, is good for soil-retention where run-off during torrential rains can destabilise soil to cause mud-slides; but tea tends to draw on a lot of water

for survival as against endemic plant species, and provides little, if any, roosting or resting places for avians and small mammals/reptiles/amphibians.

The Government also went ahead and established four horticulture farms primarily to help forest-dwelling peoples to earn a livelihood. These also tend to upset the ecology in as much as tea and eucalyptus do - positioned between forest and agricultural lands, they affect the migration of forest-animals; they are also mostly alien species^[6], and haven't been followed through for productivity, as much as for welfare of the employees. The spate of welfare-related projects provided livelihood to a lot of Tamil migrants and repatriates from the Jaffna peninsula during the last two decades of the 20th Century.

The local land-owners, the Badaga, have been agriculturists by specialisation with millet farming being a mainstay till the middle of the 20th century, but from the mid-1960s, they switched to potato and carrot farming in their village lands. The credit for this goes to ICAR's CPRI (Central Potato Research Institute) for sparking off the plantation. But potato farms draw hogs and boars, and they create havoc with the produce. The Badagas gradually changed over to tea-plantation almost en-masse towards the turn of the century, facilitated by Tea-Board's free tea-saplings. To draw from an adage in Samuel Coleridge's poem, we now have tea, tea everywhere, and no grasslands in sight. While most sights are pretty and the land is mostly

green all year round, the ecology has been modified.

Lantana, brought in by the Englishmen as a hedge plant (it works very well to keep wildlife at bay), has now gone wild, being one of numerous alien invasive species^[7] that have taken over not only the roadsides, but our forest undergrowth as well. Not only have we tampered with the plant life in general, our desire to control the landscape has affected the fauna equally drastically. The result is an increase in human-wildlife conflict. Gudalur, on the western reaches of the biosphere, is notorious for elephants trampling into human habitation, because their abodes have been denuded and food-sources depleted. Mammals now feed on garbage in villages and towns; bears roam around human habitation rummaging for scraps

because the forests provide them with little for survival.

For over two decades now, NGOs have had to step in to control the decline of our landscape. Edhkwelynawd Botanical Refuge (EBR) Trust^[8] has taken over more than 24 acres of tea farms in West Nilgiris, and planted endemic trees and grasses in over 7 acres. Clean Coonoor attempted to resurrect marshes with indigenous grasses. Sadly, the project did not find much favour with the citizens of the neighbouring villages, and has not progressed.

The Keystone Foundation, has been involved in numerous projects directed towards revivals. One of the projects was for revival of Millet farming in Aracode; In another project, they teamed up with INDCOSERVE, for eco-res-

- 1 The origin of the euphemism for Blue Mountains is not clear. The region was traditionally called Todamala amongst the plains-people. There is a possibility that the first Englishmen that came up (from the Mysore side) found a commemorative semblance with the Blue Mountains of Scotland [The Cairngorms]?
- 2 The most famous of these is the Wenlock Downs, now known as the Shooting Point, on NH181.
- 3 A combe (/ku:m/; also spelled coombe or coomb and, in place names, comb) can refer either to a steep, narrow valley, or to a small valley or large hollow on the side of a hill. There is no evidence to this statement, but it is a personal conjecture that the 'kombai' suffix for some of the hamlets in the Nilgiris are probably originally combe, given a Tamil flavour for the pronunciation. There are no -kombais in the adjoining plains in KonguNaad.
- 4 TANTEA is one of the biggest Black Tea producers in India, with high quality clonal tea plantations spread over almost 4000 hectares in the district. It took vision in 1968.
- 5 These trees have been collectively termed Shola trees, and are unique to the highland forests of Deccan India. [https://en.wikipedia.org/wiki/Shola].
- 6 Pomes and prunes primarily (apples, peaches, plums, pears, nectarine), sour-sop, persimmon, mangosteen - all of them non-natives (though non-invasives).
- 7 Ageratum is the other invasive - both blue, and white.
- 8 <http://ebr.org.in/>



Pic-4.

toration of two of their tea-factories at MahaLinga and Kattabettu. The project of restoration of wetlands around Kotagiri includes about 118 hectares in five sites. Nurseries have been established in partnership with the local inhabitants, as also providing toilets to the dwellers in the vicinity, to ensure that domestic waste does not go into the wetlands. With about 80 hectares restored, and work progressing in the rest, this has been a successful project.

