

# NEWSLETTER of the NILGIRI NATURAL HISTORY SOCIETY

For private circulation only  
ISSUE 5.1 June 2014



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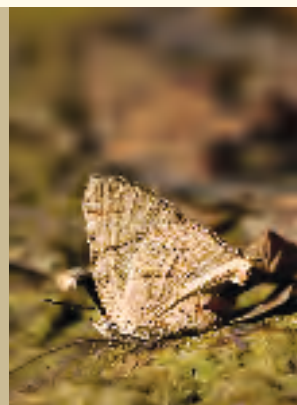
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### **The Abnormal Silverline butterfly** *Spindasis abnormis* (Moore, 1883) Family: Lycaenidae

Originally described from a mid-elevation evergreen forest near Coonoor, the species has also been recorded from Coorg and Maharashtra. Lycaenids rely symbiotically on the presence of specific ants rather than specific host plants to complete their life cycle.

Photo credit: **Rasika Joshi**

Welcome to this monsoon edition of the NNHS newsletter. Over this last month, pre monsoon showers have brought timely relief to a scorching summer in the hills. And more importantly, renewed water supplies to many areas beset with water scarcity. Our area of focus in this issue, the Coonoor valley has been the most vocal of these places, this summer. Faced with progressively diminishing water supplies, residents and the local administration have been forced to ask what has happened to the many water sources that once fed this growing hill town?

Coonoor has been a fast growing cosmopolitan town and has evolved into a veritable melting pot of both natural and human habitats. Our contributors for this issue, Sneha, Kuttan, Anita and Rev Muley dwell on this and some lesser known details of this popular hill station. The upper reaches of the region have all been converted to tea plantations (and so have the low lying marshes, notes Rev Muley) but at the mid elevations there are still remnants of rich shola forests and on these Anita and Kuttan train the conservation lens to examine a fragrant, fast disappearing species that yields us our resin for sambrani. This is a tale of a tree but also of the magnificent community life in these forests. And like all good tales, it calls out to another story on the colour of leaves in the Natural History notes. Sneha takes us further down the slopes to the ancestral domains of the indigenous people and offers us a glimpse at the sophistication of traditional ecological knowledge and its conundrums. For another view from below, listen to Manju on how the arthropods also wish we not go chemical on our farms.

Our Natural Historian of the issue is Sound Maama who has passed away leaving behind him inspiration and indelible memories of a 'politely assertive' green crusade.

The Bee Buzz and the NNHS diary are awash with summer activities for restless little limbs and minds and so are the reports from the conservation centres. So, happy reading and if you have ideas for how we can join hands to strengthen conservation in the Reserve, do write in.





## *Canarium strictum* Roxb. Giants of the Nilgiri forests

T Aradukuttan and Anita Varghese

The Nilgiris district in Tamil Nadu has a forest cover of more than 50% and proudly lends its name to the first biosphere reserve of India - the Nilgiri Biosphere Reserve. Because of the mountainous nature of the terrain forest types vary from high elevation grasslands to montane evergreen forests also called sholas to semi-evergreen – moist deciduous at middle elevations and dry thorn forests at the foothills. It is in these mid elevation forests of the Nilgiri slopes that are of moist deciduous and semi evergreen type that majestic trees of *Canarium strictum* are to be found.

The family Burseraceae to which *Canarium strictum* belongs is the frankincense and myrrh family, or simply the incense tree family. It includes both trees and shrubs, and is native to tropical regions of Africa, Asia and the Americas. It is an ancient group of plants that can be traced to 65 million years ago in the Palaeocene era. The Burseraceae trees or shrubs are characterised by resins that are present within the plant tissue from the vertical resin canals and ducts in the bark to the leaf veins. *Canarium* is a genus of about 100 species of tropical and subtropical trees.

*Canarium strictum* trees grow upto 50m and are found in moist deciduous and semi evergreen forests between 750-1800m asl. The tree is native to India (Darjeeling,

Assam, Meghalaya, Orissa, Karnataka, Tamil Nadu, Kerala), Myanmar [Burma] (Kachin), Sikkim, China (S-Yunnan). In the forests of the Nilgiris the *Canarium strictum* trees flower between March to June depending on their location. The fruits of the *Canarium* tree are bluish green when young and start to form in late May. By July the fruits are ripe a purple blue in colour and stand out in the canopy of the tree. The *Canarium* trees have very distinct young leaves which are velvet red; in early January and February it is usually not hard to spot

the trees since all the leaves are red. The *Canarium* trees are dioecious and have separate male and female trees.

In a recent field observation that we conducted on the trees for a period of two years we noticed that several animals were dependant on the trees. Young leaves of the *Canarium* trees were found partially eaten and lying on the forest floor and local people told us that the langurs and Indian Giant Flying Squirrel foraged on the young leaves. Interestingly, in Coonoor, there were huge cavities in the trunk of the *Canarium*



Measuring the girth of *Canarium* trees





Resin exudes from the bark of a Canaryum tree

tree under which the young flush was found on the forest floor. Flying squirrels have been observed living in these burrows in the tree. The wood of the Canaryum tree seems to be easy to burrow and the Golden Backed Woodpecker had made at least 3 cavities into the tree in a span of 12 months.

In the fruiting season, seeds with their fruit coats removed were found in abundance on the forest floor. These were most likely fruits that have passed through the gut of a bird and since the fruits are medium sized it could only have been a large bird. Local informants told me that it was a pigeon and researchers in other forest areas have observed doves eating the fruit (R.Ganesan, per.comm). In the some areas local people have seen the Great Pied Hornbill feeding on the Canaryum fruits. One of the most common sights during the fruiting season was the Malabar Giant Squirrel feasting on the fruits in the canopy. They would eat the fruit and drop the seeds; at any time on the forest floor one could find seeds completely devoid of the fruit coat and partially eaten fruit coats. The seeds that fell on the ground would then be foraged on by rodents. This was easy to tell by the holes that were made in the woody coat of the seed. A study on Hornbill diets (Kitamura 2011) shows that Canaryum fruits are the second most important species, next to figs, in the diet of more than 16 species of hornbills.

The resin which is exuded from the bark of the Canaryum trees is used as incense and finds a very good market locally. This incense is collected by local indigenous people who live close by. The incense is part of daily rituals and also very important at festivals and ceremonies. One of the resin harvesters explained to us that the resin was

an important gift item that was shared among community members. We were able to see upto 18kgs of resin harvested from a giant tree in the Coonoor forests.

The Canaryum trees seem to be doing relatively well locally. They are found in clusters along stream and river banks. There seemed to be a good number of young trees in the population. But since 2004 when we started to study the tree, we have been concerned that many adult trees fall easily in the storms and some never resprout. In the case of *C. strictum*, several authors have expressed concerns that populations are disappearing due to tapping practices (Kannan 1992, Augustine and Krishnan 2006). *C. strictum* is reported to be dispersed by large birds (Ganesh and Davidar 2001), including some species of endangered hornbills (Bucerotidae) (Kannan 1992), which could be impacted by declining food sources.

In the IUCN red list this tree has not yet been assessed and therefore not much is known about its global status. In an assessment done nationally *Canarium strictum* has been listed as a species of

conservation concern, one among the 195 medicinal plants identified for conservation action (<http://envis.frlht.org/>).

In the two year study that we undertook 89 adult trees were tagged and observed every fortnight. The observations were also made by local harvesters of resin who were part of this work. By the end of the first year we had individual names for our 89 trees - we knew them personally. One personal favourite was Y17, which would produce young red leaves in February, flowers in March and thousands of fruits that stayed on the branches all the way from April to October. In the middle of such a busy schedule there was time to produce 2kgs of resin every 3 months. Needless to say Y 17 is a female tree!

