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Leaf Litter

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Cover photo shows a litter of **Celtis tetrandra** leaves

Taking a cue from poetry

A.K. Ramanujan, the scholar, poet, translator and folklorist, is best known for his re-thinking and re-working of the idea of folklore. It had been suggested ⁱ that great civilizations, such as in India, evolved from local folk roots through the process of urbanisation. Along the way, the epithets 'great' and 'little' stuck with these concepts, 'great' becoming associated with the written, brahmanical and Sanskrit traditions. 'Little' was the field of anthropologists in India. Ramanujan moved beyond the dichotomy of 'Great and Little Traditions' in his conceptualization of folklore, "In his vision, folklore is one of several systems, several languages or registers, that people use depending on the particulars of context and audience. These systems comment on each other, and cannot be understood independently of each other." ⁱⁱ

The two traditions of folklore, little and great, are analogous to the traditions of forest conservation practiced today. The "little" traditions are akin to the myriad ways in which a species or an ecosystem is conserved by local people. These include the various first fruit ceremonies before a fruit is eaten or the species of leaf used to fashion a platter; or locally prominent sacred groves that host very local deities; and local efforts at patrolling neighbouring forests with authority vested in them by the community. Like the anthropologists investigating the little traditions of folklore contemporary ecologists are showing an interest in the traditions of conservation that are community-based-and-led.

The "great" tradition of conservation, to complete the analogy, is what is proposed by mainstream ecologists and conservationists with masses of 'objective' data, forestry schools, field stations, and an increasing number of protected areas. The latter is the scientific attitude, higher in the hierarchy than the peoples understanding of the forest, with no substantial reason for these validations.

Since the 1970s, there has been mounting evidence that local indigenous knowledge about the environment has much to offer towards our understanding of the way nature works. Observations over generations while fishing or chasing game, while camping or making long journeys in the forest, and through listening to and passing on the stories of their people, have led to specialized bodies of knowledge. These areas of knowledge are context specific, usually dealing with small territories, but with a depth that is seldom matched by the scientific tradition; such knowledge has guided ways of life of peoples, being the primary tool with which they have gone about the business of life.

Comparatively, the scientific tradition is more broad based, aimed at knowing the underlying universal principles, and undergoing constant revision as new evidence arrives to disprove an assumption or classification. Specialization is the norm in scientific inquiry, and it has its own advantages and pitfalls.

Taking a cue from Ramanujan's vision of folklore we too could move beyond the dichotomy of the scientific and vernacular in our way of conservation. This does not mean validating one with respect to the other – which is the usual trend we encounter – but encouraging a lively dialogue between knowledge systems. It is the area where the subjective local story finds a place in the broader "objective" narrative through which landscapes are perceived. We have new opportunities to explore, made available through the Forest Rights Act, 2006.

The conservation and management plans for areas claimed by local communities, under the Community Forest Rights (CFR), allows for the formulation of context specific plans. Such plans could use ideas and inputs from both systems – their own, that has an indepth understanding of their landscape, and the other that has a bird's eye view of the region. To illustrate: a community may percieve a certain species as being abundant, which may be true (locally), with people caring little for it. However, broader surveys of the landscape may show that the species is rare or scarce elsewhere, deserving protective measures. Furthermore, a dialogue between the two systems may throw light on why a species is rare in one place and not in another.

There are many instances of common names of plant species suggesting other phenomena. 'Ili-meri' (Durwa for *Cassia fistula*), refers to the association between bears and the tree, as do many Gondi dialects. Ili is bear, and bears relish the fruit of the tree, and are one of the prime agents for the dispersal of this seed. Words in an indigenous language, like *konda* (gaur) or *eynui* (elephant) in the Durwa spoken in Bastar, may suggest that these species lived in that terrain, even though they are absent now. Sacred groves usually host tree species that may have once been abundant across the region but are now rare, telling us about the state of ecological conditions that have existed. A recollection of the local history of a landscape is an inevitable part of ecological restoration.

It is hoped that a new style of conservation evolves that is both poetic and rigorous, that blends subjective insight with objective foresight, and in which individual species as well as landscapes are given equal consideration.

i. Blackburn, S., and Dundes, A.; in the Introduction to *Essays on Folklore*, in *Collected Essays of A.K.Ramanujan*. Edited by Vinay Dharwadker, Oxford University Press, 2004

ii. *ibid*

Personal notes on leaf-fall

Madhu Ramnath

The annual occurrence of leaf-fall is one of the most striking phenomena in the forest. There are gradual changes in leaf colour, from green to shades of brown, or yellow or red. Some, like those of gnetum, turn black on drying.

In temperate regions, where water freezes in winter, the leaves fall to escape the rupture of the tiny vessels in them – as water expands on freezing – and the plant goes into a dormant stage. The water in the soil too freezes in low temperatures, making it unavailable for the plant.

In tropical lands, plants shed their leaves in the dry season. Here too the reason for the abscission of leaves – the technical term for voluntary dropping of any part from the organism – is water. As water availability decreases the plant breaks the chain of water, from the root to the leaf and out into the air as transpiration by dropping off its leaves.

Leaf fall commences with the degradation of chlorophyll, with the green fading and shades of yellow and orange taking over. These pigments are 'carotenoids,' common in many species. In some plants we have 'anthocyanins,' seen as shades of red and purple. When both types of pigments occur together the foliage is extraordinarily beautiful, just before all the leaves fall and the plant goes to sleep for the season.

Leaf fall in the tropics is a beautiful time of the year. The trees become increasingly exposed, making visible the nests on the branches, the odd cocoon, and the dark green parasite plants that the tree may harbour. I enjoy the crackling of dry leaves underfoot as much as I do identifying the individual leaves in the litter. In central India leaf fall heralds the festive season. Marriages are celebrated then, village fairs and 'madais' happen then, where the gods and goddesses from neighbouring villages gather, and many local deities are worshipped. People travel a lot between villages during this period and, if they are on foot, they carry gourds of chava or page, a millet-rice gruel that turns slightly sour and tastes delicious when sipped on a hot day.

Leaf fall conjures up all these moods. Of festivity and people and laughter and dances; of drums and religious trances; of low fires and sleeping outdoors; of shrinking waterholes and increasingly longer walks for a wash.