Happy Valley is an acre-sized bit of Shola forest in Kotagiri^[9], which was taken over by invasives - wattle and eucalyptus. The project took a decade of hard work, and the wetland within this forest now boasts of 350 native species.

Godwin Vasanth Bosco is an ecologist working towards restoration of forests and grasslands of the Nilgiri Highlands^[10]. He has years of experience with the landscape and ecology. He has organised planting projects and has set up nurseries. He is working on restoration of Shola grasslands that covers about 267 acres in 21 fragments.

In so far as sustainability is concerned, the Toda, autochthonous peoples of the plateau, have had a tradition of burning grasslands in their nomadic pattern of

existence. The tradition is proven to be good for grasslands; however, the tradition is waning for multiple reasons - the number of Toda continuing in the employ of traditional practices has dwindled, there is an overall sentiment against burning anything, and there has been a drastic reduction in grazing pastures^[11], making it difficult to move to an alternative one.

The process of resurrection is a slow one, and cannot belong to one or two individuals. The individuals can provide a spark, the Government should provide the wherewithal, and the community should participate as a whole to revert what nature provides us with. The Nilgiris got a UNESCO and a Biosphere tag in 1986. That recognition should have been a basis of retaining the biosphere in at least the state it was in when tagged. But commercialisation and tourism have overtaken any desire to retain nature in a pristine state. We litter, we modify, we change, we destroy; personal goals outweigh community goals, except for a few good men and women. In them we repose faith to help resurrect and revive nature.

Restore flora, fauna will follow on its own.

Pictures: Description and Credits:

Pic-1. Lieutenant Robert Barron's painted depiction of Ooty. The landscape is markedly only meadow, with a few European bungalows sprinkled at large distances; cultivation depicted is probably for self-sufficiency of the European families, since all such farming is adjoining the bungalows. A herder is seen with his cattle; traditionally, Toda are buffalo-men and not cow-herders. The probability of this being a Badaga is not clear, since the Badaga have not been herders, but cultivators; the possibility of the Badaga using cattle for pack-animals is high, though.

Pic-2. Photograph of Teneriffe, now called Coonor-Betta, the high ridge overlooking Brooklands/Coonor from the North; this peak now has a Saravana temple atop, and is also locally called Saravana malai. The hill is mostly forested with Eucalyptus plantations dating from the mid-1980s. The western slope has the Adar division of Coonor Tea Estate, near Periya Vandicholai. The photographs show grassy meadows on all slopes.

Pic-3. Sketch by Lieutenant Burton, done in 1847. The sketch depicts the view from outside the Rest-House where the Sub-Collectorate is now housed in Coonor, looking across the Coonor river (bottom mid-ground); the low land in the mid ground is the portion of Coonor's Municipal Market; the hill in centre rear-ground is probably the portion now called Upper Attadi, where the Kodamalai tea Estate now exists; the peak in the left rear-ground is Coonor-betta/Saravanamalai.

Pic-4. A wide-angle view of the slopes of NonSuch tea estate's Droog division. Credit Ajay Ludra, Feb 2023. Mosaic from eight photographs.

Pic-5. A wide-angle view of the eucalyptus plantation atop Saravanamalai (Coonor Betta). It is a scant forest, with inches of eucalyptus mulch on the floor. This prevents any other plant from taking root, and so, this forest has no undergrowth. Consequently, there is poor plant or animal diversity in this plantation. 2D planar-panorama stitched from 15 photographs. Picture credit Ajay Ludra, Mar 2023. Mosaic made using Kolor PanoGiga.



Pic-5.