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Indigenous harvesters of Canaryum resin



Seeds of Canaryum on the forest floor



# The Nature & Culture Sequence

Snehlata Nath

Coonoor – the name conjures many images of tea gardens, hill station, a mountain train chugging along slowly, a charming cantonment, etc. This mixed environment of indigenous communities, local residents, migrants, labour class and estate owners has created an interesting milieu in the Coonoor area. The upper plateau is dominated by tea estates, which has led to large areas of forests being converted in the past. Shola forests of this region now can be seen in small patches, fragmented by tea estates and villages. Over time, adaptation has led to wild animals being comfortable in manmade estates and it is not uncommon to see Gaur in the Wellington cantonment and tea estates around or elephants in the lower fruit orchards of Barliar and Kallar. This region also has a large number of migrants from the plains, who have settled for employment. This process started many years ago with the British and continues till date. Today one finds people from different parts of Nepal, Jharkhand, Orissa and Chattisgarh working in tea estates. Some estates have upto 100 such families, brought through labour contractors to the Nilgiris. The local population of Badagas have also integrated with these changes across the Coonoor Taluka though they remain culturally distinct.



measures. The Gymkhana dam which is 10ft (3m) high currently has 8 ft (2.4 m) of silt deposits. (<http://www.downtoearth.org.in/content/coonoor-hill-station-without-water>) Besides this, illegal housing and squatters and overall waste disposal from the town pollutes the Coonoor River, which flows through the town's centre.

Little is known about the southern slopes from the township which edge down to the low hills of Pillur and Kallar. The slopes are home to the Alu Kurumba community. Their villages are spread like an arc along the slopes, often invisible in the thick forests. The slopes of Barliar and Kallar have some of the most magnificent forests and the cascading Coonoor river with all its tributaries. Over time the area has seen many changes with the development of the horticultural stations and the estates along the slopes. Tea, coffee and oranges in the upper elevations and many exotic fruits in the lower Kallar area were grown replacing forest patches. The development of the Mettupalayam – Ooty Road and Railway track also added to the changes in the area, in the late 1800s. The Alu Kurumbas, known for the forest gathering skills, honey hunting and medicinal plants knowledge, dispersed from their small settlements and came to reside by the roadsides – seeking better facilities and wage labour. Their villages today stand by the polluted Coonoor river, along Barliar. The Kurumba and Irula villages are also spread across the Pillur slopes. Most people work in tea or coffee estates or in lands of Badaga villages. Due to migration to new settlements, many of these communities have left their ancestral lands.

Forest gathering in the Coonoor Slopes has significance for the indigenous communities in the region. Honey gathering from high

cliffs is a special skill amongst the Kurumbas. A coming together of many elements and practices makes honey hunting a rare event – an ancient tradition that involves an invocation to Forest Gods, the knowledge of forest lianas and fibres to make rope ladders, complex group dynamics and the dare devil nature of the act. Seasonally, honey is collected on the forested slopes and carries a mixed wild flowers flavour. Forest blooms determine the amount of honey available. Other forest produce collected from the slopes are resin and *Eecham* (*Phoenix* spp.). Collection is on the decline due to availability of other work, more options of easy wage and lack of genuine markets for these forest products.

A peculiar combination of varying communities and changing landscapes has established interesting linkages in the region. What dominates now is the commercial nature of transactions. Due to a large consumer base, people have developed local markets of their vegetables and honey produce; the large scale land use change to estates has ensured wage labour availability for many people and has kept the trend of immigration alive; tourism in the region has given a boost to jobs but also increased demand on natural resources like water, which today is in short supply; indigenous communities are losing their cultural links to the land and forest. It is important to acknowledge these linkages and their positive or negative influence on the complex ecological and human systems.

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The natural result of this is also the expansion of the Coonoor township – a growing market and housing and hotel facilities on the rise. This has led to different pressures on the resources, but the most on water. Sources say that the entire Coonoor municipality depends on Raliah dam which was built in 1938 to serve around 5,000 connections. Now, the town has 16,000 connections. So the municipality has been pushed to consider more long-term





## The diverse functional roles of arthropods in coffee farms of the Nilgiris

Dr Manju Vasudevan

A Pisaurid spider, common in grasslands. Spiders are excellent predators in paddy farms. Photo: Venkata Raaman.

A large proportion of biodiversity in the tropics exists in agricultural landscapes close to forests. Arthropods (insects, spiders, millipedes, etc.) that live in such systems perform ecologically valuable functions. Contrary to the general perception, very few insect species cause damage to agricultural crops. Many arthropods are beneficial: spiders and parasitic wasps predate or parasitise crop pests, bees and butterflies pollinate a range of crops, dung beetles and earthworms break down organic matter (thus helping nutrient recycling). A large number of insects act as prey for other wildlife, especially birds. Farmers can benefit from using techniques to attract beneficial insects to assist them with pest control and more efficient pollination.

Small farmers depend on biodiversity for their livelihoods and survival, and they are its main guardians, be it inside forests or on their agricultural land. Monocrops destroy native forest tree diversity as well as agro-biodiversity. Agricultural intensification through chemical fertilizers, pesticides and weedicides are known to kill sensitive species.



A pill millipede, common in wet forests among leaf litter. Photo: Sangeetha Ramakrishnan

### Does organic mean more diversity? – Gathering evidence

A recent study conducted at Keystone addressed the question of whether organic coffee farms support more insect diversity than chemical farms. Choosing a functional guild approach to justify services offered by arthropods, the various farms were inventoried. The guilds included – pests or herbivores, natural enemies of pests (classified under predators and parasitoids), pollinators and detritivores.



Several beetles such as the ones under Family Scolytidae are borers and important pests. Insectivorous birds like warblers can help keep them under check in coffee farms. Many species of ants and cicadas are also herbivores but harmless to crops. Parasitoids predate on eggs and larvae of other insects such as beetles and butterflies, and are good pest control agents. Predators such as spiders are carnivorous. Many wasps, beetles, ants and flies predate upon pests like aphids and borers. A farm is greatly benefitted from



A dammar bee foraging on coffee flowers

farms across wet and dry forest types suggests that even within a geographically similar landscape there is least similarity between organic and chemical sites. In fact, wet sites and dry sites had more similarity than chemical and organic sites. This may be an indicator that the arthropod composition undergoes a community shift as an influence of chemical farming and this is sufficient food for thought for all those who care enough for their land and its tiny, seemingly insignificant, inhabitants.

*This research was supported by the Rufford Small Grants, UK. More information on arthropod functional guilds can be found in the booklet 'Little things that run the world' available for download on the Keystone Foundation website. The author can be contacted at manju@keystone-foundation.org*



A Malaise trap or a light intercept trap is used commonly to sample flying insects.

the presence of a diversity of natural enemies. The efficient pollinators in coffee are *Apis dorsata*, *Apis cerana*, *Apis florea* and *Trigona* sp. The group of detritivores is composed of litter fauna that live in decaying vegetation and fungi. Thrips, ants, some flies and dung beetles live in the forest floor, soil, under bark, and habitats that are wet and rich in organic matter. They play a key role in nutrient cycling.

Guild overlap is a term used to describe functionally diverse species: they are efficient at more than one business. Thrips are generally predators but frequently visit flowers for nectar (pollinators) but their larvae mine into leaves (herbivores) and some adults are fungal feeders (decomposers). Beetles are another Order

with a range of functional experts. Some are parasites and predators and others are decomposers. Ants too combine the role of herbivore and carnivore (predator) but many of them are detritivores.

### Study findings

In all the five categories of functional guilds, species richness and abundance of arthropods were higher in organic coffee farms as against chemical coffee farms. The findings on parasitoid wasps, a critical category of predators of pests, has presented a strong case against chemical farms since they do not appear to support as much diversity as organic farms.

The analyses on community structure and similarity between organic and chemical



Chafer beetle, a common herbivore





## ... and the leaves that are red turn to green (apologies to Simon and Garfunkel) Anita Varghese

When I return from the forest after staring at tall trees like the *Canarium strictum* which all through late winter and early summer put out bright red young leaves I stop to wonder why as a child I never dared paint a leaf any other colour but green! It is not only in the forest but in my garden at home, the young rose bush has maroonish red leaves and pear trees have young orange leaves. In the tropics most plants put out young leaves which are red while in the temperate regions the older leaves turn red and other related colours when they are ready to fall.

