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VANA PREMI

Nav Se Navvey Saal Tak Ke Bachhon Ka Saathi

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Vanapremi wishes it's readers a happy Diwali

The Flying Lizard (*Draco dussumieri*)
Muthanga Wayanad,
Keralam, May 26

Photo Credit : Indaram Nageswar Rao, OWLS

JOURNAL OF THE ASSOCIATION OF RETIRED FOREST OFFICERS, TELANGANA & ANDHRA PRADESH
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- The TGFDC has undertaken the ambitious task of developing Eco-Tourism activities within the State. Existing attractions open to the public include the Botanical Garden, Vruksha Parichaya Kshetram, Virtual Wildlife Safari and Pala Pitta Cycling Park in Kondapur, the Mahavir Nischalvan Eco-Tourism Centre in Vanasthalipuram, Aranya at the Shameerpet Deer Park, and Mrugavani at the Chilkur National Park. These initiatives are proving to be highly appealing, resulting in a growing influx of visitors.
- The TGFDC has also developed urban parks at Lalgadi Malakpet (Vanadrushyam), Thumkunta (Veduru Vanam), Gowdelli (Chandanavanam), and within the Chilkur Reserve Forest (Forestrek Park).
- The TGFDC has introduced new commercial species within the Regional Ring Road region, including Seethaphal, Sandalwood, Red Sandalwood, Rosewood, Teak, and *Casuarina Junghuhniana*, among others.
- Corporate Social Responsibility (CSR) Initiatives 2021–2025: Empowering lives through the distribution of three-wheeler scooters to the differently-abled, support to schools with sports kits and furniture, and establishment of modern pre-fab health sub-centers — driving inclusive growth with care, commitment, and compassion.
- Eco-Tourism projects have been launched at various locations under the brand name of "Deccan Woods & Trails".

Smt. Sunita M. Bhagwat, IFS
Addl. Principal Chief Conservator of Forests
Vice Chairman & Managing Director (FAC)
Telangana Forest Development Corporation Ltd.,
(A Government of Telangana Undertaking)

VANAPREMI

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An English monthly on forestry, wildlife, environmental issues, and topics of general interest that blends in-depth knowledge with engaging content for all age groups.

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Please consult the Associate Editor.

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From the Editor's Desk...

Namaste to all Vanapremi readers!

Greetings for a Bright & Safe Diwali (Deepavali) and Greetings on Goverdhan Puja, Bhai Dooj, Chhath Puja and Guru Nanak Jayanti.

Of all the news that are dominating the world today, news about the impending Super El Nino (dubbed as Godzilla) are the most worrying. In the past,super El Niños occurred in 1877–1878, 1982–1983, 1997–1998, and 2015–2016. The 1877–1878 super El Nino remains the strongest unless the 2026 event surpasses it, as predicted. The adverse effects are expected to be devastating for both human and animal/ plant kingdom.At individual and family level, we can all try to mitigate the effects by: saving water/re-using it; saving electricity/adopt renewable sources; consume food that requires less water to grow; take adequate precautions for the safety of children and the elderly. World Vegan day (1st), Tsunami Awareness day (5th), World Children's day (14th/20th), World Science day for Peace & Development (10th), World Kindness day (13th), International day for Tolerance (16th) all could be combined to practice in the context of the super El Nino 2026-27.

Environment is becoming a mute scapegoat in conflicts and wars. Bombing of dams and consequent flooding, destroying oil tankers in sea/Oceans, bombings causing wide-spread forest fires, intense air pollution etc are serious causes of concern across West Asia, Europe and Latin America. The International day for preventing exploitation of Environment in War and Armed Conflicts (6th Nov) is observed more in violation than in honoring it.

This month's Vanapremi carries a series of articles with historical perspective on forests and forestry: Forests of the Empire…., Kasturirangan report on Western Ghats, Listening to Forest Landscapes…., Legacy of Colonial Forester, C.R.Ranganathan, the Father of Dual Climax ecological theory, Vriksho Rakshati Rakshitaha, among them. There is a curtain-raiser on the forthcoming CoP on Biodiversity and a Perspective on Sacred Groves in Keralam. A travelogue on Scotland's landscape and biodiversity, Twists in Shakespearean Tales, Industrial agro-forestry as a green-bank for farmers, are some of the articles different from the routine. In the changing times, the role of the forester is also changing. An article on 'from rule-book to role' details out the whole context and the steps for change. Constitution day is observed on the 26th Nov and late Dr.A.Kishan's article on the debates in the constituent assembly on the Directive Principles is a relevant reminder to every citizen and government on the need to act on 'principles that are more moral than justiciable'.

Legal Notes and Green Quiz continue to tease and test your knowledge.

The association and Vanapremi express deep condolences, through an Obituary, to the bereaved family of late Dr.Akula Kishan, IFS (Retd), a competent forester and an expert legal luminary. Om Santhi!

Happy reading…….

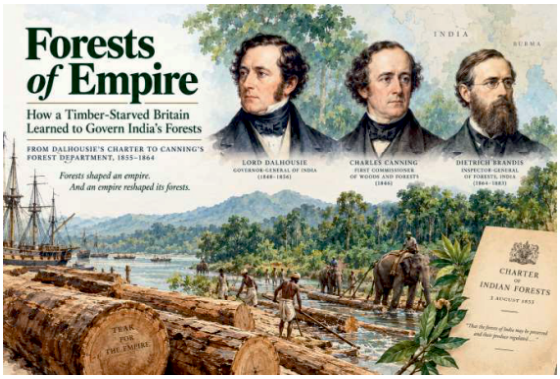
Dr.K.Tirupataiah,IFS (Retd), Editor



Forests of Empire: How a Timber-Starved Britain Learned to Govern India's Forests

From Dalhousie's Charter to Canning's Forest Department, 1855–1864

Dr.H.S.Gupta



A Peculiar Kind of Hunger

By the middle of the nineteenth century, Britain faced a problem it had helped create: a growing shortage of timber. Centuries of shipbuilding, ironworking and agricultural clearance had reduced the island's accessible woodlands. The oak forests that had once supplied the Royal Navy's "wooden walls" survived only in scattered patches, while many remaining woods were administered chiefly as estates, parks and sources of revenue rather than as scientifically managed forests.

The empire acquired in part to overcome Britain's resource constraints soon confronted a similar crisis in India and Burma. Teak-rich forests were being felled for ships, railways and construction, often without adequate regeneration. Britain's response was paradoxical: it attempted to impose a systematic forest regime in the tropics despite having no comparable professional forestry tradition at home. The technical knowledge that made this possible came largely from continental Europe, especially Germany and France.

This is the story of that institutional transplant—and of Lord Dalhousie, Charles Canning and Dietrich Brandis, whose roles were important but fundamentally different.

The Bureaucrat's Forest

To understand what a "forestry" appointment meant in Britain during the 1840s, one must look at the office itself. The Commissioners of Woods, Forests and Land Revenues had been created in 1810 by bringing together older Crown offices. Their principal responsibilities were administrative and fiscal: managing royal parks and estates, supervising land revenues and regulating the disposal of timber.

By the 1830s, the office had acquired wider responsibilities for "Woods, Forests, Land Revenues, Works and Buildings." Public works and buildings increasingly occupied its attention. The Crown Lands Act of 1851 subsequently separated the management of Crown lands from the administration of public works.

The office's occupants were generally politicians and senior administrators rather than trained foresters. Their careers moved through ministries, departments and parliamentary appointments; silviculture was not a professional requirement. The title "Woods and Forests" therefore conveyed little about technical knowledge of forest ecology, regeneration or sustained yield.

Charles Canning illustrates the distinction. In 1846, during the closing months of Robert Peel's ministry, he served briefly as First Commissioner of Woods and Forests before moving on to other high offices. His appointment was connected with the management of Crown property and

administration, not with the scientific practice of forestry.

That distinction matters. Canning possessed a forestry-related title, but not a forestry education. The institutional machinery that later developed in India was not the product of an established British forestry profession waiting to be exported overseas.

Dalhousie's Charter

While Canning was moving through British administrative offices, officials in India and Burma were confronting the consequences of uncontrolled timber extraction. Commercial felling had expanded rapidly, particularly in teak forests, where demand from shipbuilding and other imperial enterprises was intense.

John McClelland's reports on the Burmese forests in 1855 drew attention to destructive felling and proposed practical remedies. These included reserving forest areas, regulating extraction and marking individual trees for felling rather than allowing merchants unrestricted access. Such measures sought to make timber extraction compatible with the continued production of timber.

Lord Dalhousie, Governor-General from 1848 to 1856, responded to this developing body of field knowledge. On 3 August 1855 he issued the memorandum commonly known as the **Charter of Indian Forests**. It called for forest conservancy, state supervision and the regulation of felling. The Charter is widely treated as a foundational document in the history of scientific forestry in India.

Its central logic was that forests should not be treated as an inexhaustible supply of timber. Felling had to be regulated, mature trees selected and regeneration considered. In later decades, this approach developed into working plans that attempted to calculate the growing stock, rotation period and permissible annual yield of particular forests.

The Charter, however, should not be mistaken for an ecological conservation law in the modern sense. Its immediate purpose was to secure a continuing supply of commercially valuable timber for the colonial state. The language of conservation and scientific management served both resource protection and imperial extraction.

Brandis and the Imported Science

Dalhousie's policy required people capable of putting it into practice. Britain had no sufficiently developed professional forestry service, so the colonial administration looked to continental Europe.

Dietrich Brandis, a German-trained botanist and forest scientist, was appointed Superintendent of the teak forests of Pegu in 1856. His work involved surveying forest resources, regulating felling and developing methods for ensuring a future supply of teak. His report on the teak forests of Pegu proposed systematic divisions, planned felling and long- term management rather than indiscriminate extraction.

Brandis's Pegu work was important not simply because he introduced European forestry ideas, but because those ideas had to be adapted to unfamiliar tropical forests. He was not applying a ready-made formula without modification. Forest composition, growth rates, regeneration patterns, monsoon conditions and local labour systems all required investigation.

In 1864, Brandis became the first Inspector General of Forests in India. His appointment marked the creation of a central institutional framework for forest administration across British India.

The system that emerged was therefore a hybrid. Its concepts came from European scientific

forestry; its early experiments took place in Burma and India; and its officers had to develop methods for tropical environments that European forestry textbooks did not adequately describe.

A Colonial Paradox

The history contains a striking paradox. Britain had depleted much of its accessible timber and possessed no mature professional forestry service, yet its colonial government helped create one of the world's most influential systems of state forest management.

This was not because Britain had perfected forestry at home. It was because the colonial state was willing to recruit expertise from elsewhere. Brandis's arrival was followed by the recruitment of other German-trained or continental-trained officers, including William Schlich and Berthold Ribbentrop. Later, institutions associated with Coopers Hill helped train officers for imperial forestry.

Scientific forestry in India thus preceded the development of a comparable British forestry profession. Knowledge travelled in an unusual direction: from German forestry schools to Burma and India, and from the colonial experience back into British forestry education.

The empire did not merely export British expertise to India. In important respects, it assembled a new forestry administration in India by combining imperial authority, continental science and local field experience.

Canning's Role

Where, then, does Charles Canning belong in this story?

The evidence suggests that Canning was a custodian and institutionaliser rather than the originator of scientific forestry in India. When he became Governor-General in 1856, Dalhousie's Charter had already been issued and Brandis had begun work in Pegu. The central policy direction and the principal technical appointment were already in place.

Canning's importance lay elsewhere. He governed during the upheaval of the 1857 Rebellion and the transfer of authority from the East India Company to the Crown in 1858. Despite that disruption, the forest agenda survived. In 1864, during his tenure as Viceroy, the Imperial Forest Department was formally established and Brandis was appointed its first Inspector General of Forests.

The distinction can be stated simply:

Figure	Principal contribution
Lord Dalhousie	Initiated the policy framework through the 1855 Forest Charter
Dietrich Brandis	Supplied technical expertise and developed practical forest-management systems
Charles Canning	Preserved administrative continuity and helped formalise the Forest Department

Dalhousie is therefore rightly associated with the beginning of scientific forestry in India, while Canning is better understood as the administrator under whom the emerging system acquired durable institutional form.

Conservation and Control

The new forest administration was not designed primarily around the rights and livelihoods of forest-dependent communities. Its central objective was to regulate forests as state- controlled resources

and to secure a reliable supply of timber for imperial purposes.

This created a deep conflict. Communities that had grazed animals, collected fuelwood, gathered minor forest produce and cultivated land under customary arrangements increasingly found their practices subject to official permission. Rights were often reframed as privileges granted by the state rather than as longstanding claims recognised by law. Later legislation, particularly the Indian Forest Acts of 1865 and 1878, strengthened state control and narrowed the space for customary use.

The language of **"scientific"** and **"sustainable"** forestry therefore carried an ambiguity. In one sense, the new system sought to prevent the exhaustion of commercially valuable forests. In another, it made forests more legible, governable and profitable for the colonial state. Sustainability was frequently defined in relation to the state's future timber supply rather than to the full ecological and social life of the forest.

The Larger Lesson

The origins of organised forestry in India reveal a division between political authority, technical expertise and administrative continuity.

Dalhousie recognised the need for state intervention and set the policy in motion. Brandis translated European forestry science into a programme for tropical forests. Canning ensured that the programme survived political upheaval and acquired a permanent administrative structure.

The story also cautions against treating "scientific forestry" as a neutral or purely ecological project. It represented a genuine advance in forest measurement, planning and regulated felling, but it was embedded in colonial priorities. The same system that attempted to secure regeneration and control destructive extraction also restricted community use and strengthened the state's monopoly over forest resources.

The enduring lesson is not that conservation and extraction were opposites in colonial forestry. They were often joined together. The forest was to be protected—but protected as a productive asset of the state. Its future mattered because the empire required a continuing supply of timber, revenue and administrative control.

That is why the history of Indian forestry cannot be reduced either to a story of scientific progress or to a story of colonial exploitation. It was both: a technically ambitious system of forest management, built through international knowledge, and an instrument for reorganising people's relationships with the forest.

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Continue to Evolve

No one is born a good citizen; no nation is born a democracy. Rather, both are processes that continue to evolve over a life time. Young people must be included from birth. A society that cuts-off from its youth severs its lifeline

- Kofi Annan, former UN General Secretary



Dr.K.Kasturirangan Report on Western Ghats

(Pros of Acceptance & Cons of Rejection by Karnataka)- Part-1

BMT Rajeev

Preamble:

I. Western Ghats (Sahyadri) of India is the mountain range running parallel to India's western (Arabian Sea) coast, about 30–50 km inland over a length of approximately 1,600 km starting from the Tapti River valley (Gujarat–Maharashtra border) in the north to Kanyakumari (Tamil Nadu) in the south. It is spread in six states: Gujarat, Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu over an area of roughly 140,000–160,000 km². The Average elevation is around 1,200 m; highest peak is Anamudi (2,695 m) in Kerala (highest in South India) and interrupted by the Palghat Gap (~30 km wide) near 11°N.

Geological and Climatic Importance of the Western Ghats: It is older than the Himalayas; a major geomorphic feature of the Indian peninsula. Itacts as **a barrier that intercepts southwest monsoon winds, strongly influencing rainfall patterns and moderating the climate of peninsular India** and forms one of India's major watersheds; rivers originating here drain nearly 40% of the country's land area.



Pic: Jog falls (Sharavati)Karnataka

Rivers originating from the WGs are- East-flowing (longer, drain into Bay of Bengal): **Godavari, Krishna, Kaveri** (Cauvery) and their tributaries (e.g., **Bhima, Tunga, Bhadra**)-very important for irrigation, drinking water in the arid zones. **The West-flowing** are (short, steep, fast-flowing into Arabian Sea): **Mandovi, Kali, Sharavati, Netravati, Bharathappuzha,**-important for hydropower; famous waterfalls like Jog Falls in the six states: **Gujarat, Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu** etc.

Biodiversity in the WGs: It is one of the world's **eight hottest biodiversity hotspots** (Western Ghats–Sri Lanka hotspot).It is a **UNESCO World Heritage Site** (inscribed 2012) and it has exceptionally high endemism and species richness. Thousands of plant species are endemic with a high percentage of trees with high endemism among amphibians, reptiles, and freshwater fishes. At least **325 globally threatened species** (IUCN Red List) are in the WGs. Notable endemic/ flagship species are **Lion-tailed macaque and Nilgiritahr.** It contains some of the **best non-equatorial tropical evergreen forests in the world, along with moist deciduous forests, shola forests, and montane grasslands.**

Significance of the WGs: It is critical for water security, climate regulation, carbon sequestration, and ecological processes linked to ancient geological history (Gondwanaland breakup). It supports a large share of India's plant, animal, and amphibian diversity. **It faces threats from habitat loss, fragmentation, and development pressures; subject to ongoing conservation efforts and debates on Ecologically Sensitive Areas (ESA).**

II. Why was the Western Ghats Ecology Expert Panel (WGEEP) Appointed?

Then former Environment Minister **Sri.Jairam Ramesh** attended a meeting of the **Save Western Ghats movement** in Kotagiri (Nilgiris, Tamil Nadu) in **early 2010.** Concerns raised there about threats from construction, mining, industries, and hydropower led him to constitute the expert panel


Pic: Doddabetta -Niligiri

The Union Ministry of Environment and Forests (now MoEF&CC) appointed the Western Ghats Ecology Expert Panel (WGEEP), popularly known as the **MadhavGadgil Commission, in March 2010** under the chairmanship of ecologist Prof. MadhavGadgil.