9. <https://www.theweek.in/theweek/cover/2021/05/27/the-happy-valley-restoration-project-a-little-band-aid-on-the-wounds-of-the-western-ghats.html>

10 <https://era-india.org/project/shola-grassland-restoration/>

11 Tea has taken over the grazing pastures!

Ajay Ludra is an amateur photographer, and ardent weekend walker.

EFFECTS OF GLOBAL WARMING? PEACOCKS IN THE NILGIRIS

By Samantha Iyanna and Ajay Ludra



It was early May.

The dry spell has been inordinately long this year; normally, there are a couple of spells of thundershowers (April showers) that tend to allay a bit of the heat from the onset of summer.

Someone in Coonoor spotted a pair of peafowl in his backyard.

Peafowl are normally associated with the arrival of much-awaited rain - they are the harbingers of the Indian monsoon.

The sighting in the upper reaches of Coonoor set off a series of discussions related to global-warming! “They are a common sight near Halakarai, Aracode, Kunjapannai, Gudalur, Sigur, and so on, but sightings in Coonoor are new”.

The discussion also set off a search for old documentation of any possible sightings in the district. Sure enough, we were able to locate a reference to the existence of peafowl in a 1911 publication titled “SPORT ON THE NILGIRIS AND IN WAYANAD”. It goes on to state “very plentiful in former years”.

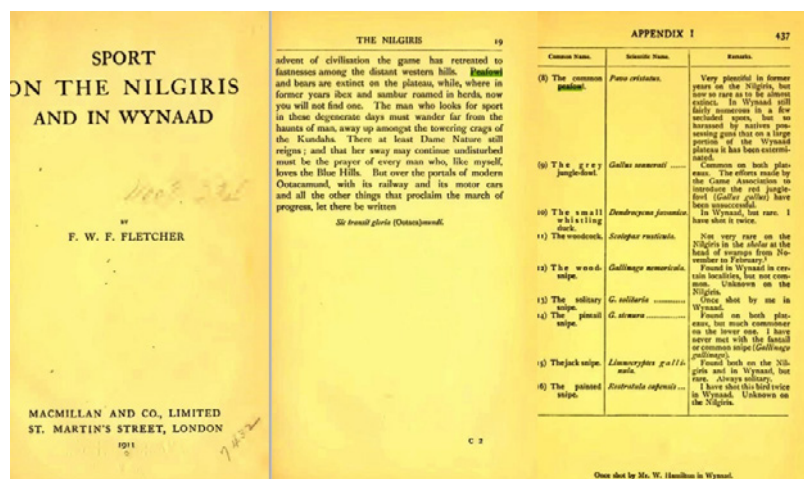
So the sighting in the Nilgiris is neither a chance, nor is it probably related to global warming. It has been warm, yes! A tad bit more than normal, and dryer.

But to blame the sighting on global warming is a bit unfair. In all probability, the warmer lower slopes of the plateau forced the fowl up a few hundred feet. With a dip in temperatures, they would go down those few hundred feet.

Not that we are in favor of warmer temperatures, but the sight of peafowl sets off a perk-up in the mood; we hope to see them again.

Samantha Iyanna is the co-founder of the NGO Clean Coonoor, which has been doing yeoman service since its inception in 2018. She is an avid reader and hiker.

Ajay Ludra is the Secretary, NNHS.



LISTENING TO **WHAT NATURE** AND ITS **PEOPLE HAVE TO SAY**

By Krishna Anujan

The wonders of the natural world are often beyond what meets the eye. As a plant ecologist, I have often looked at the world carefully and measured things with a tape. There are many ways to experience the natural world and you miss out on a lot if you are not listening to it. I was just finishing my PhD, and six years of being buried in the same questions of tree diversity and forest growth meant that all I could hear were echoes of my own stale thoughts. To listen more I teamed up with three other early career researchers, Vijay Ramesh, Pooja Choksi and Sarika Khanwilkar - collectively Project Dhvani. Through Project Dhvani we have been listening to nature for a few years now. We use passive acoustic monitoring (placing voice recorders in forests) to estimate the biodiversity and habitat use in a particular location. In this way, we have been able to calibrate this new technology to understand the impacts of interventions like restoration on vocalizing biodiversity.