Adult leaves are green because of chlorophyll which are light absorbing

pigments that help the plant photosynthesise, make their food and aid in their growth. Chlorophyll is green because it absorbs all other wavelengths of light and reflects back the green. And now coming back to leaves that are not green – what role could they possibly be playing?

Ecologists and evolutionary biologists have brought together many discussions on 'evolutionary trade-offs' – something that is constantly happening in nature to evolving organisms. A sort of give and take that helps them survive better, and makes them fitter in the face of competition. An example would be when a plant or an animal allocates resources and energy for protection or defence while compromising on food production or reproduction. Physics teaches us that rate and efficiency cannot be directly proportional – you can have 'fast but inefficient' or 'slow but efficient'!

When leaves are red it is because of another pigment called anthocyanin that makes the leaves less palatable to insects and other predators that may eat the leaves. The plant has invested in bringing out new leaves and is securing that investment by making it poor in nutrients and hence less attractive to hungry insects. Once the

Young leaves of pear  
young leaf has matured and grown big the plant pulls back the anthocyanin and brings back the chlorophyll.

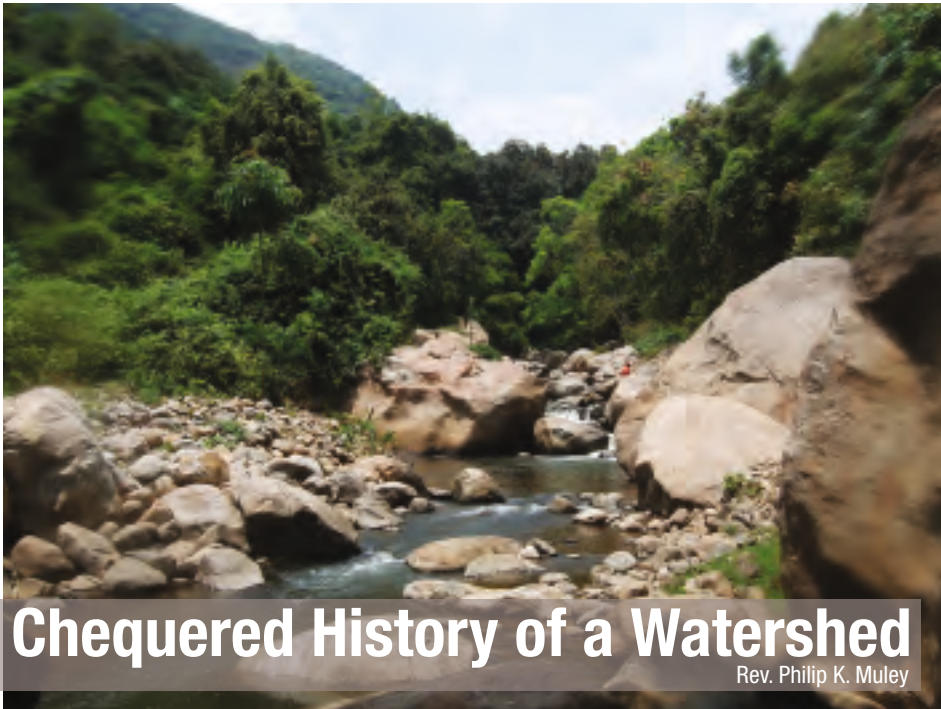
More recently studies have shown that insects can detect colour in the blue but not in the red range of the light spectrum. The red leaves would appear to insects as dark and may be dead. So while it may seem that a plant is putting out red leaves to show itself off what it is actually doing is making itself invisible to herbivores or potential predators. Also, most mammals, with the exception of primates, essentially are blind to colour in the yellow to red range, so perceive those colours as shades of grey.

The *Canarium* tree may have escaped the insects eating its young red leaves but has no respite from Macaques, Langurs and Giant squirrels nibbling away, but again they seem to be picky eaters and don't polish off an entire tree, like an insect could! I think in retrospect now that Gaur visiting my garden never browse the rose bushes or pear trees when they have young leaves. It's all coming into place now for me about red leaves and green! Yellow, orange, brown, bluish white leaves I guess will have to wait for another day and another page to tell their story.

The Bikki tree (*Elaeocarpus* sp.) found in Shola forests produces the odd red leaf







## Chequered History of a Watershed

Rev. Philip K. Muley

I wonder how many of the Coonoor folks of the post-modern times would be able to make sense of the following list of names. Attigooduhalla, Mudiykkihalla, Sattinerihalla, Aarepilluhalla, Boothoraihalla, Gorethoraihalla, Gondhekombaihalla, Ganguathoraihalla, Nunethuraihalla, Jogekalluhalla, Hannikottuhalla, Bellannithoraihalla, Naayithoraihalla, Basumbuhalla, Beekaduhalla, Meenamadaihalla, Addaenuhalla and Kurukuttuhalla. They are but the old Badaga toponyms of the water courses of Coonoor. An old guide book (1917) of Coonoor describes it as “an irregular crescent of valley and gorge through which speed little turbulent tributaries of water”. Among the above mentioned little turbulent tributaries of water, I have not included the more familiar Kateri and Bandhumi rivulets. My purpose is only to highlight the copious flow of waters that had once dominated the Coonoor ravine. Now what has happened to all those sheets of water?

The top of the Coonoor ravine can be traced to Bandishola. Known originally as Bandushola in Badaga (primeval patch of forest), this great ridge is towered by two peaks, Arebettu (above Forest Dale) and Coonoor Peak (Goopebettu) or Teneriffe above Attadi. Human intervention in the pretext of Jungle Conservancy Rules came to be introduced in this region since 1858. Capt Campbell, the Assistant Executive Engineer of Wellington Barracks in that year started to replant the felled portions of indigenous forests (“most esteemed by the Badagas”, Grigg 1866: 443) with exotic timber trees.

To begin with, between 1856 and 1876 alone about 600 acres of Government plantations came to be established in and around Coonoor. These plantations consisted largely of blue gum (*Eucalyptus*), though wattle,

blackwood, pines and cypresses were also included. It is on record that “the successful cultivation of these foreign trees has thus solved one of the most difficult of the problems which beset the foundation of the hill stations on the Nilgiris” (!) (Francis 1908:217). The large supply of firewood and charcoal for a very little cost and delivered at the door proved a great boon to the European settlements. When sites for many of these plantations were selected, the original floor covered with coarse grasses and bracken was considerably affected. The spots selected for charcoal burning were close to sources of water. The manner in which extensive woodlands and grasslands were thus exploited in later times does not seem to have been scientifically investigated. Whatever pursued in the decades to follow perhaps disturbed to a great extent the ecological sustainability of water.

Another segment that may be found to be crucial in the study of water sources is Tea. Introduced since the year 1854 in Coonoor, thousands and thousands of acres of it have largely thrived on marshlands, peat bogs and swamp covers. In contemporary terminology they are called wetlands. The physiological contribution of wetland ecosystems to water resources in the Nilgiris is now well established. Presentation of a scientific profile pertaining to Coonoor in this regard is long overdue. To start asking if there are any detrimental factors that we need to address in this realm would be a useful exercise.

Historically, Coonoor town itself presumably owned its beginnings to an encampment of labourers and a detachment of military sappers employed on the construction of the old Ghat road during 1830-32. The opening of the new Ghat road in 1871 greatly enhanced its growth in later times. A map published in 1836, perhaps the oldest record of its kind, shows a Travellers' Bungalow and the camp of the sappers. Records for the year 1840 indicate the existence of four European Bungalows. By 1866 there were 42 European households. There were 800 Europeans and about 10,000 natives living at Coonoor in the year 1917. The rest of the statistics for the following years is not concern of this account.

The very rapid growth of Coonoor resulted in investigations for a thorough improvement into the water supply in 1891. The scheme then proposed was to construct a settling tank and a reservoir on a hill between Sim's Park and the then Wellington Race Course, drawing from what was known as Edapalli stream. This stream actually drained a lengthy marshland between Bandishola and Forest Dale. In hoary times only a narrow foot-track ran along this great marshland between Bandishola and Edapalli (hence, the original name Ede=middle + pillu=foot-track, later corrupted to Edapalli). Due to the non-cooperation of the military establishment this scheme as well as a later one in 1905 were abandoned. The present source of supply is from the catchment of Rallia-Bandhumi and the matter relating to the management and efficiency of this scheme is of entirely different complexion.