The Commission was appointed because the Western Ghats -critical for India's biodiversity, climate resilience, and water resources- faced serious ecological degradation from human activities, and the government sought expert guidance on how to protect them while allowing regulated developments as it is a **UNESCO World Heritage Site** and **one of the world's eight hottest biodiversity hotspots** — and to recommend measures for its conservation, protection, and rejuvenation amid growing threats.

The panel submitted its detailed report in **August 2011**. It recommended treating the entire Western Ghats as an Ecologically Sensitive Area with graded restrictions on destructive activities, stronger local participation, and a Western Ghats Ecology Authority. The **recommendations faced strong opposition from several state governments** (citing development and livelihood concerns) and were not fully implemented; later a High-Level Working Group under **Kasturirangan** was appointed in **August 2012** to propose a milder version.

III.Details of Dr K. Kasturirangan Report:

The Kasturirangan Report (formally the High-Level Working Group on Western Ghats report, submitted in **April 2013**, reviewed the earlier Prop MadhavGadgil (WGEEP) report. **It aimed to balance biodiversity conservation in the Western Ghats with sustainable development and the livelihoods of the roughly 50 million people living there.**

***Core Principles and Approach**

i).Distinction between landscapes: About 60% of the Western Ghats was classified as **"Cultural Landscape"** (human settlements, agriculture, and plantations). The remaining ~40% was **"Natural Landscape."** Only the biologically rich portions of the natural landscape (about **37% of the total Western Ghats area**, or roughly **60,000 sq km**) were recommended for protection as **Ecologically Sensitive Area** (ESA).

ii).Focus on protecting remaining **biodiversity-rich natural forests** while excluding most inhabited and cultivated areas to reduce conflict with local communities and farmers.

iii).Use of remote sensing and scientific criteria for demarcation, with involvement of gram sabhas (**village councils**) in future decisions via prior informed consent.

iv). Emphasis on **graded restrictions** (prohibitory for **high-impact activities**; regulated for others) rather than blanket bans across the entire region.

v). Promotion of **"green growth,"** community-based approaches, and strengthening of

existing environmental clearance and monitoring frameworks.

****Key Recommendations for the Proposed ESA (~60,000 sq km)**

a).Complete ban on mining, quarrying, and sand mining. Existing mining operations to be phased out within 5 years or at lease expiry (whichever is earlier).

b).No new thermal power projects.

c).Ban on highly polluting ("red category") industries.

d).Building/**construction projects allowed up to 20,000 sq m;** larger townships and major constructions banned.

e).**Hydropower projects** permitted only under strict conditions: maintenance of at least **30% ecological flow** in lean seasons (until site-specific baselines are set), minimum distances between projects, cumulative impact assessment, and limits on the proportion of any river basin affected.

f).**Forest diversion** allowed only with extra safeguards.

g).**Infrastructure** (including transport/railway) and other projects subject to cumulative impact assessment and **careful scrutiny to minimize ecological damage.**

h).Promotion of **community ownership**-based eco-sensitive tourism.

i).**Orange-category industries** (e.g., certain food processing) to use processes that minimize environmental damage.

j).**Strengthening of monitoring** mechanisms and regional planning for sustainable development outside the strict ESA zones.

The report recommended immediate notification of the identified ESA under the Environment (Protection) Act, 1986, with state governments responsible for enforcement structures. Subsequent draft notifications by the Ministry of Environment, Forest and Climate Change have proposed slightly reduced areas (**around 56,000+ sq km** in some versions), and full implementation has faced ongoing state-level discussions and revisions.

This approach was seen as more pragmatic than the MadhavGadgil Committee's broader recommendations, 2011 (which proposed protecting a much larger portion of the Ghats with stronger overall restrictions), though it has also drawn criticism for potentially under-protecting some areas.

IV.Role of Union Government on Dr K.Kasturirangan Report:

Accepting the Kasturirangan Report (High-Level Working Group on Western Ghats, 2013) offers the Government of India a pragmatic, balanced framework for conserving a critical biodiversity hotspot while addressing development needs and state-level concerns.

The earlier Gadgil Committee (WGEEP, 2011) recommended stricter protection covering a much larger area (~64%), which faced strong opposition from states over impacts on livelihoods, agriculture, mining, and infrastructure. The Kasturirangan Committee reviewed this and proposed a more moderate approach: classifying ~37% (~59,940–60,000 sq km) of the Western Ghats as **Ecologically Sensitive Area** (ESA), focusing on remaining natural landscapes while treating the rest (~60%) as **"cultural landscape"** (settlements, agriculture, plantations).

The Union Government accepted the report in principle and has pursued draft ESA notifications based on it (around **56,000+ sq km** in recent versions), with phased progress in some states.

***Main Benefits for the Government of India**

1. Balanced conservation and development: It reduces the protected area significantly compared to Gadgil, excludes most inhabited/plantation areas, and allows regulated activities (e.g., agriculture, certain hydro projects after cumulative impact assessment, limited construction). This makes implementation more feasible amid state resistance, while still banning mining, quarrying, sand mining, thermal power plants, and highly polluting (**"red"**) industries in the ESA.

2. Water security and monsoon regulation for peninsular India: Protecting the Ghats *safeguards river originsand the mountain barrier that enhances rainfall on the western side*. This benefits agriculture, drinking water, and hydropower far beyond the six states.

3. Climate resilience and disaster risk reduction: *Healthy forests aid carbon sequestration, temperature regulation, and soil stability.* Implementation can help *mitigate floods, landslides* (e.g., Kerala 2018 floods, Wayanad 2024), and climate-related losses that impose heavy economic and human costs on the nation. Preventive conservation is cheaper than repeated disaster response.

4. Biodiversity and international commitments: *It protects endemic species, forests, and the 39 UNESCO-listed components* (national parks, sanctuaries, etc.). This supports India's obligations under global biodiversity and climate frameworks while enhancing the country's environmental image.

5. Structured policy and governance tools: *Provides a clear ESA framework under the Environment (Protection) Act, 1986, with requirements for environmental impact assessments, gram sabhas consent in many cases, and promotion of community-based eco-tourism.* It also suggests financial mechanisms (e.g., payments for ecosystem services, incentives for green growth) that the Centre can use to support states and local communities.

6. Long-term economic and livelihood advantages: Ecosystem services (*water, soil protection, tourism, non-timber forest products*) have **high economic value**. Sustainable management can generate revenue (e.g., eco-tourism) and protect farmer livelihoods against climate variability, rather than allowing unchecked degradation that harms productivity.

In short, the Kasturirangan approach gives the ***Government of India*** **a politically workable path to protect a nationally vital ecological asset** without the near-total development freeze that made the Gadgil recommendations unviable.

to be contiuned...

Author is a Retired Indian Forest Service Officer of Karnataka and a Writer & a Freelance Columnist- a recipient of Karnataka State Award for "Environment Journalism-2018", settled in Bengaluru. M- M:9632781811

Common Man

When we are sick, we want an uncommon doctor…and when we are at war, we want an uncommon general. Only in politics we are satisfied with the common man - Herbert Hoover, 31 st President of the United States of America



Listening to Forests: Soundscapes as the Voice of Ecological Integrity- Part-1

R. Hemanth Kumar

Introduction:

Forests aren't just habitats; they're the stage where the whole lifecycle of a species plays out. Protection is about preserving processes, not just land. Keeping a forest standing is step one. The real win is maintaining the ecological conditions that allow natural behaviours to persist, undisturbed acoustics, microclimates, and seasonal rhythms. Once those are broken, we lose genetic exchange, and the species drifts toward decline even in a protected area.

Biodiversity depends on intact signals, not just numbers. The fragile balance means a species can be functionally doomed long before we see a drop in population counts. If noise from roads, light pollution, or human activity interferes with mating calls or visual displays, reproduction fails even while adults are still present. That's an early warning that most monitoring systems miss because they focus on headcount rather than behaviour.

So, the takeaway is simple: conservation must protect the 'behaviour' as much as the animal. The forest is both home and courtroom, and if we disrupt the proceedings, the verdict comes later, quietly, in empty nests and shrinking gene pools.

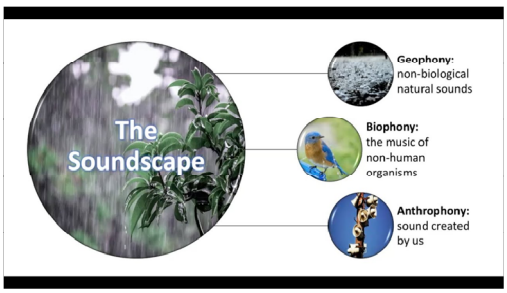

Photo Credit: Internet

Here, I feel the need to clarify the science by writing about ***Soundscape Ecology***, a new frontier in natural resource management that is rapidly gaining prominence today. In one of my professional groups some time ago, I had a healthy technical interaction when **Dr S.P. Yadav, I.F.S., Director General of IBCA**, initiated a discussion on soundscape ecology. Continuing that dialogue, I would like to collate insights into how healthy ecosystem monitoring is carried out and into the development of the concept of soundscape ecology. This essay, therefore, forms the fifth in my series on this subject.

In my earlier essays, I emphasized that protecting biodiversity requires more than population counts; it demands safeguarding the energetic and behavioral integrity of ecosystems. Building on that arc, **I now turn to a new frontier: *Soundscape Ecology.***

I am impressed by **Karen Bakker's book *The Sounds of Life: How Digital Technology is Bringing Us Closer to the World of Animals and Plants***, which highlights how **Eco-acoustics, also called acoustic ecology or soundscape studies, is rapidly transforming conservation. By listening to the environmental sounds generated by entire landscapes, we gain insights into ecosystem health that numbers alone cannot reveal.**

Imagine standing in the middle of a tropical forest: the rustle of leaves, the cries of birds, the roar of a waterfall. Together, these sounds form a soundscape. Each landscape has its own distinct acoustic signature, an ecological calling card that combines animal, plant, and even geological sounds. A healthy forest hums

with insects, resonates with bird songs, rustles with mammals, and vibrates with wind and rain. A degraded forest, by contrast, becomes acoustically impoverished.

Eco acoustics enables us to detect these subtle differences, much as a physician uses a stethoscope to hear a heart murmur. With microphones and digital sensors, ecologists can now monitor ecosystems remotely, mapping wilderness areas without ever setting foot there. As **Bernie Krause**, a pioneer of soundscape ecology, warned: ***"The voice of the natural world is rapidly falling silent."***

This essay, the fifth in my series-"Listening to Forests: Soundscapes as the Voice of Ecological Integrity", continues that dialogue, linking energy economics, behavioural integrity, and, now, acoustic ecology to show how listening to forests can help us anticipate ecological decline and safeguard biodiversity.

Before I write on this very important subject, I would like to mention a few important publications on this subject:

Key Scientific Papers

- Pijanowski et al. (2011), "Soundscape Ecology: The Science of Sound in the Landscape."
- Ross et al. (2018), "Listening to ecosystems."
- Turlington et al. (2024), synthesis on soundscape–environment relationships.
- Marcus Maeder et al. "Sounding Soil: An Acoustic, Ecological & Artistic Investigation of Soil Life"
- Almo Farina, Nadia Pieretti (2012), "The soundscape ecology: A new frontier of landscaperesearch and its application to islands and coastal systems".

Authors of Key Works

- **The Great Animal Orchestra** by Bernie Krause
- **Wild Soundscapes: Discovering the Voice of the Natural World by** Bernie Krause (Foreword by Roger Payne) Yale University Press
- **Soundscape Ecology: Principles, Patterns, Methods and Applications by** Almo Farina
- **Principles of Terrestrial Ecosystem Ecology by** F. Stuart Chapin III, Pamela A. Matson, Harold A. Mooney (with contributions by Peter Vitousek in later editions)
- **Behavioural Ecology: An Evolutionary Approach, edited** by John R. Krebs and Nicholas B. Davies
- **The Forest Unseen: A Year's Watch in Nature,** by David George Haskell
- **The Singing Life of Birds: The Art and Science of Listening to Birdsong** by Donald Kroodsma
- **The Sounds of Life: How Digital Technology is Bringing us Closer to the World of Animals and Plants** by Karen Bakker

Notes on Each Work

- **Bernie Krause** is a pioneer of soundscape ecology, introducing concepts like bio-phony and documenting how natural soundscapes reflect ecosystem health.
- **Almo Farina's** Soundscape Ecology is the most comprehensive academic text, integrating bioacoustics, landscape ecology, and communication theory.
- **Chapin, Matson, and Mooney** are leading ecosystem ecologists; their textbook is widely used in graduate ecology programs.
- **Krebs & Davies'** edited volume is foundational in behavioural ecology, shaping generations of research on sexual selection, signalling, and energy trade-offs.
- **David George Haskell** blends science and poetic observation, emphasising close ecological attention.

• **Donald Kroodsma is considered** the foremost authority on birdsong, combining rigorous bioacoustics with accessible storytelling.

• **Karen Bakker's** 353-pagebook explores how cutting-edge digital technologies, such as bio-acoustic sensors, AI, and machine learning, are revolutionising our ability to listen to and interpret the hidden communications of animals and plants. Bakker demonstrates how soundscape monitoring is uncovering rich acoustic worlds, from coral reefs to rainforests, revealing ecological health and stress in ways traditional methods cannot. It is both a scientific and philosophical work: showing how technology can bridge human perception with non-human voices, while also raising ethical questions about how we use this knowledge in conservation and resource management.

Forest Acoustics: Listening to the Health of Ecosystems

Forest acoustics, more formally known as soundscape ecology or Eco acoustics, is the science of studying the sounds of forests to understand biodiversity, ecosystem processes, and ecological health. What a physician hears through a stethoscope, an ecologist can hear through a microphone.

As the soundscape pioneer Bernie Krause observed:"The voice of the natural world is rapidly falling silent."A healthy forest is not merely green;it is sonorous. It hums with insects, resonates with bird songs, rustles with mammals, and vibrates with wind and rain. A degraded forest, by contrast, often becomes acoustically impoverished.

What Is a Forest Soundscape?

Forests are not only green landscapes; they are resonant worlds of sound. The forest soundscape is composed of three distinct elements:

1. **Biophony** – the voices of living organisms, from the songs of birds and frogs to the buzzing of insects and the calls of mammals.

2. **Geophony** – the natural, non-biological sounds of the environment, such as wind through the canopy, rainfall, thunder, or the flow of streams.

3. **Anthrophony** – human-generated sounds, including vehicles, chainsaws, aircraft, and mining activities.

This tripartite framework was formalized by **Bryan C. Pijanowski and colleagues in their foundational 2011 paper on soundscape ecology, establishing a scientific lens through which forests could be understood acoustically.**

Why Sound Is a Powerful Ecological Indicator

Sound is not incidental to ecology; it is integral. Many ecological processes are inherently acoustic:

• **Birds** advertise territories and attract mates through song.

• **Frogs** synchronise breeding choruses to maximise reproductive success.

• **Insects** generate continuous frequency bands that define the acoustic texture of habitats.

• **Elephants** communicate across long distances using infrasonic calls.

• **Predators and prey** rely on sound for detection, evasion, and survival.

Because acoustic behaviour reflects reproduction, competition, and survival, changes in soundscapes often reveal ecosystem disturbance before visual signs become apparent. A forest may look intact to the eye, yet its soundscape may already be impoverished, an early warning of ecological decline.

to be contiuned...

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The Legacy of the Colonial Forester: A Safari in Jaldapara, West Bengal

Dr.Padam Parkash Bhojvaid

There is a certain romance attached to the old colonial forester of India. The early forest officers of the twentieth century travelled deep into the wilderness, lived in remote forest bungalows, rode elephants and spent long, demanding days managing forests and wildlife. Yet they maintained an unmistakable elegance—formal manners, meticulous hospitality and a curious ability to carry the comforts of civilisation into the remotest corners of the jungle.