Together, we wanted to now listen to people as well. “We’ve been listening to forests for some time now, now we want to hear your voices,” Sarika and I went around announcing in villages around Kanha the month before our work



Training communities in soundscapes



in Kotagiri. Supported by a National Geographic Society grant, we wanted to listen to stories of change from villages that border forests, and understand specific ways in which forests and consequently forest-dependent lives are changing. As forest ecologists, we thought this would be an essential and major step in trying to embed our research into a place and communities that belong to that place. Science is extractive - we come into new landscapes with ideas and questions from outside, drink tea in people's homes and ask them for their time at no cost. This system works on the goodwill of the interviewees and their trust, with little or no direct benefits to the community. Hiring locally was an important aspect of the project to not just be able to have organic conversations, but also to make sure that any benefit from the work is largely to the community

From mid-March to mid-April, in collaboration with the Keystone Foundation in Kotagiri, we set out to listen to the Nilgiris. Who should we listen to? Was the question we first faced when we arrived in the district.

The Nilgiri Biosphere Reserve is vast and heterogeneous; dry deciduous forests, shola forests, coffee plantations, grasslands, wet deciduous forests and tea plantations stand alongside Kota,

Toda, Irula, Kurumba and Tamil villages among many others. The landscape changes every few kilometers! We then collectively decided to focus on the lower slopes and the eastern slopes of the Irula and Kurumba villages next to deciduous forests because connections to forests are stronger here compared to the villages closer to the towns.

We have also been trying out a biocultural approach to conservation; we wanted to hire and train storytellers from the landscape itself. After selecting five villages across the slope, through the People and Nature Collective programme at Keystone Foundation, we were able to put together a team of storytellers from these areas and conduct a two-day training. Besides the concepts behind the research, we spent time collectively revising our interview questionnaire to suit the context. And more importantly, we discussed the complex issues of research ethics, consent and compensation for time in such research projects. Interviews in the villages are ongoing, but even the initial discussions were eye-opening. The intangible links between forests and people in this landscape is surreal.

For once, my strongest memories are not of the rare wildlife sightings. Not that they were not spectacular; a Great

Hornbill nest where the male was regurgitating seeds for the female, a herd of gaur at every turn, and a Nilgiri pipit. However, this time around my most cherished memories were of an elder in Bangalapadigai who sang us a folk song about millets. An elderly lady in Mettukkal, who has sung for All India Radio in the past, told us about forest-based dances in her village. I learned the history of the Banagudi shola, a sacred grove and the various rituals associated with it. I heard of bird-song based beliefs and memories of foxes from the people. In return I shared a Burmese folktale that I love of a monkey and a wagtail and an elder in Melkoop sang a song about "kere kuruvi", a riverbird, in response. What I remember most are these meandering conversations with the landscape and I'm excited to listen more.

With this project, we want to come back to these villages and share our findings in a community celebration. Looking into the future, we intend that these conversations with communities are ongoing and iterative. They will play a crucial role in deciding the directions of our research work in the landscape.

Krishna Anujan is an ecologist working on understanding and communicating about forest change. She had a PhD in ecology from Columbia University.

FOREST AND FARMS: A NOSTALGIC NOTE FROM BELLU AMMA

By Bhavya George

The knowledge that springs from knowing nature and its beings in an intimate and detailed way has its own value and importance in the field of ecology and natural history. Anyone who has lived with nature, sharing spaces with the life that belong to it have their unique experiences to share. In today's world where technology has seeped into almost every aspect of our life and has made virtuality the new reality, people like Bellu Amma have their own merit to tread us into the real world of nature by her first-hand experiences and interactions.

Bellu, who is fondly called Bellu amma with reverence because of her age, poise and knowledge is an Irula Tribe elder from Chokkanahalli village in the Sigur plateau region. She was born in the Moyar village of Masinagudi panchayat. Back then her parents and other elders of the community were caretakers of cattle that the Badagas in the region owned. She also recollects that 40 to 50 years back it was common to have pattis (large fenced pen) in the forest to graze cattle and a few people from the village used to temporarily live there.