With no punch-line yet thought of for this article, I must add the following. A bacteriological analysis of the water made in 1917 proved that Coonoor possessed the purest supply in the Presidency (of Madras). Any takers?

*Rev. Philip K. Muley blogs at [fromamongstthebluehills.blogspot.in](http://fromamongstthebluehills.blogspot.in) and can be contacted at [philipkmulley@gmail.com](mailto:philipkmulley@gmail.com)*





## Portrait of a Green Crusader



A trip to Mukurthi National Park in 1979

A.C. Sounderrajan, or Sound Mama, as we fondly called him, carried a sparkle in his eyes and a 'never say die' crusader spirit when it came to issues concerning nature, wildlife and the environment. With a holistic consciousness and philosophy of how everything in nature is inter-connected, he believed that every act of modern man has a consequence on the well-being of the planet. He was the first to question if an illegal construction activity didn't risk our land of soil erosion and landslides, or if in our rush for commercial exploitation of plantations, we were not paying a heavy price by depleting the natural capital in the biodiversity rich Shola forests, grasslands and montane wetlands.

His romance with the Nilgiris must have begun when he moved to Ooty in 1967 to join as an operator at the Hindustan Photo Films. The career did not limit him and being a sensitive citizen, he could not resist raising his voice when he saw how the pristine hill station was being swamped with new environmental problems every day. In his later years, he took up the role of Executive Committee Member of the Nilgiri Wildlife and Environment Association (NWEA), the first conservation organisation in the country, established in 1877. He was also an active member of the Tamil Nadu Wildlife Advisory Board, but for a large part of his life, his engagement with the cause of the environment was voluntary and not in any formal position.

Be it training workshops for teachers or an animal census event, Sound Mama was always on the front, as busy as a bee on each day on a calendar year. In his own words

(from the preface of the book 'A Compendium of Conservation Initiatives in the Nilgiri Hills'), "Whenever I addressed the participants of eco-awareness camps organized by NWEA for school children, elected representatives, villagers, NGOs, and forest personnel, my talk revolved around my experience in identifying the real problems, deciphering the causes, developing solutions and ultimately culminating in better conservation of nature and natural resources including wildlife in these parts of Nilgiri Biosphere Reserve. The lessons I learnt from my experience are that in one's effort and approach towards conservation of forest and wildlife one need not be aggressive in any manner but be politely assertive". His perseverance was commendable when fighting for a cause he believed in: often it meant waiting patiently outside the office of a Government bureaucrat or having repeated dialogues with the concerned officials. For instance he vehemently stood up against the idea of the Arboretum land that was to be converted to a commercial construction. He was also part of the group that spread local awareness against the proposed Neutrino Observatory Project (an underground experimental physics project) in the Nilgiris. The proposed project site fell in the buffer of Mudumalai Tiger Reserve and was in close proximity to the core/critical tiger habitats of Bandipur and Mudumalai Tiger reserves. It is also an important elephant

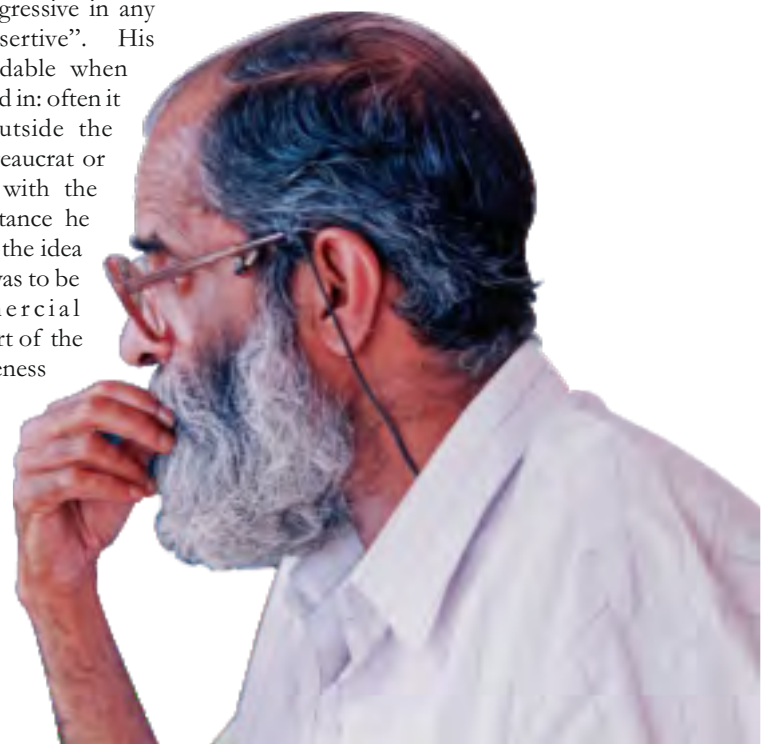
corridor.

In his book, he traces his love for wildlife back to his childhood days in Yercaud. The encounters with venomous snakes, wild dogs and leopards, and the water birds spotted on the school walk along the Salem - Chennai railway line, he recounts with great affection. Chance had it that he had even stroked a leopard cub that was rescued by a local tea shop owner and saw it grow into a juvenile. He treasures his school days in his heart, when "days were filled with the bounty, quietude and vastness of nature".

Often we heard him lamenting on how the native forest cover in the Nilgiris was the victim of ill-conceived development projects, plantations, tea and irresponsible tourism. He contributed to various discussions on wetlands, forests and conservation in the Nilgiris. He was the one we would want an opinion from when the Conservatory at Longwood Shola was being conceived, and gave valuable inputs to some of our wetland conservation ideas at Keystone.

His sheer enthusiasm and optimism were not only a rare trait to find in an environmentalist but also a huge source of inspiration for many of us. Knowingly or unknowingly, his worldview was bound to drift into yours, particularly if you were tuned into issues of the environment and society.

There was a helpless sadness in his eyes when he spoke of the vanished water birds that frequented the wetland near Ooty railway station or the leopard cat that was found in a road kill. But the flicker of hope for a better planet he always kept alive in the corner of his heart.



AC Sounderrajan (1940-2014)





# பீதரு சத்த

வெள்ளைக்கோம்பே ஊர் சிறுவர்களால் உருவாக்கப்பட்ட இயற்கை மாத இதழ்

## கற்றதும் அறிந்ததும்

இந்த மாதம் நீராடியில் உள்ள டியூசன் சென்டரில் உள்ள போஸ்டரில் இருந்து காட்டில் உள்ள கீரைகள் பற்றியும் கிழங்குகள், காய்கள், பழங்கள், மற்றும் வண்ணத்து பூச்சிகள் பற்றியும் மீனா நீராடி அவர்கள் எங்களுக்கு தெளிவாக விளக்கினார்

## மருந்து தாவரம்; அத்தி பழம்

ஆற்றோர பகுதியில் ஓரங்களில் காணப்படுகின்றது, இந்த பழத்தினை பறித்து அப்படியே சாப்பிடலாம், இதன் காய்களை சமைத்து உண்ணலாம். அத்தி பழத்துடன் கொம்புத்தேன் சேர்த்து கீழ்தாய் எனும் நோய்க்கு மருந்தாக பூசிவந்தால் நோய் குணமாகும், அத்திபூ பூப்பது யாருக்கும் தெரியாது இதுவரை யாரும் பார்த்ததில்லை, அப்படி பார்க்க வேண்டும் என்றால் இந்த மரத்தடியில் ஏழு நாட்கள் விரதம் இருந்து சாமி பத்தியேடு இருந்தால் மட்டுமே இந்த பூவினை காண முடியும் என்பது இருளர் சமுதாய மக்களின் நம்பிக்கை ஆகும்.