After joining the Indian Forest Service in 1983, I first encountered this world through books. E. P. Gee, Tucker and Jim Corbett wrote about forests and wildlife with an intimacy that made the wilderness almost tangible. Accounts by tea-estate managers of North Bengal offered similar glimpses into the lives and routines of the old forest officers. Even after Independence, some Indian officers retained these traits and were fondly described as AngrezAfsars—not so much for their outlook as for their bearing, discipline and old-world courtesy.

It was during a family visit to Jaldapara in 2003–04 that I experienced a fleeting glimpse of this vanishing tradition.

Jaldapara lies in the Dooars, at the foothills of the eastern Himalayas. Its landscape is shaped by rivers, grasslands and riverine forests, with tall elephant grass, woodland patches and streams forming a mosaic of habitats. The Torsa and its tributaries sustain an ecosystem particularly suited to the greater one-horned rhinoceros, elephants, gaur and a remarkable variety of birds.

We stayed in an old forest guesthouse, a graceful remnant of another era. High ceilings, comfortable rooms, polished furniture and quiet surroundings gave it the character of a British forest retreat. The hospitality was equally memorable.

One evening, Mr Chakravarty, the Assistant Wildlife Warden, called on us to enquire about our welfare. His manner was formal and courteous. When I asked whether a wildlife safari could be arranged, he readily agreed, adding that we would have to be ready at 4.15 the following morning. We retired early.

At about 3.45 a.m., a gentle knock sounded at our door. Outside stood a member of the forest staff, carrying hot tea and a basket of freshly baked bread and biscuits.

The forest, apparently, had its own protocol for receiving guests.

Soon we were on our way. A jeep carried my family, while another vehicle, with the Assistant Wildlife Warden and the Range Officer, travelled ahead as an escort. For the first twenty minutes, the forest remained shrouded in darkness. Cool air carried distant animal calls as we moved quietly through the sleeping jungle. Then came the first light. Trees, grasslands and streams gradually emerged from the shadows, while birds began their morning chorus. The occasional crossing of a stream added the music of running water to the awakening forest.

After about forty-five minutes, we reached a forest office deep inside the sanctuary. Four patrol elephants were waiting. My wife and I mounted one; our two children took the second; the Assistant Wildlife Warden and Range Officer the third; and forest guards and a trekker the fourth. The mahouts carried walkie-talkies, and each elephant had a small basket containing water, tea

and biscuits. The guards were armed for safety.

The procession moved into the grasslands and woodland. I had ridden patrol elephants earlier in Corbett and Kaziranga, but this experience felt different. These elephants were part of the forest's daily life. Occasionally, one would stop abruptly, and the mahout would listen intently, alert to sounds or movements imperceptible to us. Only later would we discover a herd of elephants, a gaur or a rhinoceros somewhere ahead. The animals seemed to know the forest long before we did.

As the sun climbed, golden light filtered through the foliage, transforming the landscape. Elephant grass brushed against the elephants' flanks, branches scraped gently against us, and the air carried the familiar fragrance of damp earth, leaves and grass. Birds flashed through the canopy, butterflies hovered over clearings, and the occasional trumpet of an elephant sounded in the distance. The accompanying forest officers provided a running commentary, but much of the time no words were necessary.

Then came one of the morning's most delightful encounters;in an open stretch of grassland stood a female rhinoceros with her calf. The calf was full of youthful mischief, moving around its mother, nudging her flank and darting a few steps away before returning. The mother seemed tolerant, gently touching the calf with her muzzle as if reassuring it to stay close. For a few moments, they appeared almost playful, absorbed in their own little world and seemingly indifferent to the silent procession of elephants watching them. It was an intimate glimpse of tenderness in a creature we normally associate with formidable strength.

After nearly two hours, we reached a small inspection hut in the heart of the forest. Simple yet elegant, it had a wooden platform for dismounting safely and a staircase leading to a neat verandah. Inside was a spotless toilet, soap and a freshly folded white towel.

Then came the surprise.

A folding table had been laid out with elegant chairs, gleaming crockery and cutlery. Breakfast appeared as though we were in a country house rather than an isolated forest outpost. Hot tea, fresh food and polished crockery—everything had been arranged with quiet precision.

I smiled to myself. This, perhaps, was the sahib tradition at its best: the wilderness could be wild, but standards of hospitality were not negotiable.

Our elephants had their own breakfast. They were watered and fed, and we were given pieces of jaggery to offer them. Their trunks reached out gently to accept the offerings, occasionally returning a soft pat—a remarkably tender exchange between humans and these magnificent forest companions.

The return journey brought more surprises: rhinoceroses, elephants and birds, as well as the remains of a half-eaten kill, unmistakable evidence of a leopard's recent meal. Yet, strangely, the wildlife sightings were no longer the whole story.

What stayed with me was the atmosphere. For a few hours, I had stepped into a world I had known only through old books—a world in which professional duty, intimate knowledge of the wilderness and a certain old-world refinement coexisted naturally.

The origins of that culture were undeniably colonial. The British established an elaborate forest administration, posting officers to remote landscapes where they had to rely on themselves, their staff and an intimate understanding of the terrain. Over time, however, the profession developed its own ethos: discipline, fieldcraft, courtesy, hospitality and a deep familiarity with

the forest. Independent India inherited much of that tradition, even as it reshaped the institution to serve a new nation.

That morning in Jaldapara, I realised that the legacy was not really about polished crockery or formal manners. Those were merely its outward expressions. The deeper legacy lay in a particular way of belonging to the forest—of treating the wilderness not as a backdrop for adventure, but as a workplace, a responsibility and, eventually, a way of life.

As we drove back to the guesthouse, the morning sun had fully illuminated the Dooars. The grasslands glowed, birds filled the air with sound, and the forest stretched towards the distant Himalayan foothills. I felt an inexplicable sense of elation.

For one unforgettable morning, Jaldapara had allowed me to experience not merely a safari, but a fragment of India's forest history—a world where elephants carried officers into the wilderness, inspection huts offered breakfast on shining crockery, and an old forest culture lingered quietly beneath the canopy.

The sahib had long disappeared. But for those few hours, riding through Jaldapara, I could almost feel him riding ahead.

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- D. Nagabhushanam, IFS (R)

C.R. Ranganathan-the father of dual climax ecological theory of Nilgiri Sholas and Grasslands

Dr.Uday Veer Singh

C.R. Ranganathan was one of the most distinguished pioneer foresters of modern India. As an officer of the imperial Indian Forest Service (IFS), his contributions significantly shaped the working plans, forestry training, and ecological understanding of the Western Ghats particularly the Nilgiris and Coimbatore regions.



C.R. Ranganathan was born on August 15, 1899 in Thanjavur District. Armed with a University Rank in Chemistry, Masters from the Madras University, he was selected for training abroad in 1921. After completing his education in India, he was selected for the service and went to the University of Oxford U.K (Merton College) for his forestry training, which was the standard procedure for Imperial Forest Service probationers at the time, before returning to India to begin his field postings. He passed M.A. Forestry ranking first among the I.F.S Officers of his batch from the Oxford, Cambridge and Edinburg Universities and was awarded the Currie Prize. Upon completing his forestry training at the University of Oxford, C. R. Ranganathan returned to India in 1923 and was posted to the Madras Presidency (specifically joining the Madras cadre of the Imperial Forest Service). He began his field service in December 1924 as an Assistant Conservator of Forests. His early operational postings in the region focused heavily on field assessments and forest management, which laid the foundation for his highly acclaimed working plans for the North Coimbatore Division. In 1924, he was posted as Imperial Assistant in the Timber Engineering Branch, Forest Research Institute, Dehradun.

His contributions to Working Plans in Madras province have been really outstanding. He prepared Working Plans for North Coimbatore, Kollegal, North Salem and Nilgiris Forest Divisions. His theory of "Dual Climax" about Montane sholas and grasslands is a pioneering one and still treasured for the scientific value. For his paper on Shola and grass lands he was awarded the "Schlich Prize". His contribution to Forestry Education in India will be in perpetual reckoning. He was an ardent advocate of a dynamic and progressive definition for sustained yield by enriching the forests with valuable and superior species. He envisioned forests as an arboreal 'Kamadhenu', which will provide benefits forever, with extraordinary protection.

He restarted the Madras Forest College after World War II and served as the first Indian Principal with distinction for two years (1945-1947). C.R. Ranganathan received international recognition. In 1954, he was elected the President of the Fourth World Forestry Congress. This was followed by his election as Honorary Member of the Society of American Foresters, the German Academy of Agricultural Sciences of Berlin and the Finnish Academy of Forestry. He wrote a book on Forest Management which even now serves as a standard reference book in Forest Colleges. In an era of declining moral standards men like C.R. Ranganathan stand like colossus in the annals of history which leave us dreaming of re-emergence of men like him.

C. R. Ranganathan became the Inspector General of Forests (IGF) to the Government of India

in 1954. He succeeded M. D. Chaturvedi and stepped into this apex national role directly after completing his seven-year tenure as the President of the Forest Research Institute (FRI) and Colleges in Dehradun.

In August 1909, the Madras government accorded formal sanction for construction of a forest college at Coimbatore. On 01st July 1912, the college was formally opened with one F.L.C. Cowley Brown as Principal of College and C. SrinivasaRao as Curator of the museum. On 14th October 1915, new buildings of Madras Forest College and Gass Forest Museum were opened by His Excellency, Lord Pentland, the Governor of Madras.

During the World War II, the museum was temporarily closed for few years and the building was made available to the Defence department for housing the refugees from Greece and Malta. During the closure of the museum, most of the wooden specimens were disposed of and some valuable exhibits were spoiled. Many of them were auctioned for want of space. Owing to the keen interest of one J.A. Master, the then Conservator of Forests, Madras, the museum exhibits were saved from auction although a large part was disposed. With the tireless efforts of Sri C.R. Ranganathan, IFS, the then Principal of Forest College, the building was restored to college and was reopened for public.

Key roles and timeline in Coimbatore: During and after the Second World War, Ranganathan played a foundational role in reviving and institutionalizing formal forestry training in Southern India. He became the first Indian Principal of Madras Forest College. The Madras Forest College in Coimbatore had been shut down during the chaos of Word War-II. In 1945, Under his initial leadership, the college was not only revived but grew rapidly. By 1948, it was taken over by the Government of India to train a larger volume of forest rangers to meet post-independence demands. The historic campus later evolved into the renowned Southern Forest Rangers College (SFRC) and today stands as the Central Academy for State Forest Service (CASFoS) in Coimbatore.

President of FRI Dehradun: Recognizing his exceptional administrative and forestry skills, Ranganathan was selected to serve as the President of the prestigious Forest Research Institute (FRI) and Colleges in Dehra Dun. He became the president in 1947and served till 1954. Consequently, after becoming President of FRI, he moved the matter with the Government of India and decided, in 1948, to takeover the Madrasas Forest College at Coimbatore and to run it as a Central Government Institution under the auspices of the Forest Research Institute. That college was originally an Institution of the Madras Government designed for training Rangers. It has now been expanded and equipped so as to train, like the Colleges at Dehradun,30 senior forest officers and 70 rangers annually.

The Nilgiri working plans and forestry management: Before taking up massive educational roles, Ranganathan served extensively in the field within the Madras Province.Masterful Working Plans: He gained immense respect within the department for designing highly accurate and scientific "Working Plans" (the official blueprints for forest management, harvesting, and conservation) for the mountainous forest tracts of the Madras Province, which heavily encompassed the Nilgiri and Anamalai ranges.Balancing Commercial Logging & Conservation: During an era when the British Raj heavily pushed for timber extraction (like teak and eucalyptus), Ranganathan's plans sought a balance to protect the fragile catchments and natural water systems of the Nilgiri plateau.

The dual climax ecological theory: Beyond administrative and field management,

Ranganathan is immortalized in Indian ecology for his ground breaking research paper published in the Indian Forester (1938): "Studies in the Ecology of the Shola Grassland Vegetation of the Nilgiri Plateau.For decades, foresters and western botanists argued over why the Nilgiris featured a distinct patchwork mosaic, dense, stunted patches of tropical montane forests locally called Sholas abruptly ending into vast, rolling grasslands. Many believed the grasslands were just degraded forests destroyed by human fire or grazing.Ranganathan shattered this view by proposing the theory of dual climax.He argued that both the Shola forests and the grasslands were natural, stable, and perfectly adapted to their environment climatic climaxes.The Sholas thrived in the sheltered folds and valleys where they were protected from biting frost and heavy winds.The open grasslands were a natural response to the intense frost, wind, and unique microclimates of the higher ridges, rather than degraded land. Modern satellite, soil, and peat-core data have validated his 1938 insights, proving that these unique grasslands are thousands of years old and an invaluable ecosystem native to the Western Ghats. The research of C.R. Ranganathan was published as-Studies in the Ecology of the Shola Grassland Vegetation of Nilgiri Plateau; Indian Forester, Volume-64 Issue-9, September 1938, pages 523-541.

Legacy: Because of his foundational impact, the Tamil Nadu Forest Department officially honoured C.R. Ranganathan in their historical compendium titled Hall of Fame, which profiles 25 of the most illustrious and impactful foresters to have ever served in the region. His dual legacy lives on in the strict scientific protocols taught at the Forest Academy in Coimbatore and the preservation of the delicate Nilgiri Sholas.The high-altitude Shola-grassland debate between C.R. Ranganathan who argued the grasslands were a natural "climatic climax" regulated by frost and N. L. Bor who argued they were an artificial "biotic sub-climax" created by human fire and grazing lasted for over half a century.During the late 1980s and 1990s, scientists finally resolved the debate using pollen analysis (palynology) and stable carbon isotope studies extracted from deep peat bogs in the Nilgiris such as the Sandynallah valley.The scientific verdict overwhelmingly vindicated Ranganathan, proving that the grasslands are ancient, natural, and highly resilient ecosystems. The pollen analysiscarried out to resolve the disputed theories are briefly stated for strengthening the theory of Ranganathan.

The pollen evidence: Through deep geological time. Palynologists drilled deep core samples into the ancient peat bogs of the Nilgiri plateau. Because pollen grains have near-indestructible outer shells, they serve as a perfect historical record of what plants were growing in the area thousands of years ago.The discoveryin the pollen records revealed that the Shola-grassland mosaic has existed in the Nilgiris for at least 35,000 to 40,000 years.Humans did not arrive or begin significantly altering the Nilgiri landscape until a few thousand years ago. Because the grasslands heavily predated any human presence, Bor'stheory of human-created grasslands was definitively disproven.

Stable carbon isotopes: Tracking the climate shifts.While pollen proved age, stable carbon isotope analysis (\delta^{13}\text{C}) of the organic matter in the peat cores explained why and how the two ecosystems coexisted.Trees and grasses process carbon dioxide using fundamentally different photosynthetic pathways, leaving distinct chemical signatures in the soil. Shola Trees (C_3 Plants) thrive in cool, wet, and atmospheric \text{CO}_2-rich conditions. They leave a lower \delta^{13}\text{C} ratio.Montane

Grasses (C_4 Plants) are highly adapted to arid, warm, or glacially low-\text{CO}_2 conditions, and highly resilient against severe frost. They leave a higher \delta^{13}\text{C} ratio.By testing the isotope ratios layerbylayer down the peat cores, scientists mapped how the landscape reacted to major climate shifts over millennia, most notably during the Last Glacial Maximum (LGM) about 20,000 years ago.

The verdict: alternative stable states. The isotope data showed that the boundary between the forest and the grassland was dynamic, fluctuating with global climate cycles. During Ice Ages (Dry/ Cold/Low \text{CO}_2), the frost-resilient C_4 grasslands expanded dramatically, and Shola forests retreated into the deep, protected valleys where moisture was trapped.During Interglacial Periods (Warm/Wet/High \text{CO}_2), the Shola forests expanded outward, but were halted at the valley edges by intense frost and topography on the open slopes.This oscillation proved that the mosaic is a classic example of Alternative Stable States. Both ecosystems are natural climaxes existing under the same macro-climate, kept in a delicate balance by localized topography, waterlogging in valley floors, and frost on the ridgesprecisely as Ranganathan postulated in 1938.

Why This Mattered ?: Misinterpreting the grasslands as man-made degradationled colonial and post-independence foresters to destroy vast tracts of native grass to plant commercial timber like Eucalyptus and Wattle. The pollen and isotope studies completely revolutionized conservation in the Western Ghats, forcing the recognition of grasslands not as wastelands, but as ancient, indispensable water towers.