As many of the adivasi communities use leaf-cups for serving food and drink the quantities of leaves required to fashion these containers is enormous. (A survey conducted in a village of about 80 households indicated that about 14,000 leaves are harvested each day; these are mainly sal leaves). So, if so many festivities and gatherings happen during the period of leaf-fall, where do the leaves come from?

The trick is to time the event just as the new sal leaves begin to mature, after the old ones start dropping off. The old sal leaves, even after they are shed, may be gathered and stored; usually they are soaked in water to make them supple, and stitched into leaf-cups and stored, ready to use when required. As I mentioned, the new leaves need to mature sufficiently before they are harvested. A person who times a festivity without taking the sal "leaf-stage" into consideration, suffers the lack of leaves as the guests begin to arrive,



Syzygium cumini

Ficus hispida

Mallotus philippensis

Olea dioica

Alstonia venenata

Ficus racemosa

Diploclisia glaucescens

Bridelia retusa

netum ula

Artocarpus heterophyllus

Terminalia bellirica

Ligustrum vulgare

Grewia asiatica

Gmelina arborea

Erythrina suberosa

is looked upon as a fool!

Many leaves, other than sal, are used for leaf-cups. They are, in order of preference, adumuki (*Bauhinia vahlii*), boddeli (*Butea sp.*), irupa (*Madhuca indica*), pela (*Holarhenna antidysentri-ca*), kondi (*Semecarpus anacardium*), chiri (*Buchanania lanzan*), musiri (*Dillenia pentagyna*), kirva (*Glochidion sp.*), and even bodi (*Ficus benghalensis*). Except the sal and the adumuki the others have certain restrictions (first fruit ceremonies), and the bodi is not used by all people. The first fruit ceremonies mentioned regulate the times when these leaves may be harvested, and used for leaf-cups, The first fruit ceremonies mentioned regulate the times when these leaves may be harvested, and used for leaf-cups, which may be the prime reason for their ongoing sustainable use. Over-harvest of these leaves could have led to a decline in their populations. Curiously, adumuki and sal have no such restrictions.

Leaf fall, and the increased litter on the forest floor, is associated with forest fires. Some communities that have their ceremonial hunts in early summer set fire to the litter to aid their stalking of game. In addition, fires also occur due to carelessness. People clearing the ground beneath mahua trees to ease their picking of the flowers; the tendu-patta collectors, who set fire to certain patches to get a new flush of good tendu leaves; the jhum cultivators who set fire to the debris which sometimes spreads into the forest, etc., have all contributed. Over time, many landscapes across India have been shaped by the regular occurrence of fires.

Leaf-fall begins in some trees, such as the mondei (*Lannea coromandelica*) and the amodi (*Spondias pinnata*) sometime in late November. They are some of the first trees to shed their leaves. The shedding of leaves continues through the months as more and more trees join, the branches going bare and then flowering red (*Ceiba*, *Erythrina*, *Butea*) and yellow (*Gmelina*, *Cochlospermum*, *Cassia*), until almost June, when the last of the trees have finished the process and the forest appears wet-green again as the monsoon breaks. An experienced person can tell the stage of the spring and summer, and the onset of monsoon, by reading the stage of leaf-fall in a tropical forest.

I would like to conclude with the wish that this article evokes in the reader an appreciation for the many facets of a simple annual phenomenon – leaf-fall – and make it a habit to watch keenly and understand a little of nature each year!

The Baiga of Achanakmar Tiger Reserve: living in the shadow of eviction

Kiran Waghmare

As a developing nation many development projects in India are ongoing at a rapid pace, including the construction of dams, the expansion of highways, stone quarrying and mining, etc. Many of these activities have displaced adivasi populations from their traditional forest habitats. Ironically, the creation of wildlife sanctuaries and tiger reserves, supposedly for the conservation of forest tracts and wildlife, have also affected the adivasi people adversely. The compulsory acquisition of land for this latter purpose has impacted the forest dwelling communities who lived there for several generations.



Entrance to the Achanakmar Tiger Reserve

The Achanakmar Tiger Reserve is one such zone that has become a place of conflict. The region has a rich biodiversity and a tropical moist deciduous vegetation. It was declared a Tiger Reserve in 2009 and is located in the Mungeli district of Chhattisgarh. The Adivasi people from Achanakmar Tiger Reserve have witnessed the displacement of 249 families from six different villages in the area (Jalda, Kuba, Bahul, Bankal, Bokarakachhar, Samardhasan). These people were relocated from the core area to the zone of Lormi, Gaurella and Khudiya with a settlement package of Rs 2490 lakh, within an area of 572.700ha of land.



A road within the ATR

The Adivasi people from Birarpani village, of Lamani village panchayat are located within the core zone of the Achanakmar Tiger Reserve. These people are now facing the same problems and living with the same trauma of eviction. The total population of this village is 115 people (of which 32 male and 37 female are adults), all of whom are Baiga, who are classified as a Particularly Vulnerable Tribal Group. The survey of ration cards indicates that Birarpani village has only 23 households; the remaining households have been unable to get their rations card yet.

For villages located deeper in the forest, there are many more restrictions. The inhabitants of these 19 villages residing within the core area of the Tiger Reserve have been deprived of access to basic amenities such as health and education. Even during the Covid-19 pandemic it was very difficult to reach out and run vaccination campaigns in this region.



Children with an uncertain future.

The people in these villages are totally dependent on the forest for their social, cultural and economic sustenance. Their livelihood is dependent on collecting forest produce (NTFPs) and selling or consuming them. The NTFPs include Char (*Buchanania lanzan*), Mahua (*Madhuca indica*), Kevati (*Celastrus paniculata*), Laasa (gums), Mohlain Patta (*Bauhinia vahlii*), Madhuras (honey), Jadi-butiya (medicinal plants) and Kandmul (tubers). It is very difficult for the people here to avail benefits of government schemes such as the MGNREGA, or even the PDS. The work under the MGNREGA is usually far away and they have to walk a long distance from the core area. In addition, it has been observed that the people are not getting their wages for their work under the MGNREGA scheme.

Due to restrictions on movement within the Tiger Reserve, the people are unable to access market places where they would be able to get the correct value for the NTFPs that they collect from the forest. The local people can only go to the smaller haats, weekly markets, with their produce. But unfortunately, in Birarpani village, the haat bazars are in complete control of middlemen, locally called 'bichhauliya', who decide the price of any forest produce. This phenomenon keeps the Baiga community in a vulnerable situation and deprives them from getting what the NTFPs are worth.