## இம்மாதம் காட்டில் கிடைக்கும் பொருட்கள்

1. முன்னை கீரை
2. முஸ்ட்டை கீரை
3. முன்னாங்கன்னி கீரை
4. சீங்கை கீரை
5. காக்கை டாகு
6. நெல்லிக்காய்
7. சீனி மிளகாய்
8. அரிசி காளான்
9. புத்து காளான்
10. மர காளான்



## தேன் பூச்சிகள் பற்றிய செய்தி

தேன் பூச்சிகள் பொரித்து வெளிவந்ததையும் பொரிக்காமல் தேன் அடையிலே உள்ள பூச்சிகளையும் பார்த்தோம் மற்றும் இரண்டிற்கும் உள்ள வேறுபாட்டினை பற்றியும் தெரிந்து கொண்டோம்.



## வனவிலங்கு பற்றிய தகவல்கள்

இந்தமாதம் புதிதாக ஒரு பறவை இனத்தை பில்லூர் பகுதியில் பார்த்தோம் அது எப்போதும் பார்க்கும் கொக்கை விட கால்கள் உயரமாகவும் சாம்பல் நிரம் மற்றும் வெண்மை கலந்ததாகவும் இருந்தது. காட்டில் ஆண் யானைகள் தனியாகவும் பெண் யானைகள் கூட்டமாகவும் காணப்படும் என்று திருநஞ்சன் அவர்கள் எங்களுக்கு விளக்கினார்.

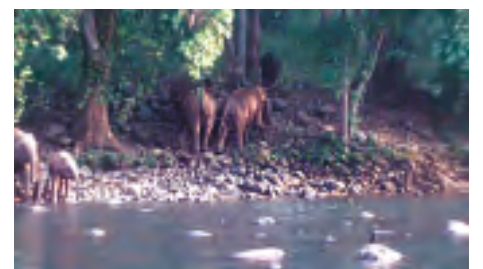
## கண்ணால் பார்த்ததும் காதால் கேட்டதும்

இந்தமாதம் பில்லூர் கீஸ்டோர்ன் அலுவலகத்தில் மிகவும் அதிகமான நெல்லிக்காய் பார்த்தோம். அத்துடன் அதன் பயன்களையும் கேட்டு தெரிந்து கொண்டோம். காட்டிற்கு செல்லும்போது சாப்பிட்டால் தண்ணீர் தாகம் அதிகம் எடுக்காது. இதன் கிளைகளை வெட்டி தண்ணீரில் இட்டு, சிறிது நேரம் கழித்து தண்ணீர் குடித்தால் உடல் நலத்திற்கு நல்லது.



## தெரிந்து கொள்ளுங்கள் இவரை

இவர் பெயர் நடராஜ் இவர் பில்லூர் பகுதிக்கு உட்பட்ட நீராடி கிராமத்தில் வசித்து வருகிறார், கிராமத்தில் உள்ள சிறியவர்களுக்கும் பெரியவர்களுக்கும் சிறு மூலிகை மருந்து செய்து கொடுத்து வருகிறார். அத்துடன் மற்ற கிராமங்களுக்கும் சென்று சிறு மூலிகை மருந்து செய்து கொடுத்து வருகிறார்.



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# ನಿಸರ್ಗ ಸುದ್ದಿ

ಪುಣಜನೂರು ಮಕ್ಕಳು ಸಿದ್ಧಪಡಿಸಿದ ಮಾಸಿಕ ಪರಿಸರ ಸುದ್ದಿ

## ಇವರ ನೆಪ್ಪು ಇದೆಯಾ ?

ಶಿವಣ್ಣ. ಬಿ, 24ವರ್ಷ. ಇವರ ತಂದೆ ಬೇದಗೌಡ ತಾಯಿ ಮತ್ತಮ್ಮ. ಇವರು ಹುಟ್ಟಿದ್ದು ಶ್ರೀನಿವಾಸಪುರಕಾಲೋನಿಯಲ್ಲಿ. ತಾತ ಅಜ್ಜಿಯ ಜೊತೆ ದನ ಆಡು ಮೇಯಿಸಲು ಹೋಗುತ್ತಿದ್ದರು. ಆ ಸಮಯದಲ್ಲಿ ಜೇನು ತೆಗೆಯುವ ವಿಧಾನವನ್ನು ಕಲಿಸುತ್ತಿದ್ದರು. ನಂತರ ಕಾಡಿಗೆ ಹೋಗಿ ತಂಗಲು ಮಾಡಿ 2-4 ದಿನ ಕಳೆದು ಕಿರು ಅರಣ್ಯ ಉತ್ಪನ್ನಗಳಾದ ಕಸಬಾಳು, ಪಾಸೆ, ನೆಲ್ಲಿಕಾಯಿ, ಜೇನು ತರುತ್ತಿದ್ದರು. ಇವರು 12 ವರ್ಷಕ್ಕೆ ಹೆಚ್ಚಿನು ತೆಗೆಯುವುದನ್ನು ಕಲಿತು ಈ ಭಾಗಕ್ಕೆ ಹೆಸರುವಾಸಿಯಾಗಿದ್ದಾರೆ. ಇವರಿಗೆ 21ವರ್ಷಕ್ಕೆ ಮದುವೆಯಾಗಿ ಈಗ 1 ಹೆಣ್ಣುಮಗು ಇದೆ ಇವರ ಹೆಂಡತಿ ಹೆಸರು ಹಾಲಮ್ಮ.



## ಮಾಡಿದ್ದು

23/2/2014ರಂದು ಶ್ರೀನಿವಾಸಪುರ ಕಾಲೋನಿಯ ಮಕ್ಕಳನ್ನು ಕರೆದು ಕೊಂಡು ಹೋಗಿ ಕಾಡಿನ ಬದಲಾವಣೆ & ಹೂಬಿಟ್ಟಿರುವ ಮರವನ್ನು ಗುರ್ತಿಸಿ ಅದರ ಬಗ್ಗೆ ತಿಳಿಸಿ ಊರಿನ ಹಿರಿಯರಾದ ಮಾದಮ್ಮರವರು ಮಕ್ಕಳಿಗೆ ತಿಳಿಸಿಕೊಟ್ಟರು.

24/2/2014ರಂದು ಸರ್ಕಾರಿ ಪ್ರೌಢಶಾಲೆ ಕೋಳಿಪಾಳ್ಯಕ್ಕೆ ಹೋಗಿ ಪರಿಸರ ಶಿಕ್ಷಣವನ್ನು ಆನೆಯ ಬಗ್ಗೆ ಮಕ್ಕಳಿಗೆ ಮಾಹಿತಿಯನ್ನು ತಿಳಿಸಿಕೊಡಲಾಯಿತು.

## ನಾವು ನೋಡಿದ್ದು ಕೇಳಿದ್ದು

23/3/14 ರಂದು ದೊಡ್ಡಳ್ಳದ ಭಾಗದಲ್ಲಿ ಅರ್ಧ ಕೀ.ಮೀ ಸ್ವಲ್ಪವು ನೀರಿನಲ್ಲದೆ ಬತ್ತಿ ಹೋಗಿರುವುದು ಕಂಡುಬಂತು. ಮತ್ತು ಹಳ್ಳದ ಎರಿಯಲ್ಲಿ ಮರಗಳು ಹಚ್ಚ ಹಸಿರಾಗಿರುವುದು ಮತ್ತು ಜಮೀನಿನಲ್ಲಿ 3 ಚಿಟ್ಟೆ ಹಕ್ಕಿಮರಿಯನ್ನು ನೋಡಿ ಋಷಿಯಾಯಿತು.



5/4/2014 ಮುನೇಶ್ವರ ಕಾಲೋನಿ & ಗೋಡೆಮಡುವಿನ ದೊಡ್ಡಿಯನ್ನು ಆನೆ ಬೋಮ್ಮರಾಯ ರೊಟ್ಟಿ ಹಬ್ಬ ವನು ಊರಿನ ಗ್ರಾಮಸ್ಥರೆಲ್ಲಾರು ಸೇರಿ ಹಬ್ಬವನ್ನು ಆಚರಿಸಲಾಯಿತು.