Tropical montane forest (TMF)alternatively called tropical montane cloud forest or simply cloud forests represent some of the most threatened ecosystem globally.TMFare characterisedand defined by thepresence of persistent clouds cover.A significant amount of moisture may be capturedthrough the condensation of cloud born moistureon vegetation distinguishing TMF from other forest types. Thestudy examined the structural functional and distributional aspects of the tropical montaneforest of peninsular India, locally knownas shola,and the associated grasslands. The study further reveals that small fragments may be dominatedby edge effect andlack an interior or core,making them susceptible to complete collapse. In addition to their critical rolein hydrology and biogeochemistry, the sola grassland ecosystemharbours many faunal speciesof conservation concern. Along with intense anthropogenic pressure climate change is alsoexpected to alter thedynamic equilibrium between the forest and grassland raising concerned about the long term sustainabilityof these ecosystems.

Author is a retired Indian Forest Service officer and Member, Monitoring Committee of Hon'ble Supreme Court and former member of Regional Empowered Committee of Ministry of Environment, Forest &Climate Change. uvsinghifs@yahoo.com

Humanity & Nations

There are no nations, there is only humanity. And if we don't come to understand that right soon, there will be no nations because there will be no humanity- Issac Asimov, American writer and Professor



FIELD REFLECTIONS | FORESTS AND WILDLIFE

From the Rulebook to the Role - Part-1

Why guarding the forest is no longer enough, and what the forest now asks of its forester

B Vijaya Kumar

The 2 a.m. phone call

Picture a young Forest Beat Officer somewhere in the Eastern Ghats. It is two in the morning. A wild elephant has walked into a paddy field at the edge of the reserve. A few hundred villagers have gathered with torches, drums and a lot of anger. His rulebook tells him exactly what he is not allowed to do. It says almost nothing about what he should do in the next ten minutes, with one phone, three colleagues and a crowd that is getting louder.

This scene is imagined, but every forester reading this has lived some version of it. And it shows the problem quite neatly. We train our people very well to know the rule. We train them much less to read a situation. For most of the last 150 years, that was acceptable. Today it is not.

This article makes one simple argument: Indian foresters need to move from being rule-based officers, who ask "what does the book permit?", to being role-based professionals, who ask "what is my purpose here, and what does this forest and these people need?". The rules stay. What changes is the mind-set that sits above them.

How we inherited the rulebook

Our forest administration did not begin as a conservation service. The first Indian Forest Act of 1865, and then the 1878 and 1927 Acts, were built mainly to secure timber, mostly for railways and shipbuilding, and to bring forests under state control. The forester of that time was a custodian of state property. He marked trees, checked boundaries, issued passes and prosecuted offences. Writers such as Gadgil and Guha (1992) and Sivaramakrishnan (1999) have described at length how this approach pushed local people from being users of the forest to being "offenders" in it.

After Independence the laws grew, and so did our purpose. The Wildlife (Protection) Act 1972 and Project Tiger (1973) created a new duty to protect species. The Forest (Conservation) Act 1980 put a brake on diversion of forest land. These were absolutely necessary. India still has forest and tigers because someone drew a hard line in 1972. But look at the timeline below. From 1988 onwards, the laws themselves started to say something different: forests are to be managed with people, not just against pressures.

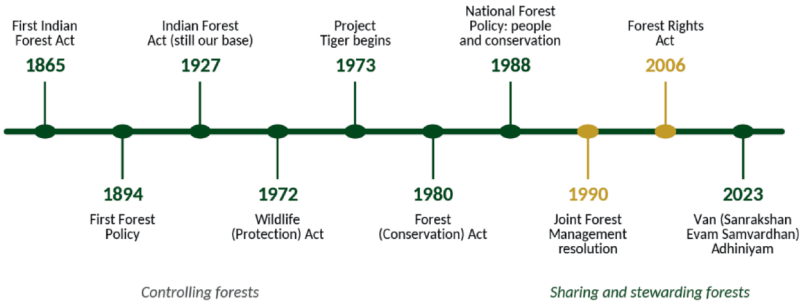

Figure 1: Milestones in Indian forest and wildlife governance, from control towards shared stewardship

The National Forest Policy 1988 made local needs and people's participation part of national policy. The 1990 Joint Forest Management resolution brought village communities in as partners. The Forest Rights Act 2006 recognised the rights of forest dwellers. In other words, the law moved ahead of our habits. A good part of our day-to-day working culture is still sitting in 1927.

What the rulebook does well, and where it stops

Let us be fair to rules first. A rule gives certainty. It protects an honest officer from pressure. It makes sure that a sandalwood smuggler in one range is treated the same as one in the next range. No serious forester wants to throw this away, and nothing in this article suggests that.

The trouble starts when the rule becomes the whole job. A few signs most of us will recognise:

Activity is mistaken for outcome. Files cleared, notices issued, plantations "completed", but nobody asks if the forest is actually healthier.

Fear of the audit beats love of the forest. Officers pick the safest option on paper, not the best one on the ground.

Rules are silent on new problems. Human-elephant conflict, leopards in sugarcane, cyber-enabled wildlife trade, climate-stressed forests. No Act has a ready answer for these.

The community is seen as the problem. And then it is no surprise when the community does not help in the hour of need.

The Tiger Task Force report of 2005, written after the Sariska shock, said in effect the same thing: you cannot save wildlife by policing alone, and you cannot police what you do not understand.

So what is a "role-based" forester?

Let me clear a confusion first. "Role-based" does not mean doing whatever one feels is right. It does not mean bending the law. It means that the officer is clear about **why** he or she is in the forest, and uses that purpose to choose between lawful options, to fill the gaps where the rule is silent, and to explain decisions honestly afterwards.

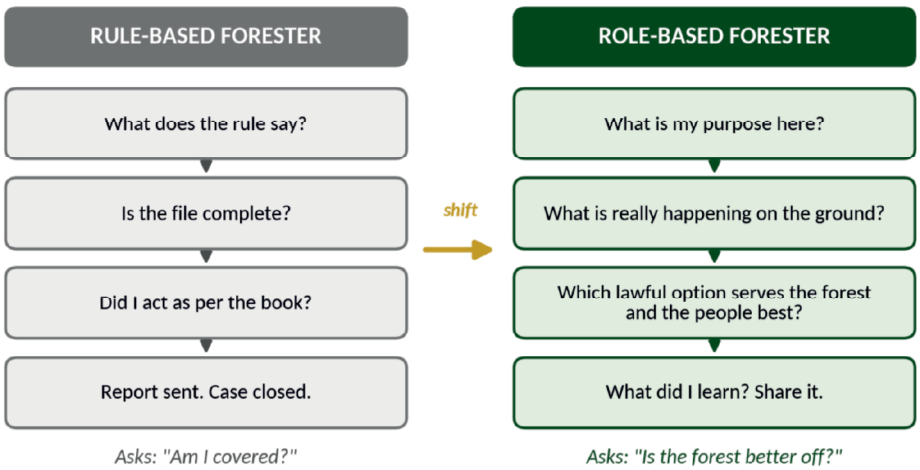

Figure 2: Two ways of doing the same job

A rule-based officer finishes the process. A role-based officer finishes the process and asks whether the process achieved anything. In practice, the modern forester wears at least six hats, often on the same day.



Figure 3: The six roles of a modern forester

Some of these hats are old, like the Guardian. Some are new, like the Communicator or the Scientist who reads camera-trap data and M-STrIPES patrol maps. The point is not that every officer must be perfect at all six. The point is that the job description in the officer's head must be wider than "enforce".

Six stories from India

None of this is theory. Indian forestry has produced its own examples, some celebrated, some painful. I have picked six that I think every probationer should know.

1. ARABARI, WEST BENGAL: THE EXPERIMENT THAT CHANGED OUR THINKING

In the early 1970s, the Sal forests of Midnapore district were badly degraded, and the villagers around them were in open conflict with the department. A young forest officer, A.K. Banerjee, tried something simple at Arabari. Instead of chasing villagers out, he sat with them, agreed that they would protect the re-growing Sal coppice, and promised them a share of the benefits: employment, minor produce and a portion of the final timber. The forest recovered in a few years. This experience fed into West Bengal's early community forest protection, and later into the national Joint Forest Management resolution of 1990 (Poffenberger and McGean 1996; Sivaramakrishnan 1999).

The lesson: the forest officer who listened did more for the Sal forest than a hundred patrolling parties could have done.

2. Sariska and Panna: when the numbers hit zero

In 2005 it was confirmed that Sariska Tiger Reserve in Rajasthan had lost every one of its tigers. A few years later, Panna in Madhya Pradesh went through the same shock. Both reserves had rules, staff and patrol camps. What they lacked was real contact with the ground: reliable monitoring, intelligence from the villages, and honest reporting upward. The Tiger Task Force (2005) said it plainly in its report titled *'Joining the Dots'.*

What happened next is a good example of role-based work. Tigers were brought back to Sariska from Ranthambhore from 2008. At Panna, tigers were reintroduced from 2009, and the Field Director R. Sreenivasa Murthy and his team spent years on tracking, protection, prey recovery and village relations. The reserve today has a breeding tiger population again. No rule told them to do all this. They understood their role as restorers.

The lesson: a reserve can be fully "compliant" on paper and still lose its tigers. Honest monitoring is part of the job.

3. PERIYAR, KERALA: POACHERS BECOME PROTECTORS

Periyar Tiger Reserve had a long-standing problem with illegal sandalwood felling, poaching and cardamom-related encroachment, mostly by people from the surrounding villages. Under the India Eco-development Project (supported by the World Bank and GEF in the late 1990s and early 2000s), the management started offering people from those same communities alternatives: eco-development committees, guiding and patrolling work, and a share in tourism income. Several former poachers and smugglers became guards and guides, and their knowledge of the forest

proved better than any map. The Periyar Tiger Conservation Foundation was set up later to keep the system going.

The lesson: the best informer is often a neighbour who now has a stake. Enforcement and livelihood work are not enemies. They are two hands of the same body.

4. MENDHA-LEKHA AND THE SOLIGAS: COMMUNITIES AS MANAGERS

Mendha (Lekha) in Gadchiroli, Maharashtra, is a Gond village that was among the first in the country to get community forest rights recognised under the Forest Rights Act, in 2009. The village runs its own forest through the gram sabha, plans its own bamboo harvest, and has a famous slogan about "our government in our village". In Karnataka, the Soliga community in the Biligiri Rangaswamy Temple Tiger Reserve had their rights recognised under the same Act, including inside the reserve, and reports from the reserve since then show tiger numbers moving up rather than down.

These cases did not fit the old script, where "people" and "tigers" were opposite columns in a table. The officers involved had to unlearn that script and learn to be facilitators.

The lesson: where rights are recognised and responsibility is shared, communities often protect better than a thin line of staff can.

5. NIYAMGIRI, ODISHA: WHEN THE GRAM SABHA DECIDES

The Dongria Kondh people of the Niyamgiri hills treat the hills as sacred. When a bauxite mining project was proposed, the Supreme Court in *Orissa Mining Corporation v. Ministry of Environment and Forests* (2013) directed that the gram sabhas must be consulted under the Forest Rights Act. The gram sabhas rejected the project. Whatever one's view of the outcome, one fact is striking. The question of what happens to a forest was no longer answered only by a file moving between offices.

The Supreme Court's earlier landmark orders in *T.N. Godavarman Thirumulpad v. Union of India* (1996 onwards) had already widened the meaning of "forest" to cover what the dictionary says, not only what the records say, and Samatha v. State of Andhra Pradesh (1997) had protected tribal land rights in Scheduled Areas. The courts, in short, have been asking foresters to think about purpose and people, not paperwork alone.

The lesson: a forester who cannot talk to a gram sabha will find the decision being made without him.

6. ANDHRA PRADESH: VANA SAMRAKSHANA SAMITHIS AND THE CHENCHU TRACKERS

Our own state took up Joint Forest Management early, and the Vana Samrakshana Samithis (VSS) formed from the early 1990s onwards now cover thousands of villages. Some work very well, some exist only on paper. And that difference almost always comes down to the officer. Where the beat officer attends the meetings, shares the income honestly and takes the village's worries seriously, the VSS becomes the department's eyes and ears. Where he treats it as a form to be filled, it dies quietly.

In the Nallamala forests of the Nagarjunasagar-Srisailam Tiger Reserve, the Chenchu community has a tracking skill that no training course can fully teach. Using that skill, through employment as trackers and watchers, is both good conservation and good justice.

The lesson: the same scheme can succeed or fail depending only on whether the officer plays the facilitator's role.

to be contiuned...

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UN BIODIVERSITY CONFERENCE SCHEDULED IN YEREVAN, ARMENIA

B.K.Singh

The 2026 UN Biodiversity Conference is scheduled to take place in Yerevan, Armenia from October 19 to October 30. The theme for this year's conference is 'taking action for nature'. Earlier in CoP15, 2022 held at Montreal, quite a stiff target was set for 196 member countries to achieve by 2030. The target- 3 set by Kunming-Montreal Biodiversity Framework is referred to as '30x30' has garnered widespread attention globally. The target essentially requires countries to conserve at least 30% of their terrestrial, inland water, coastal and marine areas by 2030. It is the most ambitious internationally stipulated undertaking towards land and ocean conservation. Such a stiff target was set, despite the fact that many member countries have failed to achieve previous global targets, namely Aichi target 11, set 2 years earlier in 2020, which called for conservation of at least 17% of terrestrial and inland water and 10% of coastal and marine areas.

What is the percentage of the geographical area, the terrestrial and inland water, kept free from human activities? Do all Protected Areas, Sanctuaries and National Parks qualify to be called the areas free from human activities? The answer is a big "NO". If the Protected Areas are not free from human activities, how can we expect other recorded forest areas to be free from any such interference?

India's State of Forest Report 2023 suggests that the total forest cover is 715,313 sq km, 21.76% of country's geographical area, while the tree cover is 112,014 sq km, 3.41% of the geographical area. A total of 1,445 sq km tree cover is added in two years, and a larger proportion of it is added in linear plantations and agricultural lands. Some proportion of recorded forest areas, have been moved in lower density class indicating that these forests are degraded due to anthropogenic pressure and also have been lost due to unauthorized encroachments and diversion of forest lands for development projects.

Whether India qualifies to have achieved 2020 Convention of Biological Diversity (CBD) target for the conservation of 17% terrestrial land is in question.Again, the answer is "NO". Forest Rights Act, 2006 has opened a flood gate to grab forest lands and claim right to build a dwelling or cultivate over it. In every election cycle, large number of claims is filed and repeated attempts are made before sub-divisional level committee and district level committee. Politicians across the party line support tribal and other forest dwellers for electoral gains. The frontline forest staffs resisting the move are often bulldozed.

Encroachments on forest lands prior to 1980 were regularized and thereafter the Forest Rights Act, 2006, has been a single instrument post-independence that has inflicted maximum destruction to the forests. The data in public domain brings out how damaging the Act has been since 2008? While 8.06 lakh ha forests have been officially diverted for development projects from 1980 till today, 16 times of this i.e. 96 lakh ha forests in the country have been vested in individual and community forest rights after 2008. Further 18.36 lakh claims over 26 lakh ha forest lands have been rejected. Imagine the magnitude of ecological services compromised, while the claimants destroyed the forest cover and brought

the area under agriculture.

In a function organized to remember forest martyrs on 11th September, Karnataka's Chief Minister Sri. DK Shivakumar advised forest department officers not to harass a villager in the occupation of forest land. He clarified that 'let the claims be settled under Forest Rights Act, 2006'. Every jurisdictional forest officer says that the encroachments were attempted in the predecessors' tenure and hence these are old encroachments. The mode of operation has been to clear the tree growth, occupy the forest land and file a claim with the village panchayath. If the claims get stuck with sub-divisional/ district committees, the claimants are not dispossessed with the land but are allowed to continue to enjoy the illegal possession of the forest land. If there are bold officers on the committee, who do not oblige politicians, the claims would not be disposed of in favor or against the claimant, but will be kept pending. The illegal occupants would try their luck with the successors on the committee and is bound to succeed after half a dozen attempts. This is the fate of the forests.

Not only the habitations are close to the forests, there are private enclosures deep inside forests, where inhabitants continue setting fire in the forests, burning the slash, cutting trees and expanding the cultivation. The forests, thus, undergo continuous shrinking. India is thus far from achieving the conservation of 17% of its geographical area. The target of achieving conservation of 30% of the geographical area is quite difficult in foreseeable future. CBD's resolve to achieve it by 2030 is a joke and the convention must take the stock of situation and rope in world leaders for meaningfuldialogues and pledges.

Let me analyze the performance of the governments in countries outside India. We have seen wildfire for entire summer season in US, Europe and south-East Asian countries. The fires have been severe and remained uncontrollable for weeks and months. This year, a total of 6.69 lakh hectare forests burned in European Union till 15th September 2026. More than 2047 individual fires, larger than 30 ha, have been detected across the European Union this year. Total burnt area in 2026 is below the historic high seen till mid-September 2025. Spain and France experienced record shattering blazes earlier in the summer that was driven by intense heatwaves. Belgium suffered its largest recorded wildfire in a century. Greece, Portugal, Italy and Germany also faced severe emergency deployments and evacuations during peak summer months. Developed countries are technologically advanced, and if they have failed to contain wildfire in the forests, how the African forests would be conserved? Congo forests are the third biggest lung on the planet behind Boreal and Amazon, and its destruction will have adverse impact on the survival of humankind.