Bellu Amma conducting a village elder program

When she turned 15, they moved from Moyar to Chokkanahalli where she got married and has continued to live. She has been a witness to interesting socio-ecological changes in her surroundings.

She recollects, when she moved to Chokkanahalli, there were very few open farmlands as compared to today. Bushes were quite prominent, and people would go to Vazhathottam for wage labor. Otherwise, they had cattle and buffaloes as a main livelihood support. The sight of Paal Vandi (milk van) to collect the milk was a daily business which is no more to be seen with reduction in cattle population to almost nil in the region.

She remembers the forest with big trees like Vejja (*Anogeissus latifolia*), Poosam (*Sapindus emarginata*), Bhugtale (*Givotia rottleriformis*). whereas now one can see more Jeeva dale trees which do not grow that tall but spread denser.

The stream that flows beside the Chokkanahalli village, which they call locally "Singur kere" had vegetation composed of extensive bamboo and large trees unlike today. Though she

does not remember when, there was an occurrence of flood in the river which changed the vegetation.

If you travel now in the Sigur region, you would see the dried Bamboo tracts after mass flowering. Bamboo species exhibit mass flowering at intervals of 40 to 50 years and up to 130 years depending on the species. In her lifetime Bellu Amma has seen flowering twice including the recent one. She recalls that her age was 10-12 years when she first saw the Bamboo flowering.

Continuing her nostalgic notes on Singur kere, she reminisces about the clear water full of fishes and turtles which she compares to the size of sea turtles. About the quality of water, she commented that it was good for kulikyurdukku and kudikyurdukku (bathing and drinking). It was as clear as crystal. But the river ecology changed, and she owes it to the construction of a dam upstream; the water quality changed drastically, and bathing in the water creates skin allergies now. People develop a cough and cold drinking the river water, especially when the yellow color algae grows in the river in lean



Bellu Amma

season with less water flow. She then adds with an innocent laugh that from their observation they relate cough and cold to yellow algae, but they don't know about its causality precisely. Adding to it, fish size and number have reduced a lot now and there is no sighting of turtles.

As much as her interaction is with the forest ecosystem, she is an avid farmer. She loves her land and farming. Discussion of farms led her thoughts to her childhood. During the Dasara festival time, crossing Vazhaithottam there would be a sight of ragi field, green in color swaying and blowing in the wind and these memories bring her joy. She made her dream come true by practicing traditional farming as well as new methods like analog forestry.

Unlike most of us, her life is spent in the midst of nature quietly rambling around, listening, smelling, tasting, and observing. As a child she used to follow her elders to the forest, while they would be busy grazing, it was then her time to play and explore the world there. Climbing trees and onto rock boulders to get a glimpse of the majestic elephants. They would eat Chapaati kalli palam (Opuntia fruit), and magare palam (*Canthium coromandelicum* fruit), and if an elder found honey they

would feed them. Staying back at home meant missing out on all these, as well as lunch.

On the way back they would harvest greens like munne keerai (*Alangium salviifolium* leaves) and once home, Ragi kali and kaara chutney with keerai poriyal was dinner for a home of 12 people. Though the food portion was small, it was supplemented by lots of curd and milk as they had healthy cattle.

After she became a parent and then a paati (grandmother), there were not many cattle left, so she went to the forest to graze a few goats. But her children would not accompany her into the forest like she did with her parents, the reason being her children went to school and later worked in the farm.

To tackle the problem of knowledge gap between generations, she now spends time once a month with her village children helping them learn about natural history through the village elder programme. It covers traditional knowledge about their forest, river, hills, forest food, animals, birds etc.

In her words, "I am happy about it. They would at least carry the knowledge that I teach them"

The difference she finds between a person pursuing natural history or ecology and herself is that with formal education the interest is more to document things in writing/pictures/video but for a person like her she would observe and think about its use in their life as she doesn't know how to write. But for the coming generation she thinks it is important to document their traditional practices.