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## ಕುತೂಹಲಗಳು

ಬೇಡುಗುಳಿ ಭಾಗದಲ್ಲಿ ಕಾಡು ಪ್ರಾಣಿಗಳು ಆನೆ, ಜಿಂಕೆ, ಕಡವೆ, ಕಾಡೆಮ್ಮೆ ಇನ್ನಿತರ ಪ್ರಾಣಿಗಳು ಬೆಂಜೆ ನಾರು, ದಡಸು, ಕಾಡು, ಹಲಸುತಿಂದು ನೀರು ಕುಡಿಯಲು ಕಬ್ಬಿನ ಗದ್ದೆಗೆ ದಿನಲು ಬರುವುದು.

## ನಿಮಗೆ ಗೊತ್ತಿದೆಯಾ ?

ಪಿಟರು ಗೊಳವಿ-ಬಿದಿರಿನಿಂದ ಕೊಳಾವೆಯಕಾರ ಇರುವುದು, ಒಂದು ಬಿದಿರಿನಿಂದ ಕೊಳಾವೆಯಕಾರ ಇರುವುದು ಒಂದು ಬಿದಿರು ಕಡ್ಡಿಯ ಕೊಳವೆ ಬಾವಿಯ ಒಳಗೆ ಹಾಕಿ ಸಿರ ಹೊನ್ನೆಯ ಕಾಯಿ ಹಾಕಿ ಹೊಡೆಯುವರು.

2/4/2014ರಂದು ಸಮುದಾಯ ಅರಣ್ಯ ಹಕ್ಕು ಸಮಿತಿಯ ಸಭೆಯನ್ನು ಶ್ರೀನಿವಾಸಪುರ ಕಾಲೋನಿಯಲ್ಲಿ ನಡೆಸಲಾಯಿತು ಬೇಡುಗುಳಿ, ಶ್ರೀನಿವಾಸ ಪುರ, ಕಾಡಿಗೆರೆ, ಬಿಸಿಲನಕೆರೆ, ಬೂದಿ ಪಡಗ ಎತ್ತೇಗೌಡನ ದೊಡ್ಡಿ, ಬಾನವಾಡಿ, ಗೋಡೆಮಡು, ಮುನೇಶ್ವರ ಕಾಲೋನಿ, ಹೊಸಪೋಡು, ಪುಣ ಜನೂರು ಗ್ರಾಮಸ್ಥರು ಭಾಗವಾ ಹಿಸಿದರು.

5/4/2014ರಂದು ಕಡ್ಡಿ ಜೇನಿನ ಸರ್ವೆ ಸಭೆಯನ್ನು ಬೂದಿಪಡಗದಲ್ಲಿ ನಡೆಸಲಾಯಿತು.

## ಪ್ರಾಣಿಗಳ ಜಲನವಲನಗಳು

ಬಂಡ್ರೇಹಳ್ಳದ ದೊಡ್ಡಿಯಲ್ಲಿ 14/4/14ರಂದು ಈರೇಗೌಡರ ಮಾವಿನ ಮರವನ್ನು ಮುರಿದು ಮತ್ತು ಮಾವಿನ ಕಾಯಿಯನ್ನು ಆನೆ ತಿಂದು ನಾಶ ಮಾಡಲಾಯಿತು.

## ಉಪಾಯಗಳು

- ನಂಜುವಿಗೆ ಜಗಳಗಂಟೆಯ ಪಟ್ಟಿಯ ಜೊತೆಗೆ ಜೀರಿಗೆ ಸೇರಿಸಿ ಕಡಿಯುವುದು ಮಾದಮ್ಮ
- ಸೆಂಬುಳಿಸಿ-ಅದರ ಪಟ್ಟಿಯನ್ನು ನೀರಿಗೆ ನೆನೆ ಹಾಕಿ ಮಕ್ಕಳಿಗೆ ಬಿಸಿ ನೀರಿನಲ್ಲಿ ಸ್ನಾನ ಮಾಡುವುದರಿಂದ ಕೆಂಬರಕ್ಕೆ ಕಡಿವೆ ಯಾಗುವುದು ಮಾದಮ್ಮ ಗದ್ದಮಾರಿಗೆ ಗಂಧವನ್ನು ತೇದು ಹಾಕುವುದು



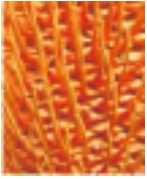
## ಮುಂದಿನ ತಿಂಗಳು

2 ಗ್ರಾಮಗಳಲ್ಲಿ ಗ್ರಾಮದ ಹಿರಿಯರು ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ಕಾಡಿಗೆ ಕರೆದು ಕೊಂಡು ಹೋಗಿ ಔಷಧ ಸಸ್ಯಗಳ ಬಗ್ಗೆ ಮಾಹಿತಿ ತಿಳಿಸುವುದು.

ಪುಣಜನೂರು ಮತ್ತು ಕೋಳಿಪಾಳ್ಯದ ಸರ್ಕಾರಿ ಶಾಲೆಗಳಲ್ಲಿ ಪರಿಸರ ಸಂರಕ್ಷಣೆ ತರಗತಿಯನ್ನು ನಡೆಸುವುದು. ಅರಣ್ಯ ಹಕ್ಕುಗಳ ಸಮಿತಿ ಸಭೆ ನಡೆಸುವುದು.







# കാട്ടുപൂവ്

നിലമ്പൂരിലെ കുട്ടികൾ തയ്യാറാക്കിയ പരിസ്ഥിതി മാസിക

## അറിഞ്ഞോ?

- 1) നെടുങ്കയം ബദൽ സ്കൂളിലെ 7 വിദ്യാർത്ഥികളും അധ്യാപകനായ വിജയനും ര് രക്ഷകർത്താക്കളും കോത്തഗിരിയിൽ വെച്ച് ജനുവരി, ഫെബ്രുവരി മാസങ്ങളിലായി രു ദിവസം നടന്ന പാരമ്പര്യ അറിവുകളെക്കുറിച്ചുള്ള ഒരു പ്രദർശനപരിപാടിയിൽ പങ്കെടുത്തു. കാടിന്റെ വിവിധങ്ങളായ ഉപയോഗങ്ങളെ കുറിച്ച് ഒരു സ്റ്റാൾ വിദ്യാർത്ഥികൾ ചേർന്ന് ഒരുക്കിയിരുന്നു.
- 2) നെടുങ്കയത്ത് വെച്ച് ഒരു തേനീച്ച വളർത്തൽ പരിശീലന പരിപാടി നടന്നു. ഏതാ 18 ഓളം പേർ ഈ പരിപാടിയിൽ പങ്കെടുത്തു. മാത്രമല്ല ഊരിലുള്ള നിരവധി വിദ്യാർത്ഥികളും പരിശീലനത്തിൽ ഭാഗികമായി പങ്കുചേർന്നു.



## നാട്ടുവിശേഷം

മാർച്ച് മാസം 3 ദിവസത്തിനുള്ളിൽ രണ്ട് ആദിവാസികൾക്ക് ആനയുടെ ആക്രമണത്തിൽ ഗുരുതരമായി പരിക്കേറ്റു ആശുപത്രിയിലാണ്. ഉച്ചക്കൂലം കാട്ടുനായ്ക്ക കോളനിയിൽ താമസിക്കുന്ന ചന്തനെയാണ് മാർച്ച് 17-ാം തീയതി ആനചവിട്ടി പരിക്കേൽപ്പിച്ചത്. നന്നായി മദ്യപിച്ചിരുന്ന ചന്തനെ കാടിനുള്ളിൽ വെച്ചാണ് ആന ചവിട്ടിയത്. ആ വഴിവന കോളനിയിലുള്ള ചിലർ ചന്തനെ ആശുപത്രിയിലെത്തിക്കുകയാണുായത്. 20-ാം തീയതി വളളിക്കെട്ട് അറനാടൻ കോളനിയിലുള്ള രാധ എന്ന സ്ത്രീയെ ചെറുപുഴ ഫോറസ്റ്റ് സ്റ്റേഷൻ സമീപം ആന ആക്രമിച്ചു. രാധയും മദ്യ ലഹരിയിലായിരുന്നു. ഗുരുതരമായി പരിക്കേറ്റ രാധയെ മെഡിക്കൽ കോളേജ് ആശുപത്രിയിൽ പ്രവേശിപ്പിച്ചു.