The people of Birarpani have received lands claimed under the Individual Forest Rights of the Forest Rights Act. However, this is not as much as they had applied for. It is inadequate for any individual household to live there and use the same forest land for agriculture. Over the years the forest department has been pressurising the people of Birarpani and offering compensation packages, continuing its efforts to reach out to individual Baigas to relocate them from the core zone to other areas.

Fortunately, since PRERAK has begun working in Achanakmar Tiger Reserve region, some positive changes have occurred. Foremost is the peoples' understanding of the importance of the Gram Sabha. The Gram Sabha has been initiated in these areas, and they have started to understand that no relocation & resettlement may take place unless it is accepted by them. Prerak is making efforts to provide the people information related to FRA.

However, the Baiga – known as the adopted sons of the President of India – are facing the dilemma of the present generation. Will they be assimilated into mainstream society and accept the compensation packages and move away? Will they stay with the elders and keep their tradition?. The elderly people are living with fear & dealing with the question of relocation & post-eviction.



Women carrying broom grass for sale

Pisciculture as a livelihood option in tribal areas

Pravat Kumar Mishra

The Scheduled Tribes and Other Traditional Forest Dwellers Recognition of the Forest Rights Act, 2006, (FRA) has brought in a framework for the empowerment of forest dwelling peoples. The Act aims to provide livelihood security, ecological security and tenure security through the recognition of rights over forest areas. The FRA is an instrument to address some of the urgent issues concerning livelihoods and conservation. By securing tenure and access rights, and providing the village communities a stake in the conservation process, it aims to help forest dependent communities attain livelihood and food security.

The FRA Amendment Rule 2012 has made it mandatory that all the line departments provide hand-holding support to the FRA title holders, as recommended by the Gram Sabha. Rule 16 of FRA speaks about the Post Claim hand holding support to FRA title holders: *The State Government shall ensure through its departments that all government schemes including those relating to land improvement, land productivity, basic amenities and other livelihood measures are provided to such claimants and communities whose rights have been recognized and vested under the Act.*

Though Odisha took a proactive role in the coverage of the FRA title holders under various ongoing schemes, it was more of an advisory action. The State Government has issued an official circular to provide PMAY, Mo Kudia, Land Development, Farm Pond (Mo Pokhari), National Horticulture Mission, National Bamboo Mission and other Social Security Schemes.

The state government brought out a circular regarding the convergence options in IFR and CFR. Based on this, and in consultation with the community, this plan has been prepared and developed which can be put into practice.



The Panchayati Raj Department, particularly the Gram Panchayat, the Panchayat Samiti and the Zilla Parishad, have special allocations for carrying out development activities in the village, especially with Below Poverty Line (BPL) households. However, the development suggestions are generated at Panchayat level and have been synthesized at Gram Sabha level as per the Odisha Gram Panchayat Act.

Intervention Details: the Regional Centre for Development Cooperation (RCDC) has carried out a mapping exercise with the Bhalialdal Sarpanch and its executive in 5 villages. This exercise was exhaustive as it includes forest development activities, village development activities, house-hold and livelihood development activities. The exercise revealed that pisciculture, duckery and bund cultivation could be quite successful in the area as water is available even in the dry season as the area is with forest cover.

In 2018-19, RCDC did a livelihood assessment exercise in Bhaliadal GP. It found that water-based livelihood could be promoted as water is available in the region throughout the year; some families that rear ducks would also benefit from it. As tribal people in general do not have an aptitude for business they seldom use the available resources. Keeping this in mind, RCDC supported the community with only Rs 12,000/- for pisciculture activity in two ponds. The support includes the purchase of 200 fingerlings in each pond and fish feed. After one year, the result was highly appreciable. The total catch from each pond was 150 kg of fish approximately.



They sold the catch among the community members at the rate of Rs 120/- per kg, and at Rs 150 to outsiders. Due to restrictions imposed for Covid-19 market facilities were minimal and the community could not earn as much as would have been possible otherwise. With Oxfam India's support, two community ponds in two villages (ie, Boula and Jharjhari) were brought under pisciculture; the ponds are within the CFR area which has been recognised.

Fishing among tribal people

The tribal people fish in streams, rivers and ponds, usually with traps, nets and fishing lines. Fishing has seldom been their 'business'. The Kol and Saunt communities living in Jamubani village are engaged in fishing. The Hadgarh reservoir is situated very close to the village; the village has been displaced to its present location due to the reservoir. Now the people fish in the reservoir too. They have boats and fishing nets and earn an average of 20,000/- month. They were not a fishing community but have now become one!

Only reservoir fishing is seen as an income generating activity. Four or five households have their own ponds and they practice pisciculture, selling the fish in local markets and to others during festive occasions. These households get an annual income of 15,000 to 20,000/- in one catch each year.

Carp (Rohu, Bhakur and Mirikali) are cultivated and preferred by the community as well as in the market. They bring fingerlings from Betanati and Baisinga which grow in natural conditions without any extra cost.

No effort is required for marketing. The traders from Thakurmunda come to the village to buy the fish. Similarly, during marriages and other festive occasions, the pond owner catches the fish and sells it in the community for Rs 150/kg; the market rate is Rs 180/ kg.



Fishery or pisciculture could be a good livelihood option for the communities in our project area. It has not been tried by any other agency due to possible legal and cultural uncertainty. However, RCDC's survey showed that some households are involved in fishing in the Hadgarh reservoir. The Fishery Cooperative got their CFR right in the reservoir even though it is located in Satkosia Elephant Sanctuary.

In-land fishery promotion can be promoted through creating more ponds through MGNREGS. These ponds can be utilised for community fishery with the help of the Fisheries Department. The Tahasiladar and the BDO Thakurmunda visited these villages during Covid-19 relief distribution and the community members demanded excavation of community ponds under MGNREGS. Both the government officers helped the community draft a letter and attached the community resolution for digging of ponds, pisciculture, duckery, and agriculture support.

Covid and MGNREGA

In 2021, the Tahasildar and the BDO visited Bhaliadal GP to assess the employment situation, with most of the migrant workers having returned home. The community people led by the village institutional leaders demanded employment, through excavation of community ponds and farm ponds. This was calculated into person-days under the MGNREGS, in effect making employment available, community assets would be created, also providing livelihood opportunities to individuals as well as to the community. Nine ponds have been excavated in that Gram Panchayat.