Indonesia, too, is facing its worst wildfire and toxic haze crisis, driven by a powerful El Nino drought and widespread illegal land clearing for plantations. The trees in wet evergreen forest patches are cut and set on fire to clear the land for palm oil plantations. 2.86 lakh hectares forests across Borneo and Sumatra islands have burned between January and August 2026. Carbon dioxide emission surged highest in the World in September 2026, reaching 19.7 million metric ton in a single week. Toxic smog has crossed borders, severely degrading air quality in neighboring Malaysia, Singapore and the Philippines.

Recently five individuals of Orangutans, the largest tree dwelling mammals on earth and native of Borneo and Sumatra islands of Indonesia, are found in Balasore forests of Odisha. These animals must have been brought by one or a group of persons using sea route. Odisha Forest

Contd.. on page No.33

Activities from Telangana State Forest Academy, Dullapally, Hyderabad





39th Batch Forest Beat Officers' Passing-Out Parade &Convocation : Chief Guest Dr.Ratnakar Jauhari, IFS PCCF (Prod), Guest of Honour, Smt.Sunita Bhagwat, IFS PCCF& VC/MD TGFDC and Director TGSFA Smt.Priyanka Varghese,IFS




Wildlife Week Celebration and Rally flagged-off by Smt.Priyanka Varghese, IFS, Director TGSFA







Film shooting on Vanajeevi Ramaiah at TGSFA




NSS, Nutrition Week & Blood Donation Camp at FCRI, Mulugu





National Service Scheme

National Nutrition Week & Blood Donationcamp















Blood Donation Camp in Association with the P. V. NarasimhaRao Memorial Charitable Trust, Hyderabad.





Wildlife Week Celebrations at Nehru Zoological Park, Hyderabad



Gandhi Jayanthi,



Swachch Zoo



Drawing competition



Mega Plantation





Reptile Awareness







Zoo Day celebrations with PCCF (HoFF) as Chief Guest





Zoo Day celebrations with PCCF (HoFF) as Chief Guest



Rally



Rally

Yoga Day



పర్యావరణహితం

సింగరేణి అభిమతం



డోర్లి ఓసీ డంపుపై పెరిగిన ప్లాంటేషన్



బ్లాక్ ప్లాంటేషన్



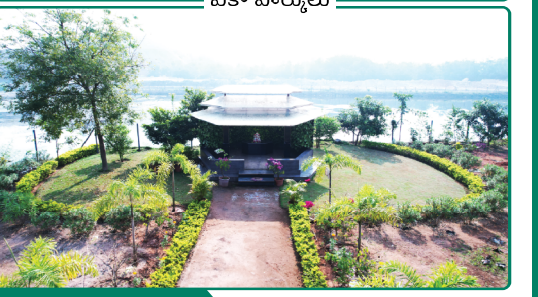
సింగరేణి ఆధ్వర్యంలో నిర్మించిన చెరువులు



అవెన్యూ ప్లాంటేషన్



ఎకో పార్కులు



SCCL

సింగరేణి

కాలరీస్ కంపెనీ లిమిటెడ్

(ప్రభుత్వ రంగ సంస్థ)

Continuation from page No. 28

department has swung into action and housed the species in Nandan Kanan Zoo. The Indonesian Authorities have claimed the Orangutans and investigation by Indian Authorities to find the original habitat and the trade links, is progressing.

What is intriguing is that the species, which are native of Indonesia's rain forests, have strayed out in human areas and shipped to India's main-land, indicating large scale destruction of the natural habitats. Forests have been cut down, burned and wildlife species are made homeless. The resolutions in CBD CoPs are eye-wash. Countries are not interested in conserving either 17% or 30% of the geographical areas of land and water bodies. If the resolutions are not implemented by member countries, what is the use organizing CoP 17 at Yerevan, Armenia?

Lastly, let me deal with the conservation of glaciers in North Pole, South Pole and Himalayas. US President Trump has signed a deal with Denmark and Greenland to establish two more military bases in southern and eastern portion of Greenland in addition to the one, the administration already has. Attempt has been to have control this independent territory.The aim is to tap oil, gas and rare earth minerals for US and its companies, too. The earlier ban on tapping oil and minerals in Protected Areas in Alaskaetc have been lifted. Several ice cutting machines since, are in operation for further exploration and drilling. Arctic region is reported to be warming at four times the pace of average rise in global temperature.

Glaciers are known to reflect 80% of sun rays back to the atmosphere and absorb only 20%. The shrinking glaciers are contributing to the increased absorption of solar radiations in soil and earth, which leads to the surge in the melting of permafrost, thereby releasing carbon dioxide in the atmosphere, the gas that can trap heat and accelerate warming of the planet. More than 200 unstable glaciers are precariously hanging in Himalayas and one such glacier estimated to be of 50,000 cubic meter fell in River Boti Koshi in Nepal on 26th August generating enormous energy in flow of water and debris that swept away buildings, roads, bridges, powerhouses and several public and private infrastructures. More than 6,000 people perished in the devastation.

Even in UNGA address recently the USA mocked the climate predictions of eminent scientists on climate catastrophe saying the planet has not "caught fire"and accused critics of having promoted 'hoax'. The comments contrasted sharply with Secretary-General Antonio Guterres' opening address in which UN chief called for stronger climate action and warned that the planet is facing accelerating environmental risks.

CBD CoP 17 should ignore the USA stance on climate and must go ahead with the commitment to conserve 30% terrestrial and oceanic areas governed by each of the member nations.

The author is a retired PCCF/Head of Forest Force, Karnataka, M-9449863501

Please Forgive

Forgiveness is not always easy. At times, it feels more painful than the wound we suffered, to forgive the one that inflicted it. And yet, there is no peace without forgiveness - Marianne Williamson, American self-help author, speaker



SCOTLAND THROUGH A BIODIVERSITY LENS

(A personal field account of landscape, climate, biodiversity and people)

Dr. K. Thulsi Rao

Five Months across a Living Landscape

My five-month stay in Scotland during 2025 (July-Nov)was not merely a period of travel or appreciation of its spectacular scenery. For me, every journey became an opportunity to read the landscape through the eyes of a conservationist.I have always believed that wherever one travels, the first question should, not simply be, "What do I see?" but rather:"Why is this biodiversity present here, and what are the ecological conditions that have created and sustained it?"

My daughter Swathi, who lives in Scotland, and my son-in-law Lalitkumar accompanied me on many of these nature-journeys. They were not merely companions but my nature-wandering guides, helping me explore the country from north to south and east to west, across its length and breadth. Together, we travelled through an extraordinary mosaic of mountains, glens, lochs, rivers, forests, moorlands, peatlands, agricultural landscapes, estuaries, coastal ecosystems and islands.

For me, the scenic beauty was only the beginning. Behind every landscape I tried to understand the ecological story.

Reading the landscape

I have spent much of my professional life studying the relationship between forests, wildlife, biodiversity and people. My experiences in the Eastern Ghats, particularly in the Nallamalais, taught me that biodiversity cannot be understood by studying species in isolation. The foremost to understand is the Landscape:

The landscape:

- Geology: shapes topography.



- Topography influences climate and water.
- Climate and soils determine vegetation.
- Vegetation creates habitats.
- Habitats determine wildlife.
- Wildlife interacts with people.
- And people ultimately determine
- whether biodiversity survives.

I found the same fundamental ecological relationships expressed in Scotland, although under very different climatic and geographical conditions.

Scotland — a country shaped by its landscape

Scotland's extraordinary character begins with its physical geography: The rugged Highlands, the Central Lowlands, the Southern Uplands, the innumerable lochs and rivers, the peatlands, the Atlantic coast and the great island groups of the Hebrides, Orkney and Shetland together create a remarkable ecological mosaic.

Travelling across this landscape, I could almost



see biodiversity changing with altitude, exposure, rainfall, soils and land use pattern.

A movement from the coast into the mountains is not simply a change in scenery. It is a journey through successive ecological zones.

At lower elevations, woodland, grassland and agricultural landscapes dominate. With increasing elevation, trees become increasingly restricted, giving way to heath, moorland and montane vegetation. At the highest elevations, harsh climatic conditions, permit only highly specialised communities.

Thus, altitude becomes an ecological filter.

Climate — the invisible architect:

Scotland also demonstrates how strongly biodiversity is governed by climate: Its northern latitude and Atlantic location produce a predominantly cool, moist and ocean-influenced climate, but the mountains and prevailing winds create considerable local variation.The wet, western-landscapes contrast with relatively drier areas in the east. Mountains intercept moisture, creating strong rainfall gradients, while altitude produces corresponding temperature gradients.

I became increasingly interested in these contrasts during our journeys because they provide a simple explanation for many differences in vegetation and wildlife.

Climate does not merely accompany biodiversity; it helps create its geographical pattern.

From mountains to peatlands

The Scottish uplands revealed another fascinating ecological relationship: The combination of cool temperatures, high rainfall, waterlogged soils and slow decomposition has allowed peat to accumulate over thousands of years.

The peatlands are therefore much more than open, apparently treeless landscapes. They are living ecological archives, storing carbon, regulating water and supporting specialised communities of plants, invertebrates and birds.

The Flow Country of northern Scotland, now recognised as a **UNESCO World HeritageSite,** which is an outstanding example of this ecological phenomenon.

For a conservationist accustomed to thinking about forests, wetlands and catchments as interconnected systems, Scotland's peatlands offer an important lesson:an ecosystem that may appear visually simple can possess enormous ecological complexity.

Scotland also made me reflect deeply on forests.

The present landscape contains native woodlands, commercial forests, plantations, regenerating woodland, heathland and open moorland. The remaining and restored native pinewoods are especially important for specialist species such as the Scottish crossbill and crested tit.

- But one must distinguish between tree cover and ecological forest.
- The presence of trees alone does not necessarily constitute a healthy forest ecosystem.
- For biodiversity, what matters is also:

species composition + age structure + natural regeneration + deadwood + understorey + soil +

water + connectivity + associated fauna.

This is a principle equally relevant to the forests of India.

Birds as ecological indicators

Among all the organisms encountered during our travels, birds provided some of the most visible evidence of ecological diversity.

The species composition changed with landscape:

The uplands supported characteristic birds of open moor and mountain environments. Woodlands supported forest specialists. Agricultural landscapes supported farmland birds. Lochs and wetlands attracted waterbirds. Estuaries became feeding and roosting grounds for migratory waders. The cliffs and islands supported spectacular seabird colonies.

The golden eagle, white-tailed eagle, peregrine, ptarmigan, red grouse, Scottish crossbill, puffin, gannet, guillemot, razorbill, kittiwake, Arctic tern and many other species represent different ecological responses to Scotland's landscape. The checklist will be discussed later.

Bird diversity therefore became, for me, a way of reading the health and character of habitats.

The Atlantic dimension

One cannot understand Scottish biodiversity without understanding the Atlantic :

The western coastline, sea lochs, islands, estuaries and offshore waters add an enormous marine dimension to Scotland's biodiversity.

The transition from:

land → freshwater → estuary → coast → sea : is not a series of isolated environments.

It is an ecological continuum.

Nutrients, sediments, fish, birds and marine mammals move through these systems. Migratory birds connect Scotland with distant parts of Europe and the Arctic, while seabirds depend upon marine productivity for their survival.

The coastline is therefore not a boundary between land and sea.It is an ecological interface.

Islands — biodiversity laboratories

Our journeys through the Scottish landscape also brought home the importance of islands.

The Hebrides, Orkney and Shetland demonstrate the fundamental principles of island biogeography: isolation, colonisation, extinction, adaptation and



vulnerability.

The islands also demonstrate something particularly important to a conservationist:

what happens on land can influence what happens at sea, and what happens at sea can determine what happens on land.

Seabird colonies depend upon marine food resources; terrestrial habitats provide nesting sites; invasive species can disrupt island ecosystems; and climate change can alter both terrestrial and marine conditions.

The island is therefore an ecosystem, not simply a piece of land surrounded by water.

Biodiversity and people

But my principal interest has always extended

beyond biodiversity itself.

What is the relationship between people and biodiversity?

This question has followed me throughout my professional life.

My experience in the Eastern Ghats taught me that conservation cannot succeed by treating local people merely as a pressure on nature.

People are also resource users, knowledge holders, custodians and potential conservation partners.

The experience of the Nallamalais reinforced my conviction that conservation becomes durable when people understand what they are conserving and recognise a connection between ecological security and their own well-being that can be seen in my Articles **"On Mission Eco-development".**

From the Eastern Ghats to Scotland

My Scottish journey therefore became an extension of a philosophy that evolved during my years of field conservation in the Eastern Ghats.

In the Nallamalais, I learned that merely declaring an area 'Protected', does not automatically create conservation.

We worked with communities, developed village-level micro-plans, addressed immediate needs, restored degraded landscapes and demonstrated through actual work that ecological restoration and community development need not be opposing objectives.

The principle was simple:

Win the confidence of people by demonstrating that conservation also serves their future.

When people begin to understand the value of forests, water, wildlife and biodiversity, they can become much more than beneficiaries of conservation.

They can become conservationists themselves.

Making biodiversity understandable to ordinary people:one of my strongest convictions. Scientific knowledge should not remain confined to laboratories, universities, government reports or conservation organisations.

People should be convinced to understand:

- Where they stand in the web of life.
- What biodiversity provides them.
- What they are losing when ecosystems are degraded.
- And what they can do to conserve it.

My objective has therefore always been to translate biodiversity from a ***Scientific Concept into a People's Concept.***

If an ordinary person can look at a forest and understand its relationship with rainfall, groundwater, soil, wildlife and human livelihood, that person has already taken the first step towards becoming a conservationist.

Scotland reinforced my understanding of ecological connectivity

My travels across Scotland reinforced another principle that I have repeatedly encountered in conservation:

- Nature does not recognise administrative boundaries.
- A mountain catchment crosses local jurisdictions.
- A river connects uplands with the sea.
- A migratory bird crosses countries and continents.
- A salmon moves between freshwater and ocean.

A seabird may depend upon a terrestrial cliff for breeding and the marine ecosystem for food.

A peatland stores carbon whose consequences extend far beyond its geographical boundary.



Therefore, conservation planning must increasingly move from isolated 'Protected Areas' to connected landscapes and seascapes.

What five months of observation taught me

After travelling across Scotland with Swathi and Lalitkumar, I came away with a deeper appreciation of a simple ecological truth:

Biodiversity is the visible expression of the relationship between place and life.

Every landscape has a story.

-The mountains tell the story of geology and glaciation.

-The lochs tell the story of water.

-The peatlands tell the story of climate, vegetation and time.

-The forests tell the story of succession, disturbance and human use.

-The agricultural landscape tells the story of people and nature.

-The seabird colonies tell the story of land-sea connectivity.

-And the migratory birds tell a story that transcends national boundaries.

A personal conservation philosophy

My journey through Scotland has therefore strengthened, rather than changed, my fundamental conservation philosophy:

«Understand the landscape before attempting to conserve its biodiversity. »

«Understand biodiversity before attempting to manage it.»

«Understand people before attempting to change their relationship with nature.»

And above all:

«Make people understand that they are not outside biodiversity—they are one part of it.

»This was the lesson that emerged from my field experiments in the Eastern Ghats, and it is a lesson I continued to observe in Scotland.

The ultimate objective of conservation is therefore not simply to create more Protected Areas or produce more species lists.

It is to create a society in which people understand, value and voluntarily participate in conserving the living systems that sustain them.

That, in my view, is when biodiversity conservation moves from being a government programme or scientific discipline to becoming a people's movement.

Scotland — a living classroom

My five months in Scotland in 2025 thus became, in many ways, a continuation of my life-long field education.

Swathi and Lalitkumar gave me the opportunity to explore Scotland as nature wanderers and guides; Scotland itself became my classroom.

Across its length and breadth, I saw different expressions of the same fundamental ecological principle:

Contd.. on page No.55



An Overview on The SACRED GROVES OF KERALAM

N. Balakrishna Pillai

Synonyms of Sacred Groves (SG) in vernacular language are:Kavu, Sarpakavu, Nagarkavu, Kshethrakavu, Kalikavu, Durgakavu, Bhagavathikavu, etc., The concept existed even from the Vedic Age. Often SGs are small patches of forest vegetation, but sometimes extend to number of acres scattered in different parts of the State. They may rightly be designated as 'refugia' since they are lands which support or function as habitats of many plant species of common to rare and endangered in the plant kingdom conserving and preserving them in perpetuity.