In the present world where natural spaces and access to them is decreasing, with interest and time to be in the field for a long time. Experiences of hardships such as rains, bugs, leeches, etc., have made it difficult for forest communities. People like Bellu amma stand up as natural historians to spread knowledge of the socio-ecological changes and the indicators to monitor the changes. There is no doubt that her role in intergenerational transfer of knowledge fills the gap in our education system, and reduces the increasing distance between people and nature.

Bhavya George is Programme Coordinator (Climate Change) at Keystone Foundation. She has worked with many community members like Bellu Amma to monitor biodiversity around agro-forested landscapes.



Singur Kere river

NILGIRIS NEWS BULLETIN

Curated by Samantha Iyanna & N Moinudheen.
Composition by Ajay Ludra.

Update on the saga of Ooty lake

Sometime in Nov 2022, the Public Works Department initiated the process for desilting of the Ooty Lake. In all probability, this was a fallout of the flooding of Kandal (the most densely populated part of Ooty, this lies close to the exit sluices of Ooty lake, from where the channel feeds overflow into Sandy Nullah) that occurred in mid September 2022 during one instance of a microburst.

The timing was not good!

It was already the migratory-bird season, and a fair number of birds, of a fair number of species, had made this lake their winter home. Surprisingly, of all the water-bodies in the district, the avian visitors prefer the garbage dump of Ooty!

The lake is fed from the Kodappamund channel - originating as a clear-water spring-fed stream, which runs through the commercial part of town, accumulating domestic, industrial and commercial waste along the way - in effect, Ooty's sewage channel.

A little bit of noise at the right places by some of our citizen activists, led to the Works Department deferring work till the migratory season subsided.

In the meantime, others activated the process of reviewing the quality of water in the lake. A sample sent for analysis proves what everyone knows - the water is contaminated - extremely high alkali-

linity, with high levels of Clostridium. That the water is unsafe for human consumption is established; that it should not be used for boating is a call that needs to be taken jointly by the health, civic, and tourism bodies along with the Public Works Department.

In essence, Ooty needs a sewage treatment plant, and these effluents cannot be channeled into the lake and onwards to the larger bodies of water. As a matter of fact, all towns need sewage treatment! For far too long, we have been draining our domestic, commercial, and industrial effluents into our water channels, which adversely affect life downstream.

The Vultures of Sigur

Of entire Southern India, Sigur plateau is probably one of the last bastions where the white-rumped vulture is making its stand. Other locations are recording dwindling populations, while this one has some positive breeding in recent years. One of the main assessed causes for this population to survive human tampering is the switch to non-steroidal anti-inflammatory drugs (NSAIDs) used for cattle in the past few years, a switch from diclofenac introduced in the early 1990s. Of the four species of vulture seen in the reserve, three are in the IUCN "critically endangered" list, while the Egyptian Vulture is in the IUCN "endangered" list. Let's hope that with the switch away from poisons to treat our cattle, we gradually see a reversion of this handsome avian within the decade.



White backed vulture

however, there is an attempt to relocate the farm, rather than close it, and the typical bottlenecks that will affect the closing process - identification of a suitable place, acquisition of adequate lands, compensations and related issues, relocation of existing workers..... The list is a long one. Implying that the farm is not moving out of Jumbo's way for a few years. Nature has a way of adaptation; Jumbo will relocate! When the farm does move a few years later, there won't be Jumbo to claim the passage anymore.... and the exercise will be classified as a move in futility!

In the first half of this year, the number of deaths due to electrocution, and countrymade crackers has been inordinate. In a recent incident, Baahubali, a tusker who frequents homes and crosses the road near Odanthurai between Kallar and Mettupalayam, was noticed to have hurt his lower jaw. A team of specialists from the Forest Department tracked him down and have been attending to him to ensure that he does not succumb to his injuries.

At another location, plans are afoot to create an elevated road so that animals have freer passage of the forests, despite the need for humans to transgress their territories.