Pravat Kumar Mishra is a senior staff of RCDC based in Bhubaneswar, Odisha.

The Olive Tree – between myth and reality

Paul Wolvekamp

Origins

The use of a dove and olive branch as a symbol of peace originated with the early Christians, who portrayed the act of baptism accompanied by a dove holding an olive branch in its beak. This symbol is much in demand in view of the escalating war waged against the Ukraine, Yemen and other countries under siege.

In the Greek tradition, when a child is born, an olive tree is planted. The olive tree and the child will grow up together and when the child becomes 6 years old, the tree will give its first fruit. As tradition maintains, the tree will grow with the family, survive through decades, and will still be there for all the coming generations to always remind one of the continuity and the evolution of life. Olive trees have enriched European and Middle Eastern culture, myths and folklore and diet and cuisine from time immemorial.ⁱ

The creation of the olive was attributed to gods and heroes, such as Osiris (Egypt), Athena and Heracles (Greece), and considered a precious gift to humanity.ⁱⁱ The olive tree has been widely seen as a symbol of peace, wisdom, fertility, prosperity, luck and victory. The use of the olive branch as a symbol of peace in Western civilization dates back to at least the 5th century BC in Greece. The ancient Greeks believed that olive branches represented abundance and drove away evil spirits and an olive branch was one of the attributes of Eirene, the Greek goddess of peace.



picture courtesy: <https://financialtribune.com/sites/default/files/field/image/17january/05-zs-oliveproductionestimated233-ab.jpg>

Also in ancient times, the worst damage a Greek city-state could inflict on an adversary was to cut down the olive and vines.ⁱⁱⁱ Today, in countries like Palestine, olive trees have more than an economic significance for the people. They became symbolic of Palestinians' attachment to their land and resilience, and their destruction an expression of conflict. In the ongoing Israeli-Palestine war, Israeli settlers or 'colonists' have been observed uprooting tens of thousands of Palestian owned olive trees when occupying Palestinian territory. The International Red Cross urges for Palestinians' free access to their olive orchards on the occupied West Bank.



picture courtesy: <https://upload.wikimedia.org/wikipedia/commons/e/e9/OlivetreeofVouves.jpg>

The history of the olive tree is believed to have begun around 7000 years ago in the Mediterranean region, and more precisely in the Eastern Mediterranean. It is speculated that it first appeared in Syria, as indicated by depictions on vessels and in a multitude of myths of the people in the Mediterranean. Others state that the wild olive tree originated in Asia Minor, i.e. Turkey, where it is extremely abundant and grows in thick forests.

From Greece Phoenician (Tunisian) merchants carried it to the European Mediterranean area - Italy, France, Spain, Portugal - from where it spread to other continents. Its cultivation developed considerably in the areas from the southern Caucasus to the Iranian plateau and the Mediterranean coasts of Syria and Palestine, and from Crete towards Egypt.

Domesticated olives, which are larger and juicier than the wild varieties, were probably first cultivated in the frontier between Turkey and Syria. When the Romans arrived in North Africa, the Berbers already knew how to graft wild olives and had really developed its cultivation throughout the territories they occupied. The Romans continued the expansion of the olive tree to countries bordering the Mediterranean, using it as a peaceful weapon in their conquests to settle the people. It was introduced in Marseille around 600 BC and spread from there to the whole of what is currently called France.^{iv}

The Arabs brought their varieties with them to the south of Spain and influenced the spread of cultivation so much that the Spanish words for olive (aceituna), oil (aceite), and the wild olive tree (acebuche) and the Portuguese words for olive (azeitona) and for olive oil (azeite), have Arabic roots. With the discovery of America (1492) olive farming spread beyond its Mediterranean confines. The first olive trees were carried from Seville to the West Indies and later to the American Continent. By 1560 olive groves were found in Mexico, and later in Peru, California, Chile and Argentina, where one of the plants brought over during the Conquest – the old Arauco olive tree – is reportedly alive today.

In the years of the Ottoman Empire a further rise of olive oil trade occurred and maritime transportation was developed, facilitating the sea routes from the Aegean Sea to Western Europe. In the era of the Ottoman occupation, not only did oil trade reinforce local economies, but also boosted soap production.^v

Ecology, usage and health aspects

The olive, *Olea europaea*, is a small tree or shrub belonging the family Oleaceae.^{vi} Recent findings, published in the journal Proceedings of the Royal Society based on the genetic analysis of 1900 samples from the Mediterranean region, reveal that domestic olives were first cultivated in the area between Turkey and Syria.

Olive trees require a mild climate and seem to need a micro-climate determined by large water bodies, such as the Mediterranean. The trees bear fruit on a two-year cycle, a rich harvest is followed by a year of meagre yield. Late spring frost and a prolonged dry-spell can seriously affect production.

The olives are pressed to produce olive oil. About 90% of all harvested olives are pressed into oil, while about 10% are used as table olives. The purpose of processing the olive has remained the same over centuries, namely to extract the oil by exerting pressure, while making sure not to extract impure or poisonous elements. Olive oil is much in demand as a cooking and frying oil. It can be heated to a higher temperature than most other oils without it burning or undergoing harmful chemical changes.^{vii}

Many studies continue to confirm the health benefits of the Mediterranean diet, which cuts the risk of heart disease and stroke. The diet's nutritional benefits probably come from various sources, but the generous use of olive oil appears to be a key contributor.



picture courtesy: https://miro.medium.com/max/1400/1*XKr0E7BY-IQnIXAMmNQSodg.jpeg

Regardless of the type, olive oil is high in monounsaturated fatty acids, comprising about 75% by volume. Monounsaturated fats help lower "bad" LDL cholesterol. The health benefits of olive oil have been attributed to its antioxidant and anti-inflammatory properties. In fact, studies have shown a link between lower risks of cardiovascular disease, some cancers, and even dementia in people who consume higher amounts of olive oil than those who use little or none.