There are lot **of myths and legends** associated with SGsin the universe which are carried over to the oncoming generations uninterruptedly. This confirmed the belief of the local communities in the divine power of deities. SGs are found in many other countries of the world including Russia, America, China, Mexico etc. The sacred Oak grove in Greece is the oldest oracle. SGs and tree worship in the Caucasus Mountains of Russia are ancient and pre-Christian and pre-Islamic. It is said that Julius Ceaser has destroyed Druidic groves in Northern Britain during his campaigns. Specific natural landmarks, old-growth forests and mountains are culturally protected by Native American tribes. Bainbridge Island Sacred groves in Washington spread in a ten-acre forest sanctuary in order to feel the sacredness of earth. Estonia has thousands of sacred natural sites. Chinese sacred groves are known as Holly Hills or Dragon Pools. These protected patches of forests are conserved by indigenous and minority communities of Yunnan and Sichuan provinces where the inhabitants do not even touch the native mountain foresttrees out of fear of wrath of gods. The Kayas (sacred groves) of Kenya are established in the 16th century. They are remnants of ancient low land tropical forests. In some groves the flora and fauna were collected and converted for religious purposes. In some places animal sacrifices in order to appease the deity prevailed. The carving of gods made out of wood from sacred trees was believed to have divine powers. These mythological beliefs against conservation principles caused even the decline of some European sacred groves.

In India, it is found that even during the ancient pre-agrarian hunter gathering era the concept of sacred groves existed. Sanctified areas of forests are reserved and ensured protection. Rules and customs are established believing in indispensable punishments. Any violation or misdeeds in the sacred groves may result in curse in some form or other for the concerned individuals, communities or even the society as a whole in the form of epidemics or failures in farms. It is generally believed that Hindu culture, belief, worship and customs are prevalent in most of the Kavus in India.But many a times other communities including Muslims and Christians also have faith and they too follow this concept.

Sal forest groves are strictly conserved by one Mian Sahib, a local Muslim Saint near Gorakhpur, UP.Cross-cultural ecological stewardship blending with Muslims exists in the sacred groves known as Devrai in Kolhapur of Maharashtra.Gautama Buddha was born in a sacred grove in Nepal which is protected as World Heritage Site by UNESCO. SomeSGs and a well/pond containing holy water are known in the name of Pir (Sufi spiritual Guide)

in Midnapur city.

Coming to Keralam, the Sabarimala Poonkavanam itself is typical for a vast SG which entertains the said cross-cultural stewardship with Vavaruswamy. Indigenous forest patches are historically preserved by local Christian farming communities in the Western Ghats and midlands of Kerala. Also, it is found that some SGs in many localities of Keralam are jointly and collectively maintained and revered containing all religious beliefs. In the northern districts of Keralam the substantial patches of semi-natural vegetation are associated with temple complexes and ritual traditions such as Theyyam. As per Hindu belief a tree, a bird, or an animal is named for every person born on earth as the Nakshathra species. Hence it is consequently believed that every concerned individual is expected to protect and conserve their corresponding Nakshathra species. Many of the Nakshathra trees are available in SGs due to the protection given to such pieces from ancient time.

The **Socio-Cultural aspects** of SGs found that during festival seasons social gatherings including marriage ceremonies are taking place in the groves worshiping the deities in the forms of folk arts. Local social and cultural aspects depict the various folk arts in the form of music, dance, drama, etc. Some ancient surviving arts of Keralamare Kadhakali, Thottampattu, Kalamezhuthu, Pulluvanpattu, KakkarasiNadakam, Thullal, Chirappuvilakku, Mudiyettu, Padayani, Thottampattu, Vellattam, Theyyam, Poorakkali, Kalarippayattu, Chavittikali, Kummattikkali, Pulikali, etc. It may be seen that a network of social systems built on faith on different forms of deities and customs existed resulting in secular harmony and consequently preventing ecocide.

Preservation of bio diversity is first among the goals of the Convention on Biological Diversity (CBD) adopted at Rio in 1992. Community-based preservation and the vital ecological roles of indigenous practices is finding mention here. The Earth Summit Treaty recognised the knowledge and practices of indigenous and local communities (Article 8). The SGs serve as a primary global example of such traditional, community-managed conservation. Agenda 21 of CBD very often emphasized the need to integrate local indigenous ecological knowledge in sustainable development. There, it is recommended that the widest possible participation of indigenous people and local communities be encouraged in long-term research and management of ecosystems. Further to the Rio Summit, international bodies, UNESCO and IUCN focussed heavily on sacred natural sites. The summit laid the groundwork for identifying these community-protected, spiritually revered forest patches as vital gene pools and indigenous sanctuaries.

The conservation and protection acquired by the Kavus are mainly because of their dedication offered to the deities or ancestor spirits. The forest patches are natural in-situ conservatories of high biodiversity and hence are protected on religious grounds.So, they enjoyed the status of wilderness owing to their perceived importance attached to a village deity. It is an age-old tradition also and never ever allowed to disturb or manipulate the vegetation by cutting off plants or to harm animals or any form of life. SGs are believed to be the abode of Gods and attached with divinity. The status of the SGs remains unaltered mostly due to the conventional protection from the local communities blessed with cultural and spiritual significance. The environmental changes many a times caused by climate shifts, aspirational and aggressive societal systems, political intrusion, compelling infrastructure development, demographic pressure etc., are kept aloof from these relics ofnatural vegetation. The entire flora and fauna are thus under the shade of protection

and conservation withstanding any type of harming activities and stoodalone from the pressures. These community-based repositories include perennial water resources like ponds, streams, tanks or wells benefitting the peripheral society. Hence it acquired a great cause of concern for the communities in retaining the status of groves undisturbed.

Thus, conceiving the importance and role of these patches of forests in biodiversity conservation the Kerala Forest Department (KFD) through its Social Forestry Wing has allowed grants as part of the International Biodiversity Campaign from 2010. The project envisaged the protection, preservation and conservation of sacred groves proposing documentation of flora and fauna, awareness creation, land protection by boundary fencing, supplementary enrichment planting etc. Longterm financial support and one time support was awarded for each District based on certain approved norms.

The geographical relevance of SGs revealed on a consolidation of the groves in all the districts in the State of Keralam that there exists about 10,800 SGs. This includes almost all Kavus of different size from one cent to large areas of acres. The total extent of sacred groves in the State comes to about 3000 acres. The geographical area of forests of Keralam is 11522 sq. km and the total tree cover of the State including the said government owned forests extent to about 21144 sq.km. The extent covers 29.66% and 54.42% respectively of the land mass of the State. It is found that the total extent of SGs in Keralam amounts to about 0.105% of the Kerala Forests. Though it might be found smaller to mention, the appreciating point is it spreads significantly throughout the geographical area covering all the fourteen Districts

Discussing the **Composition of Vegetation and Fauna**, it is generally said that the succession of vegetation is the change in either species composition and structure, or architecture of vegetation through time. The composition of vegetation passes through such successions caused by climatic, edaphic and biotic factors, and attain some climax stage in the long run. Some stages remain steady due to the peculiar locality factors they enjoy. We can say our SGs come under this category and might be termed as **micro climax vegetation**.The plants of Kavus are mostly evergreen and semievergreen type. Almost all strata of the plant kingdom canopy viz climbers, creepers, palms, shrubs, herbs, trees etc., occur here in various combinations and frequencies due to the locality factors. Some rare and endangered species are also found beyond the effect of locality factors.

Plants not found in our forests are also noticed here in addition to some domesticated varieties of wild plants. Some dominant tree species found are Pala, Peral, Arayal, Anjily, Manchadi, Plavu, Nelli, Vayana, Thanni, Kambakam, Chembakam, Vallabham, Kanikonna, Akil, Ebony, Teak, Rosewood, Kanjiram, Gnjaval, Elangi, Plash, Sindhooramaram, Mavu, Myristica, etc., Shrubs/herbs contain Erukku, Adaladi, Anachuvady, Kattunarakam, Karamullu, Kalyana Sowgandhikam, EdampiriValampiri, Nandyarvattam, Kaattinchi, Kurunthotti,Ithikkanni, etc.Climbers of Chooral. Pullani, Sathavari, Chorianam, Palvalli, Kattumulla, Ekanayakam, Kattukachil, Mothirakkanni, etc are also found. It could be seen that very many vital rare medicinal plants are found in our Kavus. Encouraging natural regeneration is also observed abundantly.

Major fauna of SGs include snakes (cobra, viper, python and rat snake), water hen, birds including peacock and bats, apes, mongoose, fresh water and terrestrial tortoises, udumbu

(monitor lizard), porcupine, mongoose, marappatti (Palm Civet), Nilgiri Languor, Slender loris (Kuttithevangu), several amphibians, insects and microorganisms. The ponds, wells and marshes contain various fishes, tortoise, and frog and waters snake.

The ownership pattern of SGs when analysed found that they are mainly owned by Devaswoms, Government Departments, public or private trusts, families (kudumbakavus), old tharavads, local committees, tribal communities, individuals, etc., Among the total about 85% of the groves are under private ownership.The extent is found right from one cent to many acres of land but mostly of below10 cents which accounts for about 60%. The variation in the distributions of ownership pattern, grove density, extent etc., in the different districts of Keralam is very high. This may be due to various traditional culture, ecological settings and settlement and land use patterns prevailing in different localities. Concentration of groves in the coastal and midlands in the central and northern districts are found whereas, high range districts carry lesser groves. Area wise, central and northern districts contain larger ones but southern districts generally contain smaller but more in number and fragmented. Northern districts have several large traditional groves giving appearance of forest patches. Alappuzha and Idukki are scoring maximum and minimum number of sacred groves, about 2250 and 30 respectively. But coming to the extents, it is Kannur and Idukki, about 655 and 7 Acres respectively.

The SGs of Keralamsaw **Several studies and surveys** in the past focussing various aspectsof the subject. The earliest one may be perhaps that of Lieutenants B.S. Ward and F.S. Conner. The original survey and geographical memoir were conducted during the first quarter of 19th century. Their Report in 1927 cited the historical documentation of 15000 SGs in the former princely State of Travancore and Cochin. Further to that many other studies and reports have come out. Dr.ChandBasha (1998) and Dr. M. C. Induchoodan (1992-Ecological studies on the SGs of Kerala), two very knowledgeable senior Forest Officers of KFD, published relevant reports on the subject. Some of the other prominent ones might be'1998 Ecology & Management of SGs in Kerala' by Chandrasekhara U M. & Sanker S, 'Study on the Flora of SG of Thiruvananthapuram District' by E. S. Santhoshkumar, 'Glimpses of Kerala Culture' by Princess Aswathi Thirunal Gouri Lakshmi Bayi andProceedings of the National Workshop on SGs 2004 organised by Ministry of Environment & Forestsand KFD.

Nevertheless, an exhaustive survey and study on the SGs of Keralam was done by a non-profit organization established in 1987, the Institution of Foresters Kerala (IFK) only under the great stewardship of long term IFK President, late Shri.M.S.Nair IFS, Rtd Principal Chief Conservator of Forests. IFK consists of trained foresters, both serving and retired as members. This article author is an Executive Committee member of IFK and also one among themembers of thiseminent IFK project team consisting knowledgeable experts.

Being an objective of IFK to undertake studies on topics useful in Forest Management, a Project of "A comprehensive study on the socio-economic and cultural aspects of sacred groves in Kerala" was prepared and submitted to KFD in September 2012. The Kerala Forest Development Fund Research Committee, after in-depth analysis, approved this project for implementation.The programme was a detailed study of sacred groves (SGs) in each district of Keralam severally.

This study became peerless because of its exhaustive inventory of sacred groves, creation of a databank on geographical and legal status,detailed

study on flora and fauna,documentation of socio-economic and cultural aspects andmapping every SG designating with a unique Id-number.It took about ten years from September, 2012 till the submission of the 14th Study Report for Wayanad District in November, 2022. The Study Reports of the fourteen districts are severally available in public domain under *https://forestersкerala.org/about.html* which was subjected for reference in writing this article.

The study revealed some unique **interesting symbolic features** for every district.

In Thiruvananthapuram District small homestead serpent groves dominate. In the City Corporation itself sacred groves Akkodekavu near Mannanthala, Nagar Kavu near Vattiyurkavu and Thekkenada KusakodeKavu at Thirumala with regular pooja exist. Manthope Kavu in Neyyatinkara is owned by Tribal people and they perform pooja here. Another one is asircarkavu here. The defunct Mamannur MadomKavu near Madavoor is a typical remnant of a Namboothiri family kavu withan "Illam". The hundred-year-old Sivagiri MadomKavu at Varkala is of 3 acres around Sree Narayana Guru Samadhi without any deity.In KavilammaKavu near Vattappara in Nedumangad a Sanyasin is staying in a hut worshiping Lord Shiva.Large number of medium sized groves is found in Kollam District. SGs are more around the lakes of Ashtamudi and Paravoor. Many ponds are noticed in the groves. Pathanamthitta groves are widely distributed with strong traditional worship practices.Intensity of vegetation is excellent and social harmony is predominant here.Alappuzha Districts holds highest number of sacred groves (2242 in 11acres), but mainly small private serpent groves. The largest one is MannarasalaKavu of 8 Acres of wooded area.

Kottayam is dominated by very small family groves particularly in Vaikomregion.The largest one is Thevarmalakavu having 11 Acres.In Idukki there are only 32 sacred groves covering an extent of around 3 Hadue to plantation landscape and recent settlement history. In the KamakshiAmmaNagammaKavu only one Ficus tree spreading its canopy in 15 cents exist.

Thrissur represents a combination of temple groves and household serpent groves. The custodian's interest to maintain and worship the deity is noteworthy. Urbanization has reduced large groves.In Palakkad, the Parakattukavu of Malabar Devaswam in Alathurof 25 acres is the largest.

Some of the large SGs are attached to various religiously famous temples in Malppuram District. IrumanaMahadeva Temple Kavu of 4 acres, Peroor Sri DurgaBhagavathy Temple Kavu in 5 Acres and SreeThiruvangadMaha Siva Temple Kavu in 4 Acres are worth mentioning. MukkuthalaBhagavathyKshetrakavu (6Acres.) and ChandanaKavu (8 Acres.) are associated with famous saint MelpathurNarayanaBhattathiripad. In Mahabharatha epic Kadampuzha SreeBhagavathy KshetraKavu is finding place. Groves of Ponnani and KondottyTaluks, historically suffered by the well-known Padayottam of Tipu Sultan. Kozhikode District has several extensive groves. Kavus dominate in coastal belt with sandy and sandy loam soil. Local worship is very high in of PurakkadBhadrakaliKirathamurthy grove. PunathilBhagavathykavu of only 2 cents was originally with Hindus but later with Muslims. It was handed over it to Hindus subsequently. SreeDandankavu near Beypore is attached to a temple and Theyyam,

In contrast Wayanad District carries fewer groves but relatively larger forest-like patches often located near forest margins and tribal settlements with ecological continuity between groves and reserve forests. Kannur contains some of the

largest SGs in the State associated with ritual traditions with ecological continuity between groves and reserve forests. The largest one is Deviarkavu near Payyannur having not less than 72 Acres of wooded area.Large groves linked with Theyyam and temple ritual landscapes are in Kasaragod District.

Finally, it could be seen that the SGs are very vital in saving Kerala's ecological and cultural heritage. Urbanisation and land use change caused very little impact on the survival of sacred groves because of the strength of traditional belief systems and community stewardship. Conservation of these culturally protected ecosystems can be ensured by creating awareness, community programmes and proper documentation.



Kalleli Oorali Apooppan Kavu in Konni



Kerala Theyyam Dance



Vellur Kavu in Kannur



Sarpakavu

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Industrial Agroforestry: A Green Bank for Farmers

Parul Sharga[1], Krishna Kumari[2]

Abstract

India's increasing population and dependence on land-based resources have intensified pressure on forests and agricultural systems, leading to a widening gap between the demand and supply of industrial wood. Earlier forest policies, including the Indian Forest Policy 1894, followed by the National Forest Policy 1952 and National Forest Policy 1988, progressively shifted focus from revenue generation to ecological sustainability. However, limitations in addressing industrial raw material needs persist.

Agroforestry has emerged as a viable strategy to enhance productivity and reduce pressure on natural forests by integrating tree species with agricultural crops. Nevertheless, its large-scale adoption is constrained by regulatory complexities, long rotation periods of conventional timber species, fragmented landholdings, limited access to quality planting material, and weak extension support. Clonal forestry offers a scientific approach to overcome these limitations by enabling the deployment of genetically improved, fast-growing, and high-yielding planting stock, thereby enhancing productivity and reducing harvest cycles. In addition, contract farming models facilitate effective linkages between farmers and wood-based industries through assured markets, technical guidance, and buy-back arrangements, improving economic viability. The North Eastern Region of India presents significant potential for expanding industrial agroforestry due to its favourable agro-climatic conditions and biodiversity.