Removal of Invasives

A year ago (in May 2022), the Madras High Court had ordered the removal of invasive flora from TN forests. This has somehow been an uphill task for the forest department. In addition, a study team finds that removal of invasives is not really helping endemic



Kandal. Ooty



Senna spectabilis

flora. In another instance, a team of the Forest Department, led by Ms Supriya Sahu, Additional Chief Secretary in the Govt of Tamil Nadu, responsible for Environment, Forests and Climate Change, removed a sizeable quantity of *Senna spectabilis* (African Senna) in the Mudumalai forest range, and had it shipped for conversion to paper. So, where there is a will, there is a way! It is a tedious and daunting task - an outcome of decades of neglect, but it will get done over time, if there is a desire to complete.

On another note, the invasives have, over time, allowed fauna to adapt themselves to the shade and roosts it offers; this applies to Lantana, Ageratum, Cestrum, Eucalyptus, Calotropis and all others. Will removal of invasives be good, or bad, in the long run? Opinions are still divided, and the house is open to debate.

Plastic Disposal

Around the 1950s, invention of plastic became a sensation ... we had a wonder-product that revolutionized, amongst others, the packaging industry.

It soon found its way into homes in the form of consumer goods, appliances, consumables, et al.... it was, after all, the panacea to everything requiring the world to previously cut down trees.

Plastic soon became the bane of civilization's very existence. It does not degrade, so disposed plastic waste fills land-fills, leeching poison into the earth. It is recyclable, but that is not a convenient affair either, with toxin percentages going up every time it is recycled. Recycled plastic is no longer food-grade, anyway.

The fight against plastic in the Nilgiris goes back over a decade. In due course, items in plastic packaging have stopped being sold in the district;

.....but not everything;

.....and there is not-so-stringent-control on people entering the district as tourists carrying plastics with them.

So we remove plastic bottles from cars; but packets of snacks, other food-items, plastic embedded in tetra-packs, and so on, continue to make their way in. In two very recent instances, plastic was found in the tummy of a dead Indian Gaur during the post-mortem, and almost 25 kg of plastic in elephant dung! Imagine the quantity. Plastic bags still litter the garbage dumps in villages, towns and hamlets; mammals that forage in these dumps (cattle, pigs, bears, monkeys,...and at an odd time, even elephants) will invariably ingest this. Plastic that is banned is the single-use variety, of a specified thickness and below. Thicker plastics are allowed to be used...for instance, in packaging breads, milk, and snack-foods.

Banning is not good enough. We belong to a tribe of humans that revels in beating the system (read, breaking the rules)... so when we get past a check-post having hidden something, there is a lot of glee and merrymaking, rather than remorse! The solution can only be denial - no sale of plastic packaging not just in this district, but in neighboring districts as well. Promise of strict punitive action only leads to stronger methods of bypassing check-points, illegal trade for profit, and a stronger public outrage at denial of what they consider to be a birthright. The solution





lies in stronger collection and disposal mechanisms. Civic bodies cannot rely solely on a ban to disregard the timely collection and disposal of waste, especially plastics, lest it become the reason for more deaths of foraging animals.

Habitat loss

The biosphere boasts one of the highest forest covers all over the country. Our overall green cover (land under forest and agriculture) is nearly 85%. But we still seem to push some animals to the brink of extinction, from habitat loss. Two of the largest contributors to the green cover are forest (including man-made plantations) and tea. While the endemic deciduous shola is not high in percentage, a fair amount of habitability exists for especially smaller endemic mammals like the Nilgiri Marten. However, over the last few years, there has been a gradual decline in tea-covered lands, these being converted to residential properties. Even sparsely distributed residential locations tend to disrupt the contiguity of mammal habitation, and the Nilgiri Marten, amongst others, seems to be badly affected.

In another case, a team of specialists has been appointed to study the endangered Nilgiri Tahr. Initiated in June 2023, the scientists have one month to study and

define the dangers to the habitat of the endangered endemic species.