Ancient trees

The expected life of an olive tree is 300 to 600 years, yet there are olive trees of more than 1,000 years old. Some olive trees are known to be very old, for instance in Mouriscas, Abrantes, Portugal, and the olive tree 'Oliveira do Mouchão' is one of the oldest known olive trees still alive to this day: with an estimated age of 3,350 years. On the island of Brijuni in Croatia an olive tree of about 1,600 years (with its age determined by means of radiocarbon dating), is still giving fruit: about 30 kg per year, which is made into olive oil. An olive tree in west Athens, named "Plato's Olive Tree", is thought to be a remnant of the grove where Plato's Academy was situated, making it an estimated 2,400 years old.

Cultivation of edible olive seems to have coexisted with humans for more than 5,000 to 6,000 years. Its origin can be traced to the Levant, based on written tablets, olive pits, and wood fragments found in ancient tombs. As far back as 3000 BC, olives were grown commercially in Crete and may have been the source of the wealth of the ancient Minoan civilization. Other, very old olive trees are found in Lebanon, Spain and Italy. Some Italian olive trees are claimed to date back to Ancient Rome (8th century BC to 5th century AD)^{viii}.

A Greek Tragedy

The olive tree also plays a role in the *Odyssey*, the epic by the Greek poet Homer. The story depicts Odysseus, the warrior King ruling the small island state of Ithaca, who took part in the legendary conflict between the early Greeks and the people of Troy in western Anatolia, narrated the *Iliad*, also attributed to Homer. It so happened that Helena, the wife of King Menelaos of Sparta, fell in love with Paris, the prince of Troy and the two escaped to Troy. King Melaneus called upon Odysseus and other Greek warriors to join him in a revenge expedition and to wage war on Troy.

The *Iliad* describes how Odysseus spent 10 years besieging the city-state of Troy. The Greeks, at the behest of Odysseus, constructed a huge wooden horse and hid a select force of men inside, including Odysseus himself. The Greeks pretended to sail away, and the Trojans pulled the horse into their city as a victory trophy. That night the Greek force crept out of the horse and opened the gates for the rest of the Greek army, which had sailed back under cover of night. The Greeks entered and destroyed the city of Troy, ending the war. Homer's *Odyssey* describes that it took Odysseus 10 more years to reach Ithaca. Poseidon, the god of the sea, was furious with Odysseus and his crew because during their voyage they blinded his son, the cyclops Polyphemus. He prevented his home coming.

When *Odyssey* finally manages to reach Ithaca, after 20 years of absence, he finds his palace full of suitors for his wife Penelope, parasites on his wealth. Disguised as a beggar and aided by his son Telemachus and the swine herder, he kills all the more than 100 suitors and seeks to reclaim his long lost wife Penelope, who has remained loyal to him. Penelope who had been fending off these suitors for twenty years, was just as keen to make sure that Odysseus was who he claimed to be. Thereto she put him through a test: for him to prove that he was really the man he claimed to be. She asked her servant Euryklea to move their wedding bed for him to rest in. The real Odysseus would know that this bed was immovable. For it was carved from the stump of an olive tree. No human being could possibly move it.^{ix}

Penelope: "Come, Eurykleia,
move the sturdy bedstead out of our bridal chamber—
that room the master built with his own hands.
Take it out now, sturdy bed that it is,
and spread it deep with fleece,
blankets and lustrous throws to keep him warm."

Odysseus: "Woman—your words, they cut me to the core!

Who could move my bed? Impossible task,
even for some skilled craftsman—unless a god
came down in person, quick to lend a hand,
lifted it out with ease and moved it elsewhere.
Not a man on earth, not even at peak strength,
would find it easy to prise it up and shift it, no,
a great sign, a hallmark lies in its construction.

There was a branching olive-tree inside our court,
grown to its full prime, the bole like a column, thickset.
Around it I built my bedroom, finished off the walls . . .

Then I lopped the leafy crown of the olive,
clean-cutting the stump bare from roots up,
planing it round with a bronze smoothing-adze—
I had the skill—I shaped it plumb to the line to make
my bedpost, bored the holes it needed with an auger.

Working from there I built my bed, start to finish..." (Book 23, lines 198–223)^x

i. Source: The History of the Olive Tree

ii. Source: Olive oil. The golden liquid

iii. Source: Olive Oil History

iv. Source: Olive World

v. Source: The History of the Olive Tree

vi. <https://en.wikipedia.org/wiki/Olive>

vii. 'Olive Oil History', in 'Made in South Italy'

viii. *Mystique Melodies*, p. 85, by V.I. Porter, 2018

ix. Source: <https://www.sparknotes.com/lit/odyssey/quotes/symbol/the-wedding-bed/>

x. Idem.

Sources:

<https://www.internationaloliveoil.org/olive-world/olive-tree/#:~:text=The%20wild%20olive%20tree%20originated,Europe%20as%20its%20source%20area> .

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Missing the forest for the trees: busting the myth of increased forest cover

Pandurang Hegde

The biennial India State of Forest Report (ISFR) for 2021, prepared by Forest Survey of India (FSI), was released by the Minister of Environment and Forests and Climate Change. It claimed that tree cover in the country has increased by 2261 sq kms since the last assessment in 2019. The total tree cover is almost 25 % of the land area, or 81 million ha, still 8 % short of the mandatory 33 % to provide ecological and economic security to the country. The minister further said that the Narendra Modi-led government's focus was to 'enrich the forests qualitatively.'

The unique feature of the 2021 report is the mapping of 'climate hotspots' and identifying those areas that will experience extreme weather changes in the coming years. Accordingly, it has predicted the increase in ambient temperatures in Himalayan regions including Ladakh, Uttarakhand, Himachal Pradesh and Jammu and Kashmir. The north eastern region and Western Ghats will experience heavy rainfall. This clearly indicates the need to have dense forest cover in these regions to build climate resilience strategies.

Curiously, each of the ISFR reports since 1987 have claimed that the forest cover is increasing. The one in 2019 reported an increase of 3976 sq kms over 2017. These reports are collated using remote sensing data and 'ground toothed' in 3414 locations to confirm the findings. Between 2009-2017 India's forests have apparently increased by 2 million ha.

The ministry claims that the current assessment has an accuracy level of 92%, with respect to internationally accepted accuracy standards. Nevertheless, the authenticity of these findings is doubtful and raises serious doubts about the real status of forests in the country.