Overall, the integration of agroforestry with clonal technology and institutional mechanisms such as contract farming can substantially contribute to sustainable raw material supply, livelihood enhancement, and resource conservation. Strategic policy support, regulatory simplification, and strengthened extension systems are critical for promoting industrial agroforestry at scale.

Keywords: Agroforestry, Clonal forestry, Contract farming, Industrial plantations, Forest policy, rural livelihoods, Sustainable land use

India is an agriculture-based economy, with nearly 70% of its population living in rural areas and primarily engaged in farming and allied activities. The growing population has led to higher demand, which in turn is intensifying pressure on the land suitable for farming. 25 % of the global population worldwide directly or indirectly depend upon forests. The first Forest Policy in India was formulated in 1894. Prior to this, forests covered vast areas and provided numerous benefits to people. The 1894 policy primarily aimed at meeting the basic needs of the population, ensuring their physical well-being, and at the same time, emphasized revenue generation from land and the exploitation of forest resources for the benefit of British colonies. Agriculture was given precedence over forests, and wherever required, forest lands were cleared for cultivation. These measures gradually led to a decline in forest area and cover. After independence, India introduced its second Forest Policy in 1952. The Forest Policy of 1952 emphasized that one-third of the country's geographical area should be maintained under forest cover, with 60% in hilly regions and 20% in the plains. However, with the rapid growth of human population, the Forest Policy of 1988 was introduced. To reduce pressure on natural forests, the 1988 policy stipulated that forest-based industries should meet their raw material

requirements without depleting natural forest cover. While the policy aimed to safeguard forests, it fell short in providing practical solutions for industries to secure raw materials. In particular, it did not adequately address the need for partnerships and coordination with state governments for systematic, time-bound afforestation programs on degraded lands.

Solutions for wood-based industries

The possible solutions for meeting raw materials were seen from adopting afforestation programs, raising plantations on land that is not found suitable for cultivation, linking farmers and stakeholders that will provide the required raw materials for the wood-based industries. These marked the emergence of an efficient land use system that provides multiple outputs from same land management system i.e. "Agroforestry". The advantages provided by agroforestry yet still needs more scientific interventions primarily focusing on extension activities in order to demonstrate the several benefits that farmers can obtain from agroforestry plantations. Decline in forest cover, poor productivity, increased demand for wood and other forest products as well as various restrictions on harvesting of timber species created a huge gap between demand and supply. The species which are popularly introduced to serve the purpose of obtaining timber value are Acacia nilotica (babul), Albiziaspp., Haldinacordifloia(haldu), Artocarpusspp., Anogeissusspp/, Abiespindrow (silver fir), Chukrasiatabularis, Calophyllumspp., Dalbergiasissoo,Diptercocarpusindicus,Dalberg ialatifolia, Lagerstroemia spp., Piceasmithiana, Pinusroxburghii, Pinuswallichiana, Terminalia spp., Toonaciliata and Xyliaxylocarpa etc. Although, the species listed serve as best purpose for timber value but, these species have long rotation period to reach the exploitable diameter size. Therefore, the need for scientific innovation comes into play.

Significance of Clonal Forestry in Industrial agroforestry plantations

The expertise knowledge about specific species helps to develop certain identical copies of species which are known as "Clones". Thus, clonal forestry has got huge importance when long term outputs need to be converted into short term without hampering the original quality of the forest products.

Several factors have hampered the growth and development of industrial agroforestry plantations in India, including:

1. Complicated licensing procedures for wood-based industries such as sawmills, plywood, particle board, matchstick, and pulp and paper units,

2. Long rotation periods required for harvesting many tree species, which create uncertainties in market prices,

3. The need for felling permissions from state forest departments and transit permits for transporting felled timber, even for fast-growing species,

4. Fragmented and small landholdings due to increasing population pressure, which limit large-scale plantation development,

5. Absence of a Minimum Support Price (MSP) for fast-growing timber species, unlike the support available for agricultural crops,

6. Inadequate extension services to guide farmers and stakeholders at the grassroots level,

7. Poor availability of quality planting material, including improved genetic stock, to beneficiaries,

8. Limited involvement of the private sector in decision-making processes, which restricts opportunities to enhance productivity on degraded lands,

In order to address these serious issues many institutes like Indian Council of Forestry Research

and Education (ICFRE) Dehradun, State agriculture Universities in collaboration with state forest departments has developed several clones of tree species. Wide genetic variation and poor productivity of many of the forest tree species have led to the development of more superior clonally propagated tree species (Table 1).

Table 1: Species with their clones suitable for industrial purpose

Species	Improved Varieties	Productivity (MT ha^{-1})	Duration (Year)	Industrial Utility
Casuarina	MTP 1	150	3-5	Pulp, paper, biomass power, construction industries
	MTP 2			
	CJ 01			
Eucalyptus	MTP 1	130	5	Paper
	EH LBT 01	150	5	Plywood , Pulp
	EG 01	150	5	Plywood core , face veneer
Melia	MTP 1	175-200	5	Plywood, Pulp
	MTP 2	200-250	2 for pulp, 6 for ply	Pulp, Plywood
	MTP 3	100	8 ply	Face veneer
Kadam	MTP 1	100	6	Plywood core
Dalbergia sissoo	DS 18	150	6-8	Pulp, energy, timber
Toona ciliate	TC-02	150	6	Plywood
Gmelina arborea	FCRI GA-08/09	500 kg /tree	6	Packing case, timber, furniture
Teak	MTP TK 07	150 cubic feet / tree	15	Timber, furniture, pole building construction
Red Sanders	TNRS 01	100 kg heartwood / tree	16-18	Timber, essential oil

Source: Parthiban*et al*., (2021)

Contract Farming

India, like several other developing nations, has invested significantly in tree plantation programs since the mid-1970s. One of the emerging concepts in this sector is contract tree farming, which involves formal agreements between farmers or other stakeholders engaged in tree cultivation and wood-based industries to ensure mutual benefits.



Fig.1 Clonal Eucalyptus plantations in farmer's field

Tamil Nadu became the first state in India to introduce legislation supporting contract farming, thereby providing a legal framework to strengthen farmer–industry partnerships. The North Eastern Region (NER), with its favourable climate, rich biodiversity holds great potential for expanding industrial agroforestry. Assam and Tripura are major bamboo growing states. Paper and Pulp industries like Hindustan Paper Corporation, Assam and other private bamboo-based industries heavily depend on local supplies. Contract farming of bamboo will ensure regular supply to industries and provide farmers with assured income.

Similarly in states like Tripura and Meghalaya, contract farming agreements with Tyre and latex industries could provide price stability assured markets and quality planting materials. Expansion of rubber-based agroforestry creates local employment in tapping, processing and transportation. Further industry tie-ups and contracts models in states like Assam and Manipur will be helpful for industries using *Aquilariamalaccensis* (Agarwood) as raw material for perfumes and other products.

By this channel, farmers can be assured of legal markets and better financial returns. Organized plantation of agarwood also helps conserves this threatened species while improving farmers livelihoods. Farmers in Assam and Arunachal Pradesh grow Tectona *grandis* (Teak) and *Gmelinaarborea* (Gamhar) as farm forestry tree species.

Contract farming with plywood and furniture industries will ensure price assurance, buy-back guarantees and technical guidance.Similarly, contract models in Mizoram and Nagaland can be suggested for biofuel cops like *Jatrophacurcas* and *Pongamiapinnata* (Karanj). Tamil Nadu has pioneered legal support for contract farming. Similar frameworks in the North east India could transform the region into a hub of sustainable industrial agroforestry benefiting both wood-based industries and farmers.

Possible Solutions to promote agroforestry based industrial plantations particularly for India are:

1. Buy back system will be promoted by the industry for regional farmers.

2. More employment opportunities need to be created in public domain to support the livelihood status of people more specifically rural population.

3. Biodiversity and environment conservation needs to be done on big scale with adopting the concept of joint forest management.

4. Revenue system of India needs some changes with reference to wood based products.

5. Value addition of forest-based products is must to avoid loss of products that might have been obtained during processing and conversion of wood.

6. Crop diversification, scientific innovations are some of the ways through which agroforestry based industrial plantations will be increasing on wide scale.

Conclusion

Industrial agroforestry plays crucial role in

strengthening the livelihood of farmers by diversifying income sources, reducing risks associated with agriculture crops and providing assured markets through strong linkages between farmers and industries. Apart from income generation, industrial agroforestry contributes in enhancing soil water conservation, sustainable land use and improves farm productivity. With effective government policies, relaxed regulations and active participation of industries through contract farming and buy back agreements, industrial agroforestry has got immense potential to uplift rural economies.

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Birthday Greetings

We wish the following born on the dates mentioned

"A VERY HAPPY BIRTH DAY"

S.No.	Name of the Member/ Retired officer	D.O.B
1.	T.P. Thimma Reddy	06-11-1956
2.	P.S. Sankar Reddy	09-11-1936
3.	C. Sivasankara Reddy	10-11-1951
4.	P. Ram Mohan Rao.	15-11-1962
5.	C. Madukar Raj	19-11-1951
6.	K. Venkat Ramudu	23-11-1948
7.	D. Nagagopala Rao	23-11-1952
8.	K. Murali Krishna Rao	29-11-1940
9.	Solleti Chandra Mouli	30-11-1954
10.	P.K. Sharma	01-12-1956
11.	M.S.V. Prasad	01-12-1952

S.No.	Name of the Serving Officers	D.O.B.
1.	Alan Chong Teron	08-11-1976
2.	Elusing Meru	11-11-1965
3.	D.V. Reddy	15-11-1964
4.	D. Bheema	15-11-1967
5.	G. Mukund Reddy	16-11-1978
6.	Anand Kumar Jha	25-11-1969
7.	V. Prabhakar Rao	26-11-1964
8.	K. Damodar Reddy	28-11-1967
9.	Anoop Singh	01-12-1965

- SECRETARY

Any Omissions and Commissions in the Names / Dates may kindly be informed to the Editor over WhatsApp or Email.



Shakespearean twists in the tales:

Bard-of-Avon's Plays with their many complexities, unheard voices and stories!

" A few fascinating incidents (from Hamlet, The Tempest, A Midsummer Night's Dream) that do not merely adapt the Bard's plays, but engage with their many complexities - thoughtful investigations of the links between art and politics: of political awakening and a reminder of the power of art "

Dr B Raghotham Rao Desai

Exordium:

A couple (William & Anne/Agnes) grieveth the loss of their eleven-year-old son Hamnet at Stratford-upon Avon in a devastating outbreak of the plague in 1600s' England. Struck by grief, Anne and her husband find themselves torn apart, unable to even communicate with each other ---- until one beautiful moment, when Anne witnesseth what the grief hath led her husband to do: immortalise their late son forever, in his new play, ' Hamlet ' (a bold interpretation of history, to an unknown cause of death), spinning a story that not only reimagined the Bard's personal life but also interpreted his work!

With the context of Shakespeare's and Anne Hathaway's loss, ***Hamlet's ' To be or Not to be ' speech*** takes on a new significance ---- an astonishingly powerful moment, reminding us of the power of a work to speak across the time and space to reach the readers so far from its context, for Anne, the power to speak across the veil of death itself! While William Shakespeare's plays have been adapted and reinterpreted, I am reminded of stories that do not just adapt the plot of his work, but engage with the thorniness (difficulty) of his works as plays ---- encountering the power of plays ---- in their engagement with them.

As we come across similar situations in other plays:

In ***'The Tempest'*** we are introduced to a theatre director, disgraced from his position: betrayed by a former colleague, and hell bent on revenge (by taking up a job at a correctional Institute or teach the inmates imprisoned for non-violent offences). And at the end of an year, puts on his most personal play, ***The Tempest*** **---- where real life and stage life will collide in wholly surprising ways!** while there is a fast-paced revenge plot in it, there is an equally compelling stage introduced where the inmates offer their own delightful interpretations of Shakespeare.

And in a wildly different context, a young woman revels in the feeling "of a state of suspension that came over after a "performance" in ***'A Midsummer Night's dream'*** ---- a sense of ' having flown very high and landed incompletely, her soul pulling 'upward' out of her chest! Shakespeare's words ---- written during the time of the devastating plague ---- stay significant in a time recovering it: I tried to offer just a glimpse, but if it is anything, it is about the power of art of all kinds and what lengths we will go to save & savour at the end of the world.

Summary:

William Shakespeare (c. 23rd April 1564-23rd April 1616) was an English playwright, poet and actor ---- **widely regarded as the greatest writer in the English language and the world's pre-eminent dramatist** (also often called England's 'National poet' and the 'Bard of Avon 'or simply' the Bard'): **his extant works, including collaborations, consist of some 37 plays, 1545 Sonnets, 3 long narrative poems, and a few**

other Verses (some of uncertain authorship) ---- his plays having been translated into every major living language (and performed more often than those of any playwright): Shakespeare remaining arguably the most influential writer in the English language and his works continue to be studied and reinterpreted, **having invented, adopted (or first popularised) over 1700 words in the English language, by converting nouns into verbs, verbs into adjective, and creating compounds (common words he created include "bedroom, eyeball, lonely, swagger, gossip, fashionable, laughable, addiction, aerial, bandit, bump, champion, critic, dauntless, dislocate, dwindle, elbow, exposure, frugal, gloomy, hurry, impartial, lacklustre, marketable, nervy, obscene, puking, radiance, rant, self-abuse, traditional, tranquil, unreal, worthless, zany").** Phrases and idioms as **"Break the ice, Brave new world, In a pickle, Wild-goose chase, Heart of gold, Set clothed in purple, Star-crossed lovers"** ---- these words & phrases were introduced through his plays and poems, often altering the flow of the English language (by combining existing words to create new meanings).

Following beautiful passages too having been attributed to him: "You say you love rain, but open your umbrella; love sun but search for a shadow-spot; love the wind but close the windows when windy atmosphere is on: driving me to anxiety what you exactly mean when you say love me"! He also aptly states elsewhere: "Time becomes very slow for those who wait; becomes very fast for those who are scared; very long for those who lament, and very short who celebrate ---- becoming eternal for those who love"!! *(Much Ado About Nothing / Twelfth-Night: or What You Will)*

He was born and raised in Stratford-upon-Avon (Warwickshire), was married to Anne Hathaway at the age of 18 and had 3 children (Susanna, and twins Hamnet &Judith) ---- **beginning a successful career in London as an actor, writer and part-owner of a playing company** (called the 'Lord Chamberlain's Men', later known as the 'Kings Men' (after the accession of King James VI of Scotland, to the English throne) **sometime between 1585 and 1592.** At the of age 49 (around 1613) he appears to have retired to Stratford, where he died three years later.

Trivia:

Insofar as the dramas of ***'Hamlet' and 'A Midsummer Night's Dream',*** **as also *'The Tempest'*** are concerned, I have an interesting account to recount (pertaining to the Academic Year of 1949-50 when I was in **10th class** at the Osmania Collegiate Highschool, Warangal): we had Sri Ranga Rao as our class-teacher who taught us English, **as per the syllabus of our textbook** (of which the **said dramas' concise-stories were included)**. Around the commencement of the said year I had received a volume "Shakespeare: The Complete Works "published by Odham Press (through the courtesy of ' The Illustrated weekly of India' which we used to receive at home), and showed it to my teacher who appreciated and desired it to be kept in the class's small almirah (called 'Class Library') for some time, to be made use of (when the said lessons came to be taught) ---- **with his rare gusto and passion and a love for literature** (every time the stories in the book took their turns to come), without exhibiting any hurry : with just a steady voice and complete attention to what he was **reading to us, as if he knew *Shakespeare and dramatic personae* personally,** their regret and unease coming through every line he read from the dramatist's 'Complete Works' (now & then **wandering into small anecdotes and then return to the**

Contd.. on page No.54



EXTRACTS FROM CONSTITUENT ASSEMBLY DEBATES ON DIRECTIVE PRINCIPLES

Dr. Akula Kishan

The Constituent Assembly debates are recorded as is done in case of State Legislatures and Parliament and the speeches of each member are recorded and published in print.The extract of Constituent Assembly debates on the discussion on "Directive Principles of State Policy' (in Part IV of Constitution) makes interesting reading, and following passages illustrate the thought process that went in.The discussions were held on 19.11.1948.