മാർച്ച് മാസത്തിൽ നെടുങ്കയം കോളനിയിൽ വെച്ച് 8 വർഷങ്ങൾക്ക് ശേഷം വീണ്ടും ഊരുൽസവം നടന്നു. അതോടൊപ്പംതന്നെ കോളനിയിലെ ജനങ്ങൾ മലദൈവങ്ങളെ പ്രീതിപ്പെടുത്താനുള്ള ദൈവകൊടുതിയും നടത്തി. ഏപ്രിൽ മാസം നടന്ന തിരഞ്ഞെടുപ്പിന് നെടുങ്കയത്ത് ഒരു ബൂത്ത് ഉണ്ടാക്കി. മാവോയിസ്റ്റ് ഭീഷണി ഉള്ളതിനാൽ വൻ പോലീസ് സന്നാഹത്തോടുകൂടിയായിരുന്നു വോട്ടിംഗ് നടന്നത്. മുണ്ട കടവ്, മാഞ്ചീരി, നെടുങ്കയം എന്നിവിടങ്ങളിലുള്ളവരാണ് പ്രധാന വോട്ടർമാർ.

## തന്ത്രങ്ങൾ നന്നാറി

1. നന്നാറിക്ക് നറുനീണ്ടി എന്ന പേരും ഉ്.
2. രക്ത ശുദ്ധിക്കും ശരീരം തണുപ്പിക്കുന്നതിനും നന്നാറി സത്ത് കലക്കിയ വെള്ളം വളരെ നല്ലതാണ്.
3. നന്നാറി വേര് ചുമയ്ക്കും ദഹനക്കേടിനും മരുന്നായി ഉപയോഗിച്ചുവരുന്നു.
4. നന്നാറിയുടെ വേര് പനിക്കും, ചർദ്ദിക്കും, വാതത്തിനും നല്ല ഔഷധമാണ് എന്ന്



## ഇവർ ഇങ്ങനെ

28 വയസ്സുള്ള സുനിലിനും മറ്റും എന്ന ചെറുപ്പക്കാരനെ നെടുങ്കയം ആദിവാസി ഊരിൽ വെച്ച് നടക്കുന്ന ഏത് പദ്ധതികളുടെയും പരിപാടികളുടെയും ഭാഗമായി കാണാം. കർഷക ക്ലബ്ബ് സെക്രട്ടറി റിക്രിയേഷൻ ക്ലബ്ബ് സെക്രട്ടറി എന്നീ നിലയിൽ വളരെ നല്ല പ്രവർത്തനങ്ങൾ ഈ ചെറുപ്പക്കാരൻ നടത്തിയിട്ടുണ്ട്. ഐ.ടി.ഡി.പി നടപ്പിലാക്കുന്ന വിവിധ പദ്ധതികളിലും മറ്റു സാസ്കാരിക പ്രവർത്തനങ്ങളിലും എന്നുവേ നെടുങ്കയം പണിയ ഊരിൽ നടക്കുന്ന സകല വ്യവഹാരങ്ങളിലും സുനിലിന്റെ കയ്യാപ്പ് പതിഞ്ഞിട്ടുണ്ടാവും. ഇപ്പോൾ വനം വകുപ്പിലെ ഒരു താൽകാലിക വാച്ചറായി ജോലി നോക്കി വരികയാണ്. ഭക്ഷണയോഗ്യമായ വനസസ്യങ്ങളെ കുറിച്ചും പ്രാദേശികമായി കാണപ്പെടുന്ന പുഴമത്സ്യങ്ങളെക്കുറിച്ചും ഇദ്ദേഹത്തിന് നല്ല അവഗാഹമുണ്ട്. അനൂപം നിന്നുപോയേക്കാവുന്ന പാരമ്പര്യമായ അറിവുകൾ സമുദായത്തിലെ വളർന്നു പ്ലൂരുന്ന കുട്ടികൾക്ക് പകർന്നുകൊടുക്കേണ്ട ആവശ്യകതയെക്കുറിച്ചുള്ള തിരിച്ചറിവാണ് സമുദായത്തിലെ മറ്റു യുവാക്കളിൽ നിന്നും സുനിലിനെ വ്യത്യസ്തനാക്കുന്നത്.

## കാട്ടുവിശേഷം

കുന്ദളപാറ, തൻകല്ല്, ചെമ്പ്ര കോളനികളിൽ ഫെബ്രുവരി മീർച്ച് മാസങ്ങളിൽ കൊല്ലക്കകണ്ണി മാങ്ങ എന്നിവ ശേഖരിച്ചു. ഈ മാസങ്ങളിൽ തോട്ട പയർ ശേഖരണം ഒരു പ്രധാന വരുമാന മാർഗ്ഗമാണ്. ഫെബ്രുവരി മാസം ആരംഭിച്ച തേൻ ശേഖരണം കുന്ദളപാറ, തൻകല്ല്, ചെമ്പ്ര അപ്പൻകാപ്പ്, മാഞ്ചീരി, പാട്ടകരിമ്പ് കോളനികളിൽ ഇപ്പോഴും തുടരുന്നു. പുഴകൾ വറ്റിയതിനാൽ മീൻശേഖരണം കോളനി നിവാസികൾ നടത്തുന്നു. നിലമ്പൂർ വന മേഖലയിലെ ആദിവാസി ഊരുകളിൽ വന്യജീവി ശല്യം അധികമായി അനുഭവപ്പെട്ടു.

<b>വിരുന്നുകാർ</b>	
ആന	- 12 തവണ
കൊമ്പൻ	- 12 തവണ
കാട്ടിൽ വെച്ച് കണ്ടത്	- 4 തവണ

<b>പക്ഷികൾ</b>	
ഇരട്ടതലച്ചി	- എല്ലാദിവസവും
ആനറാഞ്ചി	- 4 ദിവസം
മണ്ണാത്തിപുള്ളി	- 5 ദിവസം
വാലുകുലുക്കി	- 20 ദിവസം
കൊക്ക്	- 10 തവണ
നീർകാക്ക	- 12 തവണ

*K.G. Ramachandran is the Area Manager & Coordinator for activities at the Village Conservation Centre, Keystone Foundation, Nilambur*



# Diary of the Nilgiri Natural History Society



## Star Gazing in the Nilgiris

A stargazing event was organised on the 28th of Feb and 1st of March in Kotagiri and Coonoor. The resource people Prof. K Shakhthivel and Mr Anand of the Coimbatore Astronomy Club used stellarium - a free open source planetarium for the computer to introduce the audience to the night-sky. They also brought with them two superior electronic telescopes that were used to view several constellations and celestial bodies. Some incredible sights like Jupiter and its Galilean moons, Cassiopeia, Orion's nebula, Sirius, and a double star were seen during the night.

## 22<sup>nd</sup> March:

World Water Day is observed every year on the 22nd of March. It is a day dedicated to create awareness about the world's water resources and its conservation. In an effort to shed some light into some of these issues the NNHS came up with a water module that looks at how water resources are being utilized in our country and more importantly, our locality. The module was distributed free of cost to several schools in the Nilgiris.

## 6<sup>th</sup> April- Nilgiri Food Festival @ Wellington

The second annual Nilgiri Food festival was

organised at the Wellington Gymkhana Club. The purpose of the food festival was to make the public aware about the declining agro-biodiversity in the district and to popularize the use of traditional grains like millets and amaranthus. A display of some of these disappearing seeds and grains along with posters communicating the importance seed diversity were put up at the venue.

## Birding in the park

A bird walk was organised in the Botanical Garden, Ooty on the 16th of April. The Garden is one of the most popular haunts of birders offering several sightings of endemic birds. The group spotted a total of 21 species, including several winter migrants. A comprehensive list of the birds was uploaded on E-bird, an online bird checklist program.