The headlines of increasing forest cover get good media coverage. But the devil is in the details that reveal the true story. Like the previous reports, the 2021 report too has confirmed that the forest cover in tribal districts has been decreasing, with 655 sq kms lost since 2019. Similarly, all the hill districts have lost 902 sq km of forests, compared to 2019, which recorded an overall increase of 544 sq kms. The biggest loss of forest cover, of 1020 sq kms, is in the north eastern regions, mainly in Arunachal Pradesh, Manipur, Nagaland, Mizoram and Meghalaya.

Obviously, the tree cover is disappearing faster in the areas that are ecologically fragile. In both hilly and tribal areas, the standing tree cover of old growth forests play a crucial role in building the ecological and economic security by providing livelihood opportunities to 250 million people of forest dwelling communities. Recent changes in the environment laws have opened up these fragile regions in tribal hinterlands for extractive industries. In the north east hundreds of hydro power projects pose serious threat to forest cover.

Forest or plantations?

Though the methodology of assessing forest cover adopted by the FSI may provide favorable results, we need to address some fundamental issues with regard to the assessment. The satellite imagery may show the percentage of canopy cover as very dense, moderately dense, or show open forests. At present the very dense areas occupy a meagre 3 % of India's geographical area. Obviously, this figure indicates the presence of old growth forests, of natural ecosystems that are rich in biodiversity and have the capacity to regenerate soil and water.

However, the ISFR data includes those areas that have tree cover but does not represent the true nature of forests. These includes plantations, mostly mono culture plantations, which are 'timber mines' that fail to meet the ecological functions of natural forests.

For example, in the Western Ghats, the satellite imagery shows forest cover as 35 % whereas in reality the dense natural forest cover is less than 10 per cent. In order to maintain the ecological health of the hill regions of the Western Ghats and to provide water security to the South Indian states, the absolute minimum requirement of forest coverage is 66 per cent.

Data from remote sensing, with erroneous definitions of what forest cover is, can be put into use to support the claim of the government of increased forest cover over the years. But the reality is so stark that deception cannot hide ground truths. India has lost 1,22,748 ha of primary forest during 2014-18. The changes in environment laws have led to increased deforestation at unprecedented levels.

Over the years the present government has systematically weakened the institutions that represent a robust democracy. Following the same ideology, it has diluted the Forest Conservation Act 1980 that laid a solid foundation to conserve the remaining natural forests in the country.

The present government needs to realize that the narrative of building a strong nation is feasible only through protection and conservation of primary forests that provide national security through provision of water and soil, the basic assets of mankind.

Pandurang Hegde is an activist based in Sirsi, Karnataka, and the founder of the Appiko movement.

Time Traveling in the Grand Canyon

Alan Johnson

Hiking down the sides of a steep canyon—any canyon, but especially the Grand Canyon of Arizona—requires some concentration. A misstep here or over-leaning selfie there can send you over the side of the trail. More dangerous than this, though, is the false sense of confidence this winding, gentle descent can induce. This is not so bad, you think. You can see, far below, the silvery thread of the Colorado River, glittering like a promise. At this point, as you luxuriate in the multicolored layers of sedimentation—ochre, brown, gray, often green with vegetation—that loom above and below.



Your limbic self refuses to acknowledge what your cortex knows, that descending 1,460 meters on this 11.4-kilometer trail in just four hours means that you will then have to ascend—but no, mustn't think about that. You will not now, as the river grows larger and larger, contemplate the relentlessly upward return in the afternoon, when your existence will be stripped down to the pure, concentrated effort of putting one foot in front of the other.

You will not think this because you will first enjoy your time travel, moving through strata of rock and soil cut by water and erosion over millions of years. Tiers of gneiss, limestone, granite (and other igneous rock), shale, and, at the top, the reddish sandstone distinctive of northern Arizona—these all shimmer around you like layers of an enormous trifle pudding. Geologists place these into broad groups, with the Vishnu Basement Rocks at the bottom, so named in 1882 by a U.S. Geological Survey member who likened a particular formation in the Canyon to a Hindu temple. These rocks formed some 1.84 billion years ago, as compared to the newcomer at the top, which is 270 million years young.

You are also descending through no less than five different ecosystems, each favored by a wide variety of mammals (including black bears, cougars, and big horn sheep—see photo), birds (bald eagles, condors, peregrines, etc.), and reptiles (mainly lizards and snakes). Flora are equally diverse, ranging from sagebrush, ocotillo and yucca to piñon-juniper and pine. At some point, someone thought the Indian peacock would look nice amongst all of this, and so they, too, have made it home. But human intervention, as we know, is rarely harmless: several species, including river otters and leopard frogs, have not been seen for the past couple of decades. The Grand Canyon is truly immense—446 kilometers in length, up to 29 kilometers wide, and 1,857 meters deep—and incredibly old, and yet just a few bipeds, with large crania but imbecilic judgement, have managed to alter it in a single human lifespan. You think of the big horn sheep that did not flinch as you passed within three feet of it on the trail, and you wonder if perhaps it should not be so trustful.

But this is not on your mind today. When you finally reach the Colorado River, the sight of its blue and white water, though lower than in the past (owing to Southwestern America's now-chronic drought), is almost enough to quench your thirst. You cross the suspension bridge, pass by the stone ruins of a 1,000-year-old Pueblo building, and in half a mile arrive at Phantom Ranch, a complex of cabins designed and built exactly a century ago by the legendary Mary Colter. Hikers and runners (yes, some run the Canyon) congregate for a welcome rest. You can buy meagre refreshments, carried in daily on mules, which must also carry out the Ranch's waste. You gain new respect for these allegedly stubborn ungulates, to whom you've given right of way on your way down, each mule train led by a human on horseback.



The Pueblo ruins here are not the only evidence of the Canyon's past inhabitation by Indigenous peoples. For instance, a third of the way along the climb back up, on the Bright Angel Trail that curls and zigzags ever higher, is Indian Garden, so named because Havasupai Indians once farmed the riparian habitat seasonally, until they were forcibly evicted in 1919, when the Park was established. It is sacred ground for the Havasupai, who have recently persuaded the Park Service to rename the rest area Havasupai Garden. Native peoples have called the Canyon home for centuries, and many, besides the Havasupai, still do: Navajo, Yuman, and Hualapai. The Canyon figures powerfully in the traditions of other nations as well, such as the Southern Paiutes.