Shri M. Ananthasayanam Ayyangar: Sir, the object of differentiating certain rights as justiciable and non-justiciable rights is well-known. Those here are non-justiciable rights as has been laid down in paragraph 29. They shall not be enforceable in a court of law. Mr. Karimuddin wants that these also should be justiciable rights. I do not know if Mr. Karimuddin is a lawyer. But let him consider one or two suggestions. In Article 26 it is said that the State should, within a period of ten years, introduce free compulsory education. Take this as an instance. Let us assume that the State does not do so then can any court of law enforce it? Against whom? In case a decree is granted by a court of law, who will carry it out? If the Government does not carry it out, can the High Court or the Supreme Court enforce it? Is it open to the Supreme Court to change such a government? With its authority, can it by an officer of the Court, an Amin or a Sheriff, imprison all the Ministers, and bring into existence a new set of ministers?

In the nature of things, these are only directives and cannot be justiciable rights at all. So there is no purpose in removing the word directive. These are principles which the Government must keep in mind, whatever government may be in power, and they must be carried out. We have incorporated them in the Constitution itself because we attach importance to them. But to classify them as Fundamental Rights as in Part III would be to take away the difference between the one set and the other, and making all the rights justiciable, which, in the nature of things, is impossible. There is no use being carried away by sentiments. We must be practical. We cannot go on introducing various provisions here which any Government, if it is indifferent to public opinion, can ignore. It is not a court that can enforce these provisions or rights. It is the Public Opinion that is behind a demand that can enforce these provisions. Once in fiveyears elections will take place, and then it is open to the electorate not to send the very same persons who are indifferent to public opinion. That is the real sanction, and not the sanction of any court of law.

Therefore, this amendment is mis-conceived, and I would request the House not to accept it.

Mr. Naziruddin Ahmad (West Bengal: Muslim): Sir, I support the amendment to drop the word "directive". It is not only the heading but the entire chapter which is misconceived. Only the other day Dr. Ambedkar enunciated a very important principle by way of reply to Prof. Shah's amendment (No.98) by which he wanted to introduce certain words into the Constitution to which Dr. Ambedkar said that pious expressions are not proper things to be embodied in a Constitution. He said, "The Constitution is a mere mechanism and no political principles or policies need or should be incorporated in it." He further said that "political principles or policies should be

dictated by the people themselves through their votes and posterity should never be fettered by an announcement of police or principle."

These are important words coming from such a high authority. I submit these pious principles should not be enunciated unless there is the backing of the law and they are also made justiciable. Dr. Ambedkar further said that to introduce pious expressions would be "taking away from the people their right to vote" and these things would be "superfluous". I submit that if you introduce pious principles without making them justiciable, it will be something like resolutions made on New Year's Day which are broken on the 2nd of January. I submit that these pious wishes are so obvious that they need not be enunciated at all. If you state them you might also say that people should get up from their bed early and be kind to their neighbors, and so forth. Sir, I submit these are not proper things to be embodied in the Constitution and the amendment of Syed Karimuddin should not be accepted.

The Honourable Dr. B.R.Ambedkar (Bombay :General): Sir, I am sorry I cannot accept either of the two amendments: Mr.Kamath's amendment is really incorporated in the phraseology as it now stands; the word "Fundamental" occurs, as Mr.Kamath will find, in the very first Article of this part. Therefore,his object that these principles should be treated as fundamental is already achieved by the wording of this Article.

With regard to the word "directive" I think it is necessary and important that the word should be retained because it is to be understood that in enacting this part of the constitution the Constituent Assembly, as I said, is giving certain directions to the future legislature and the future executive to show in what manner they are to exercise the legislative and the executive power which they will have. If the word "directive" is omitted I am afraid the intention of the Constituent Assembly in enacting this part will fail in its purpose. Surely, as some have said, it is not the intention to introduce in this part these principles as mere pious declarations. It is the intention of this Assembly that in future both the legislature and the executive should not merely pay lip service to these principles enacted in this part, but that they should be made the basis of all executive and legislative action that may be taken hereafter in the matter of the governance of the country. I therefore submit that both the words "fundamental" and "directive" are necessary and should be retained.

***

At present the following Directive Principles of State Policy are in vogue:

Article 37 – Application of the principles contained in this Part – the provisions contained in this part shall not be enforceable by any Court, but the principles therein laid down are nevertheless fundamental in the governance of the Country and it shall be the duty of the State to apply these principles in making laws.

Article 38- State to secure a social order for the promotion of welfare of the people….

Article 39 – Certain principles of policy to be followed by the State

Article 39A – Equal Justice and free legal aid

Article 40- Organization of Village Panchayats

Article 41- Right to work, to education and to public assistance in certain cases….

Article 42- Provision for just and humane conditions of work and maternity relief ….

Article 43- Living wage etc., for workers

Article 43A- Participation of workers in management of industries

Article 43B- Promotion of co-operative societies

Article 44- Uniform Civil Code for the citizens

Article 45- Provision for early childhood care and education to children below the age of 6 years

Article 46- Promotion of educational and economic interests of Scheduled Castes, Scheduled Tribes and other weaker Sections

Article 47- Duty of the State to raise level of nutrition and the standard of living and to improve public health

Article 48- Organization of Agriculture and Animal Husbandry

Article 48A- Protection and improvement of Environment and safeguarding of forest and wild life

Article 49- Protection of monuments and places and objects of national importance

Article 50- Separation of Judiciary from Executive

Article 51- Promotion of International Peace and security

Where do we stand?

The framers of the Constitution provided a frame work for bringing in laws by following the Directive Principles. But unfortunately, the Directive Principles are mostly ignored. The Village Panchayats ought to have been made nodal point for developmental projects, and the programs of all government departments should have started from Village level, so that the saying 'India lives in its villages' would have come true. The Forest and Environmental laws, including Forest Rights Act, ought to have considered the Article 48A, and the provisions should be moderated to improve forest wealth.

This article is the last article shared by the author and is published posthumously. The author was a retired IFS officer/CF, Telangana cadre. He authored many books on Forest Act and Allied Acts, the Forest Code and drafted various amendments. He was a practicing advocate in APTG High Courts. M-70930 06261.

Continuation from page No. 51

lessons, smiling to himself for a moment) as if in a reverie & as if nothing has interrupted us! He would **describe simply the stories' settings and messages, but that had stayed with me** ---- my first **real introduction to the Bard thus coming in his classes,** unfolding through his voice and gestures: his narrations of *grave diggers' scene,* the *soliloquies, Ophelia's distress* having all indelibly etched in my memory (as **he knew we needed more than just classroom conversations to spark a lifelong love for the subject**).

The great teacher **sowed seeds of my love for English writings** ---- though I belonged to science-wing (of an era of Urdu Medium) in Osmania University ---- with his simplicity and love for words : looking back, **what stands out now being how simply his approach to literature** had been (as he never tried to be impressive ---- just caring about the subject and his students' understanding it : **there being no easy way to measure what a teacher passes on his students**), having **given me literature to hold in my heart**, something I could fondly relate to, and keep the same forever.

The author is a retired IFS officer of Karnataka cadre and the Chief Editor of "VanaVikas", a quarterly magazine of the retired forest officers of Karnataka. M-98861 57158.



VRIKSHO RAKSHATHI RAKSHITHAHA

V.V.Hariprasad

Cutting myriad of trees for fuel wood
Was the Hobson's choice of our forefathers
Which used to be their way of life
For cooking food day in and dayout.

Alas, they found treesto be vanishing
Later industrial growth started flourishing
As a resultclimate change has beenmenacing
Biodiversity has begun perishing and
The plebeian has started languishing.

Sothe average joe has been cherishing
For a normal and good rainfall
Not a scanty oneor a cloudburst
Which is theaftermath of global warming
That leadsthe crop yield to be erratic
And the life of a peasantto bepathetic.

Hencethe magus being sagacious
Averred the tree cutting a bane
And forest protection a boon whereas
In the hands of a smugglerthe ruler being a pawn
Started ruling being all brawn and no brain
Leaving the forester with only choice of roaring
While protecting flora and fauna like a lion
Which has been impelling him to fight
Enduring the potentate's might.

It is high time that
We are bound to stick on to the maxim
"VRIKSHO RAKSHATHI RAKSHITHAHA"
Lest the living species on earth
Including the homo sapiens
May become extinct
One day or other
And the omnicide may not be far off.

(The author is a retired Dy.C.Fand a practicing Advocate in the District court and CAT Hyderabad)

The author is Dy.C.F (Rtd). He is on Phone 966 609 7788; and E-mail ID ; keesrabuchiram@gmail.com

Continuation from page No. 38

Topography creates ecological gradients.

- Climate shapes habitats.
- Habitats sustain biodiversity.
- Biodiversity supports ecosystem functions.
- And people determine the future of the whole system.

This is why I do not see my Scottish journey simply as having visited Scotland.

I see it as having read Scotland as a living biodiversity landscape.

And that reading continues the same journey that began decades ago in the forests and landscapes of the Eastern Ghats

Author is a Rerired Dy.CF, forest scientist, presently Director and Consultant at Forestry, Biodiversity, Environment & Climate Change, Kundhi Global Biodiversity Solutions, Visakhapatnam, Andhra Pradesh, M-85007 82528



Green Quiz November 2026

Quiz Master : Dr. K. Tirupataiah

1. Their 'patients' are the treacherous terrain of the mountains, ropes are their 'syringes' and the ladders, their 'plasters'. Employed by the Sagarmatha Pollution Control Committee, what are they called?
2. The Portuguese started the export of Mangoes from India. They named the best variety after their Governor. Which Mango variety?
3. A light house was built on the banks of the Caspian Sea. As the Sea retreated, the light house area became a desert. A light house in a desert? Name it.
4. Decrease in Elephant population has a direct adverse effect on which Coleopterans?
5. The spines of adolescent Hedgehogs fall-off being replaced by adult spines. What is this process called?
6. This flower is closely related to Brahma Kamal and is a high-altitude alpine herb flowering once in 5-8 years. Name it.
7. Many marine animals like Jelly Fish, Corals, Star fish etc have no 'Brain'. How do they manage their lives?
8. Which ants are famously called as 'exploding ants', 'gatekeeper ants' or 'door-head ants'?
9. Which Hyderabad-based Conservation ecologist won the Silver-Bronze medal at the Boston 2026 World Philatelic Exhibition?
10. During which years in the third quarter of the 19th century did a 'super famine' linked to El Nino occur that claimed an estimated 55-82 lakh lives across India?

For School Students

1. What did the students of a Jaipur School, Vivan, Ariyan and Avyana invent to remove micro-plastics from drinking water that got them the 'Earth Prize 2026?
2. Sanitation on Trains-Whose letter to the railway authorities is said to have resulted in toilets on trains?
3. 'Earth Overshoot' is an event when living beings especially humans consume more than the annual available resources on Earth. When did it first occur?
4. Which European government in exile (later held Pondicherry) issued an Indian Lotus flower stamp in 1942?
5. Which Class-XII student from Delhi pointed out wrong up-loadings on CBSE Portal in 2026?

Answers on page no :57

Truly Relate

True entrusting means you are able to truly relate to another being. Not only with human beings, but with plants and animals too. Even those things that cannot speak, you are able to hear their feelings. Namu-Amida-Butsu

(I entrust myself to the Buddha of infinite light and life)

- Myokonin Ichitaro,a Japanese known for deep faith and compassion



LEGAL NOTES

K. Buchiram Reddy

Guguloth Jabbal Lal Vs. The State of Telangana & 4 Ors

(Conditional Release of Seized/Confiscated Property)

It is reported that the Tractor bearing Registration No. T.S. 17 T 7472 was used in the commission of the following Offences, after trespass without permission, into the reserved forest;

(i). Felling of trees whichare estimated to yield 25 cartloads of fuel worth Rs. 15,55o.00;

(ii). Damaging soil conservation trenches spentRs.1,50,000.00

(iii). Ploughingup the land and digging up the soil for cultivation of the land.

The tractor, with its accessories, was seized by the Range Officer on 22.03.2021 and produced before the Authorized Officer.The Authorized Officer initiated proceedings for confiscation and issued a Show-Cause Notice to the owner of the tractor. There was no response from the owner of the tractor. The tractor with itsaccessories was confiscated by the Authorized Officer.

The owner of the tractor filed W.P. No. 24318 of 2021 and prayed for conditional release of the tractor. The court ordered the petitioner to deposit an amount ofRs.2 lakh and get the release of the tractor.He thought that it was a huge amount and therefore he was unable to comply with the order of the court. He was advised to file another writ petition and request to reduce the amount.

The Petitioner therefore filed W.P. No. 5809 of 2026 challenging the order of the Authorized Officer.He submitted that the order of theAuthorized Officer confiscating the tractor waspassed without a notice to him. The Petition came up before the Hon'ble Justice Smt.Surepalli Nanda. After going through the record and after hearing the arguments of the Advocate for thePetitioner and the Government Pleader, confirmed the earlier order of the court dated 04.08.2022 and dismissed the writ petition.

Source: Internet K.B.R

The author is Dy.C.F (Rtd). He is on Phone 966 609 7788; and E-mail ID ; keesrabuchiram@gmail.com

Answers: 1.The Icefall Doctors (Sherpas who lay the route for climbers), 2.Alphonso named after Afonso de Albuquerque who annexed Goa in 1510, 3.The Petrovsky Lighthouse,4. Dung roller Beetles,5.Quilling, 6.Snow Lotus (*Saussuria involucrate*),7.Neural net/ decentralized nervous system,8. Colobopsis ants, 9.RajasekharThummala, 10. Elephant

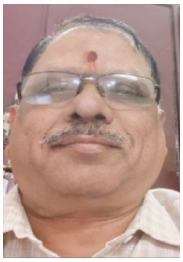
For School Students: 1.Plas-stick, 2. Okhil Chandra Sen, 3. In 1973, 4. The French government in exile), 5. Vedant Srivastava

In Appreciation

The more I develop the habit of noticing goodness and only holding to the good in others and in situations, the more my own sense of well-being will rise. When I continually think, 'He is wrong', I create a barrier that prevents me from reaching my own goodness - Brahma Kumaris

Obituary for Dr.Akula Kishan IFS (retd)

DoB: 20/06/55; DoD: 11/10/26



Eldest son of a modest school teacher, Akula Kishan was born and brought up in Hanumakonda. His mother passed away in his childhood. His step mother too passed away soon, leaving behind two step brothers.He assisted his father in bringing up his brothers. Even while in High School, he undertook tuitions along with his father for additional income. While the elder brother, Mr Mohan went on to be a Mechanical Engineer, the younger one, Mr Prabhakar was wholly financed by Kishan and sent to US for higher studies. He is now a Software Engineer and a citizen of US.

Kishan had a bright academic career. Around 1970's, a prestigious residential degree college was started by Govt of AP at Kurnool, with full subsidy to students. The admission to this Silver Jubilee College was by a competitive entrance examination. He did his B.Sc (MPC) there (1972-75), and later M.Sc (Physics) from Post Graduate centre of S.V. University at Anantapur (1975-77). Later, when he applied for ACF recruitment by APPSC in June 1978, he stood 2nd out of 20 persons selected. He joined the State Forest Service College, Burnihat, Assam in November 1979, as my immediate junior. He passed out from the course in October 1981, with Honours, in 2nd position. I found him a very studious person, working late into night, with music playing by a transistor.

Just after his selection as ACF, he was married to Mrs Aruna, daughter of an IAS officer, late Sri K.Muralidhar. The couple are blessed with a son, Mr Dheeraj and a daughter, Mrs Soumya, both settled in US.

As a person, Kishan was willing to help anyone in times of need. Around 1988, when he was working as ACF in Aranya Bhavan, late Sri P.V.Krishna Murthy, DFO retd, needed blood transfusion at NIMS. Kishan volunteered for it. In several other cases too he helped people in need of his legal services or other assistance from Aranya Bhavan or Secretariat.

As far as his ill-fated career is concerned, it is an open book. Obviously he has taken a road less travelled by and that has made all the difference. A very religious person, he used to begin his day with an elaborate pooja. So sad that even the Almighty had let him to drift away.

Early in his career, he developed a passion for Law which led him upto a Doctorate in Law. As ACF (Law), he had his 'sweet spot' and did his best to safeguard the interests of Forest Dept. Side by side, he began compiling all Acts & Rules related to Forest Dept. This led to the publication of his magnum opus " Forest Acts & Rules of A.P. ", an asset to the Dept as well as to the Legal Fraternity. It is found in the chambers of all prominent Lawyers and High Court Halls. He used to assiduously update it. Alas, it is now an orphan and is unlikely to be updated any more.

His absence will surely be felt by all concerned. May Almighty bless his Soul with Sadgathi and provide succour to the bereaved family members.

By

Sri Bhaskar Reddy, IFS (Retd.)

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Barking Deer (*Muntiacus sps*)

Photo Credit : Sri. B.D.Suyal, IFS (Retd.)

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