If there is a solution to this issue, it lies in the prevention of sale of small non-contiguous pockets of agricultural lands (especially tea-cover lands). Instead, it may be better to create clustered townships in a planned manner, over a larger spread of time, which would lend to wildlife finding an alternative for itself, as against being disrupted every few months by a new construction in its neighborhood.

Food for thought. Feedback is welcome.

Development projects

There is a new mood in the Nilgiris..... to make it an attractive tourism destination. For obvious reasons, and with obvious outcome! It is a statement of fact, that the civic amenities have not improved at the pace that the population/habitation has. Just as an indicator, Coonoor's sewage treatment was made for 5000 residents, over a century ago. There has been no change to the capacity over all this time, while the population of Coonoor municipal limits has increased by a factor of 10.

There are plans underway to bring in 'world-class' rides, elevated walk-ways, among other attractions. However, there is a need to study the environmen-

tal impact alongside. In a fillip to the idea of "improved tourism infrastructure", came the conference on making the Biosphere "carbon-neutral". It is a fabulous idea, should it be handled well, and all suggestions made by the panel be implemented in letter and spirit.

The need of the hour is to have developmental projects and environment travel hand-in-hand, rather than at counter-purposes. With tourism as the main-stay, there is a need to look at improvement and enhancement of civic infrastructure alongside the attractions which will bring in all the moolah. If other hill-stations of the North are an example, they are not to be emulated. Simla is reeling under over-exploitation, Mussoorie has ceased to be a hill-station; Darjeeling went to rot over three decades ago; Dharamshala and Nainital are close on their heels.

We don't want to see the Nilgiris turn into another Darjeeling, Mussoorie, or Shimla!

Disclaimer. The views expressed here are solely those of the composer, and are not necessarily endorsed by the NNHS.

THE BUZZ

NNHS DIARY



The first half of 2023 flew by us as soon as it came. We facilitated a talk by Dr. Vidya Athreya, Conservation scientist, Wildlife conservation Society. She spoke about human and wildlife interactions and relationships in a human dominated landscape. In February, we conducted a two day workshop for the Light and Life academy. The two day workshop was divided into a theory session that introduced student photographers to animal behavior, and ethics of wildlife photography. The second day we applied these learning to the field with a trip to Sim's Park.

In March, we conducted a talk for the green army camp. Students from government schools throughout Tamil Nadu were present. This camp was organized by Don Bosco. We also conducted a guided nature trail in the Long wood shola reserve forest in Kotagiri. 18 participants from the Nilgiris along with forest department staff and anti poaching watchers were present.

We also had a visit from the Indian Public school to our campus. The students learned about conservation and the different works of Keystone

Foundation, Last Forest Enterprises and Aadhimalai producer company.

We were also a part of the Indian responsible tourism awards and summit, 2023, conducted by Outlook and Tamil Nadu tourism department. Our representative spoke about the need for ethical, sustainable and responsible tourism in the Nilgiris and how citizen based societies can play an important role in conservation.

For the world environment day we conducted a guided trail in the Banagudi shola Reserve Forest. We explained about the sacred groves and how they play a role in conservation of endemic and rare species. Students from Kotagiri and neighboring villages of Aravenu and people of the Banagudi were all present. We played interesting observation games and learned about the ecosystem. We hope to welcome the next half of 2023 with more activities and participation from members and other citizens across the Nilgiris.

Habeeba Fathima
NNHS Coordinator.

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:

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.



Photo credit: David Raja P

Peninsular rock agama (*Psammophilus dorsalis*)



The peninsular rock agama is also called the South Indian rock agama. It is often found in the rocky and hilly regions of South India. These lizards bask on bare rocks, and feed on insects. In the breeding season, the male assumes bright colours. The upper parts become fine vermilion red or yellow, the lip stripe is sometimes pink. The under surfaces, limbs, and tail are black. Young and females are olive-brown, spotted, speckled, or marbled with dark brown, and with a series of white, elongated spots along each side of the back. It is commonly found in the Western Ghats, Nilgiris, South Arcot, and Nallamalai hills; they are found in the hilly regions at altitudes up to 6000 ft above sea level in the Nilgiris.