Up and up you go, legs weary and lungs starving. The air thins in the last two miles or so of the 7.8-kilometer trail, and it is at this point, as the sun drops and a chill descends, that you wonder what the hell you were thinking when you agreed to this. Your friend Tom, the ultra-marathoner, is fit as a fiddle, but he stays with our other, less-conditioned companion Pete, whose spent body is (like yours) cursing his judgement. A coworker had begged Pete not to undertake this adventure because, in her words, borne of years of trekking experience, "You're not prepared." She cited well-known statistics to dissuade him, such as that each year, hundreds of hikers—dehydrated, injured, or unconscious—must be rescued. She had tried to foist a book on him called *Life and Death in the Grand Canyon*, written by two Search and Rescue team members, that chronicles many such deadly incidents. (You and Tom spotted a copy of this book in your guestroom yesterday, and wisely hid it from Pete's worried eyes.)

The last half-kilometer of the trail is the worst: treacherously icy, exhausting, seemingly endless. And then, miraculously, after a final hairpin, you crest the Canyon's rim and step onto pavement. In the glow of the setting sun, families chirp and coo to one another as they gaze out at the layered hues. You have more important things to attend to, such as drinking your last gulp from your two 1-liter bottles and finding a toilet. A few moments later, right at dusk, Tom and Pete appear like apparitions from another world. And in a sense, we have all traveled through other realms and times. More precisely: ten hours over 35 kilometers, down to and back from a thin ribbon of river, hugging canyon walls that measure large chunks of the earth's 4.5 billion years. But as all of you find the parked car and begin the 90-minute drive back to your rooms, your mind is occupied with loftier thoughts, such as where you can buy a bottle of beer.

The Beothuk Story – a film review

Felix Padel

The Beothuk Story is directed, written and produced by Christopher Aylward. Cinematography: Mario Antognetti; company: Zamura films, Canada; released September 2021; 76 minutes long.

The Beothuk Story is a film that takes one straight into a profound debate about the nature of indigenous identity, confronting the ubiquity of cultural racism that indigenous people meet, as well as the vast, beautiful landscape of eastern Canada and some terrible unknowns in its history.

The Beothuk are (or were) the indigenous people of Newfoundland. Conventional history says that 'the last Beothuk' died in 1829. Her name was Shanawdithit, niece of Demasduit [picture]. Sadly – according to this conventional history - the French brought in members of the Mi'kmaq tribe from Nova Scotia who exterminated them as bounty hunters. There are no Beothuk left.

This film is based around interviews with a wide range of people, most of whom identify as Beothuk, Mi'kmaq or Innu, who have grown up with this conventional history and call it a total lie. They counter it with outspoken humour and heartfelt analysis that in itself is the strongest indicator of the indigenous identity that (despite the racism!) they embrace.

Demasduit's infant died within days of her capture, and she herself died only a few weeks later, on a boat that was supposed to be taking her back to her home in January 1820. The official version is that she died of TB. This is what was said by Peyton and Lt David Buchan, who was transporting her. Several interviewees in the film point to the fact that a postmortem showed a perimortem fissure in her skull and believe she was murdered.

To summarise, there was indeed an attempted genocide, but the primary culprits seem to have been a small group of English settlers around a certain influential man called John Peyton. Some settlers seem to have got on quite well with Beothuk, but Peyton and those close to him considered Beothuk their competitors, over salmon especially, and probably considered the Beothuk as wild Indians who'd be better off extinct. Peyton was fishing intensively, and making his fortune partly by exporting salmon, while the Beothuk were near starvation at this point in the early nineteenth century, having already experienced 250 years of European settlement. The expedition where Demasduit was captured was motivated by Peyton recovering his boat from a group of Beothuk who had apparently taken it.

To put it bluntly, many settlers captured or married Beothuk women, which is why many Newfoundlanders have Beothuk ancestry. Some recognise this with pride. But they grew up facing intense racism as 'indians' or 'mixed race'. Many nevertheless preserve powerful memories of Beothuk grandparents. Some of these still spoke Beothuk into the 20th century, and remembered Beothuk living on the land in community. The film shows many aspects of the culture these people preserve – superb techniques of leather work and wigwam construction among others.



Demasduit portrait by Lady Hamilton

Demasduit was captured by John Peyton in 1819. Fleeing with her infant, she showed her pursuers her breasts to avoid being killed, showing that she was a feeding mother. Her husband Nonosbawsut, leader of the band, was killed by Peyton when he came back to negotiate her release. Killing Beothuk had recently been made illegal so Peyton was tried for this killing in St John's (capital of Newfoundland), but acquitted on the grounds that he hadn't done this in 'malice'.

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Shanawdithit was taken to St John's in 1823, with her mother and sister, who died soon of TB. Shanawdithit survived several more years, learning English and speaking to those who were interested about her people. Some of this time she had the status of an 'unpaid servant' in John Peyton's household, before apparently dying of the same disease.

As for the Mi'kmaq, they cherish memories of living alongside Beothuk in peace. Moreover, the Beothuk didn't just 'disappear'. The evidence presented by several speakers suggests that many merged into Mi'kmaq communities, while others migrated to Labrador or Nova Scotia. The pre-European history was by no means static. Indications are that Beothuk may be a branch of the Innu people from Labrador, who spread over a huge coastal area, and that many Beothuk returned to relatives there when life among European settlers in Newfoundland became intolerable. Other Beothuk, and certainly some of their descendants, migrated to Nova Scotia.

The interviews for this film are extraordinarily frank and expressive, full of humour as well as outrage, and give an insight into the challenges and complexities of indigenous identity throughout North America. The interviews took place in Nova Scotia and Labrador as well as Newfoundland.

If the idea that no Beothuk exist is outrageous for people with Beothuk ancestry, who identify as Beothuk, the idea that Beothuk still exist is anathema to others, including Ingeborg Marshall, who wrote the standard book on the Beothuk (1998). In her own interview in the film, she reiterates that there are no surviving Beothuk – that they may have an eighth ancestry, but the culture is gone. The testimony that the Beothuk culture did not die is the humour and resilience of the many interviewees who identify as Beothuk.



Ardy Landry, descendent of Demasduit, still from The Beothuk Story by Mario Antognetti

The circumstances of the Beothuk, and European settlers in Canada from the 1550s up to 2022 are obviously very different from the tribal situation in India, but the cultural racism is similar. One parallel is with the inhabitants of the Andaman Islands, which were first settled when the British created their infamous penal colony there to send men convicted in the great 'Mutiny' of 1857. The 'Battle of Aberdeen,' in May 1859, seems to have wiped out resistance from the Great Andamanese tribes within a few years, and their number has now dwindled from at least 15,000 to fewer than 100, while the Jarawa are in a state of cultural disarray, numbering perhaps 300.