## Traditional Knowledge Fair, 1<sup>st</sup> & 2<sup>nd</sup> February

Keystone Foundation and Nilgiri Natural History Society jointly organised the Fair. Many groups of children from indigenous communities across the NBR presented their traditional knowledge, through posters, pictures, exhibits. Traditional knowledge helps communities use their natural resources with respect and understanding. When this knowledge is lost, cultures are lost and

identities fade away. The program included competitions for children traditional music, sports and games and traditional food stalls.



## Trail to Vellaricomбай

### 16th March

A trail was organised to the rock art site at Vellaricomбай. The archeological site is said to go back to Mesolithic (middle stone age) times or to about 6000 years ago. The trail started from Mamaram through tea gardens before entering into moist evergreen forests. These slopes offer some of the best birding trails in the district.

<http://nilgirinaturalhistorysociety.wordpress.com/2014/04/16/perched-above-the-ancient-forests/>





## Happenings at the Bee Museum, Ooty

The Bee Museum at Ooty is an initiative of Keystone Foundation. Inaugurated in October 2006 by the then Secretary, Minister of Tribal Affairs, Ms. Meena Gupta, the museum, first of its kind with a focus on honey bees of India, tells of the ecology of the Nilgiri Biosphere Reserve and the livelihoods of the honey gatherers. The museum has a steady flow of visitors and activity modules for children.



### Feb 13: Isha school visit (30 children of ages 9 & 10)

A group of 30 children from Isha home school visited the Bee Museum on the 13th of February as part of their learning excursions. The group was divided into 3 groups. Three activities were planned for the day. Each group alternatively took turns in participating in all three activities (a tour of bee museum, Kurumba painting workshop and bees wax candle making)

At the tour they were given information on everything about bees, their habitats, types of bees, bee keeping, threats to bees and biodiversity etc.

Krishna, a Kurumba artist, talked a bit about the Kurumba community while demonstrating his craft. The children then tried to copy some of depictions of honey hunting, worship and everyday Kurumba life from Krishna's painting.

Bees wax sheets were brought by Mani, another Kurumba who showed the children how beeswax candles are made after which they all took turns in making candles, which they later took back with them.

### Talks on 10<sup>th</sup> and 15<sup>th</sup> March

Freshwater ecosystems are essential for human survival, providing the majority of people's drinking water. Despite their value and importance, many lakes, rivers, and wetlands around the world are being severely damaged by human activities and are declining at a much faster rate than terrestrial ecosystems. More than 20 percent of the 10,000 known freshwater fish species have become extinct or imperiled in recent decades. To raise awareness on the importance of freshwater ecosystems and their biodiversity, the NNHS organised talks on two important freshwater groups - fishes and odonates.

### Freshwater fishes of the NBR

A talk on Freshwater Fishes of the NBR by Dr Rajeev Raghavan attracted many wildlife

enthusiasts. Rajeev's talk started with an introduction on Freshwater ecosystems and their ecological and economic values followed by a brief account of the freshwater fish of the NBR, their status, threats etc.

96 species of freshwater fish from the Western Ghats face the threat of extinction. The main culprits for this being pollution, habitat loss, introduction of exotic species, and over fishing.

### Ode to Odonates

Dr. Jeganathan of the Nature Conservation Foundation (NCF) gave a talk was on Odonates (Dragonflies and Damselflies) of the Western Ghats and Northeast India on the 15th of March. He gave a brief introduction to the species, followed by their life processes and habitats.

The dragonflies are an intriguing species that spend most of their life underwater as nymphs where they are known to be one of the most important bio-pest control agents. As adults they inspired the invention of the helicopter with their flight pattern. There is a lot we owe to this species but instead of protecting them we have ended up threatening their very existence with the destruction of wetlands and heavy pesticide use.

### 1<sup>st</sup> May: Conservation Education retreat for teachers

The NNHS organised a conservation education retreat for teachers on the 1st of May. Teachers from Brindhavan, Riverside and Blue Mountain School took part in the retreat. The main aim was to improve the way conservation is being communicated to children. Conservation Education material compiled by the Keystone Foundation and NNHS was shared with the teachers who attended the retreat. With increasing globalization and the pressures it's exerting on our planet and its resources, effective conservation education seems to be the need of the hour.



### 6th May: Serpent Tales

Abhishek, a research assistant working at the Keystone Foundation, gave a talk at the Bee museum titled 'Serpent tales' on the 6th of May. He has worked in the field of snake rescue for a few years and based his talk primarily on his experiences on the field. The absence of any scientific jargon made the talk that much more interesting to the laypeople. Some of the topics covered during this talk were the classification of snakes, myths associated with them, rescue situations, and do's and don'ts when faced with a stray serpent. The following day a group of about nine people led by Abhishek went on a snake trail at Hallakarai shola. While no snakes were spotted the participants got a chance to learn more about snakes and their habitats.

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: anita@keystone-foundation.org or archana@keystone-foundation.org

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.

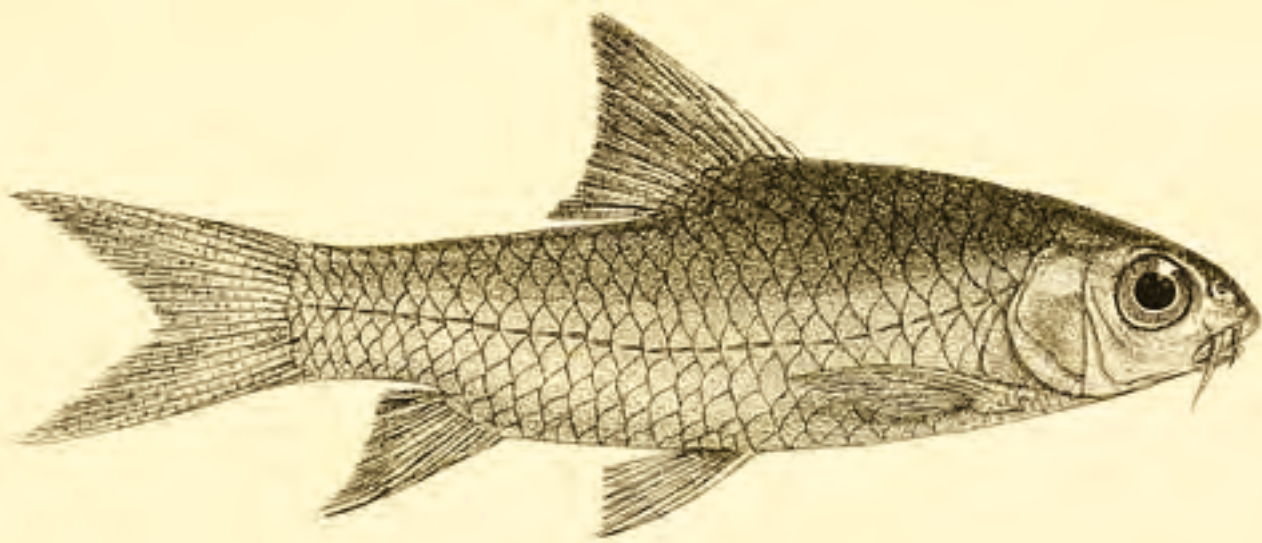
Reports, Dissertations, etc

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.



## *Neolissochilus bovanicus*

Rajeev Raghavan



The illustration is from Francis Day's book on 'The fishes of India; being a natural history of the fishes known to inhabit the seas and fresh waters of India, Burma, and Ceylon. Part 3'



**Common name:** Bhavani Barb

**Distribution:** Endemic to southern India and Sri Lanka (Molur et al. 2005; Thorington and Hoffmann 2005) at elevations of 200 to 1,200 m asl.

**Range description:** The species was first described by Francis Day in 1877 from the Bhavani River at the Base of the Nilgiri Hills. Since then, there have been very few verifiable records, sightings or photographs of this fish. Given that the last individual was recorded in 1998 from the Mudumalai National Park, and surveys over the last ten years have failed to record this species from anywhere in its native range, the Bhavani Barb has been assessed as 'Critically Endangered' (Possibly Extinct) in the IUCN Red List of Threatened Species.