One similarity is how the voices of the Andamanese are never heard. At a conference about their situation in December 2014 at Port Blair, I was one of many anthropologists and other speakers, including the newly appointed Lt-Governor of the Andaman and Nicobar Islands. A couple of Great Andamanese women were present, but neither was invited to speak, and one local speaker from Port Blair spoke up about how another Great Andamanese woman had apparently been prevented from coming and speaking by the authorities.

The outrage is that the cultural racism is still so extensive, evident for example in so many tribal schools in India that prohibit or mock the use of tribal languages and make children ashamed of their cultures. The good news is that in so many countries, indigenous identity is reasserting itself. In New Zealand people are now proud of their Maori ancestors. In many Latin American countries, populations who identified as 'mestizo' to minimize the racism are rediscovering their ancestral tribes. And in Newfoundland, Beothuk are asserting their identity after a period of long denial...

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The Gateway to paradise

B. Satheesh Muthu Gopal

If I can find the Bar-headed Goose, the Peregrine Falcon, the White-rumped Shama and many other endemic bird species of the Western Ghats in one location, I would certainly call that place Paradise.

Thekkanthottam is located at the foothills of Palanis. The semi-deciduous forest, with the Palar - Porunthalar dam to the northwest, provides a good habitat for many bird species. The dam was built across the rivers Palar and Porunthalar which originate in the Palani hills. After the northeast monsoon, the dam attracts many migratory birds. The Bar-headed Goose (*Anser indicus*) and the Eurasian Green-winged Teal (*Anas crecca*) spend the winter here. The birds can be seen either from the watchtower built by the forest department at the ghat road or by walking into the forest with permission from the department. Those who want to go bird watching on foot need to cross the canal which brings water from the hills, some of it being the drinking water of Palani municipality.



There is a small temple at the entrance of the forest. The huge fig trees at the entrance to the forest attract many birds and mammals. The broad wall built by the British along the canal directs the water for irrigation to nearby villages. The wall is not so high, so it is easy to walk on it to watch birds at eye level. Since the forest was declared a wildlife sanctuary in 2013, the forest gets more protection. Of late the movements of mammals are seen. The Grizzled Giant Squirrel, the Bonnet Macaque, the Grey Langur, the Indian Gaur, the Sambar Deer, wild pigs and Asian Elephants are not uncommon in recent years.

The trusted spots for sighting Dholes and Leopards are also notable. Once I saw a herd of Chitals moving back to the forest from the dam.

Thekkanthottam is one of the unique places where four different types of migratory wagtails are seen. The Grey Wagtail, the Forest Wagtail, the Yellow Wagtail and the Citrine Wagtails come here, in addition to the resident Pied Wagtail. The Indian Paradise Flycatcher and the Tickells Blue Flycatchers are common and can be found all around the year. The ground-living birds like the Peafowl, the Grey Jungle Fowl, the Painted Spurfowl and the Red Spurfowl can be seen in the same forest. The fowls govern the land, while the raptors rule the sky.



I have observed the Osprey, the Lesser Fish-eagle, the Rufous Belied Eagle, the Short-toed Snake Eagle, the Bonin's Eagle, the Oriental Honey Buzzard, the Crested Serpent Eagle and the Peregrine Falcon. In addition, there are Pipits, Bulbuls, Sunbirds, Orioles, Woodpeckers, Robins, Thrushes, Shrikes and other forest species in this habitat in the forest. The backwaters of the dam and the grazing areas are perfect habitats for Storks like the Woolly-necked Stork, Painted Stork and Open billed Storks.

We watched ospreys in winter. They are found in all the continents except Antarctica. They are fish-catchers and well known for their hunting technique. I have seen it once in Pulicat lake near Chennai. They prey on fish from the sea as well as freshwater. Thekkanthottam must be a good habitat for osprey as the forest and dam are very close by. But these dams restrict the water flow during some periods of the year, the habitat for osprey would have been impacted.



The Lesser Fish Eagle (*Haliaeetus humilis*) is also dependent on fish but unlike ospreys they depend on freshwater fishes. Lesser Fish Eagles can be found in some parts of Western Ghats and the Himalayas in India. This eagle can be found in most of the countries of south-east Asia and I have seen this once in the Cauvery Wildlife Sanctuary which probably indicates that the quality of water is good. Unfortunately, their population is declining according to the IUCN, due to loss of habitat. If the freshwater streams are polluted continuously, this species will be pushed to brink of extinction. There is a musical bird which can be seen in this terrain called White-rumped Shama (*Copsychus malabaricus*), commonly found in healthy forest areas of southeast Asia. It is well known for its song. I have seen them several times along streams in dense forests. The Tamil name for this bird is Solaipadi, and refers to the behaviour of the bird, as it sings in dense forest areas.

The Jungle Owlet (*Glaucidium radiatum*) is a perfectly camouflaged bird found all around the year. They can be found either when they fly or when they call. They are difficult to spot when still. I once saw one in the summer, before the first rain. The teak trees were

shedding their leaves and the forest was an open enough to spot birds even from afar. I saw a jungle owlet fly and perched on eye level on a bare tree.

Though nature provides a suitable habitat for many creatures, there are huge disturbances from humans. The Palani Ghat road is a noisy one, used and littered by tourists without any care for the environment. I once came across a Grizzled Giant Squirrel that had been overrun. The honking of the traffic causes high decibel levels that can be heard deep in the forest. The government should limit the traffic to the hills according to the carrying capacity. All the vehicles should be scrutinized to avoid carrying plastic bags to the hills. Grey Langurs and Bonnet Macaques are gathering at the roadside and waiting for the travellers to feed.

Until we take the responsibility to protect our paradise, do we really deserve to enter?



A Grizzled Giant Squirrel killed by traffic

B. Satheesh Muthu Gopal is a member of the Palni Hills Conservation Council and a bird enthusiast

Nature Notes



Silk-worm moth and cocoons



*A litter of fish-tail palm (*Caryota urens*) flowers*



Nephila pilipes spider, weavers of large webs



Pavetta indica

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