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VANA PREMI

Nav Se Nawvey Saal Tak Ke Bachhon Ka Saathi

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it's readers a happy
Sharad Navaratri & Vijayadashami

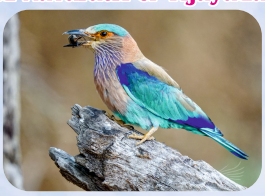

Photo: Indaram Nageswar Rao, OWLS

INTERNATIONAL BIG CAT ALLIANCE

72nd National Wildlife Week
2nd-8th October

Forest Martyrs' Day at Nehru Zoological Park, Hyderabad on 11 Sep 2026

Photo Credit : NZP

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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

Vol. : 27 **OCTOBER - 2026** **No.10**

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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The opinions expressed in Vana Premi are those of the author. They do not purport to reflect the opinions or the views of the Association of the Retired Forest Officers of Telangana and Andhra Pradesh.

Please consult the Associate Editor.

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From the Editor's Desk...

Namaste to all Vanapremi readers and Greetings for a Happy Vijayadashami (Dussehra)

India would be celebrating the 72nd National Wildlife Week from 2nd October to 8th October. The October issue of Vanapremi contains a major portion of articles on Wildlife. The opening article, an elaborately researched and compiled one, deals with wildlife trade and the roles of forest department, Department of Revenue Intelligence and Wildlife Crime Control Bureau.The next article deals with a question of contemporary relevance i.e obsession with protection and conservation of wildlife confined to the Protected Areas. On one side, the human-wildlife interactions are increasing and on the other, scope for new/extended protected areas is becoming increasingly difficult, if not impossible.

Continuing on wildlife biology, the fourth in the series, deals with 'costly displays, fragile survival: The Energy Economics of Lekking'. The sensitive balance in use of energy for reproduction and survival is taken to another level.Elephants are giant but very gentle. That's why they are so amenable for domestication. The relation between the Elephant and its mahout is as intense as any father-son relation. Compassion for Elephants and a keen understanding of their behaviour is essential for mahouts or caretakers of Elephants. This is where traditional forest dwelling communitycomes in with a rich supply of such compassionate people who are natural caregivers to the Elephants.

Not just the big animals that attract all of human attention that is economically important. Even small insects contribute immensely to the farming community. Mites and fireflies fall into this category as friends of farmers. The fireflies and the mites are good teachers that the gen-alpha could benefit very much to learn about how nature and its components teach cycles of monsoon season.The intense relation between the Tiger and the forest is elucidated in Bhagawat Gita. If there is no forest, the tiger gets killed. And, if there is no tiger, the forest gets destroyed. Understanding this relation and channelizing all efforts in this direction would be the need of the hour. Related to this is the article on eco-development that highlights the need to 'involve local communities' in all conservation efforts to ensure sustainability and community ownership. Mahatma Gandhi's ideas on ecology, environment and economics are brought out n another article.

The recent floods in Nepal only highlight the dangers of mis-management of environment and rivers upstream of the Himalayas in the context of the rapid impact of climate change there. In this context, a 'tree appeals' to humanity: if you protect me, I will protect you'. Agro-forestry is rapidly emerging as an alternate farming system augmenting the wood requirements and needs to suitably integrate in to the overall forestry practices.

The General Body Meeting of the Association was held on the 6th of September and the minutes are included here for larger circulation to the members/readers. Legal Notes, Green Quiz would continue to inform and educate the readers. Late Sri.Govindarajulu served the association with sincerity and dedication for a very long time. Vanapremi conveys its deepest condolences to his family members.

Happy reading…….

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



A COMPARATIVE STRATEGIC REVIEW BEAT PATROLS VS. BLACK MARKETS

Rewiring Andhra Pradesh's Fight against Illegal Wildlife Trade

DRI • WCCB • Forest Department — A Comparative Analysis of Mandate, Method and Outcome, with a Roadmap for Closing Andhra Pradesh's Enforcement Gaps Compiled by

B. VIJAYA KUMAR

Executive Summary

Illegal Wildlife Trade (IWT) is no longer the work of the lone poacher; it is a networked, transnational criminal economy that moves red sanders, ivory, pangolin scales and live reptiles through the same financial and logistics channels used for narcotics and contraband. India's response is split across three very differently built institutions — the Directorate of Revenue Intelligence (DRI), the Wildlife Crime Control Bureau (WCCB), and the State Forest Departments — and the gap between their operating models explains, more than any single policy failure, why seizures rarely translate into convictions at the field level.

This review places the three agencies side by side on mandate, staffing, intelligence tradecraft, control points, informer economics and legal powers; draws on documented case studies and press reporting of DRI and WCCB action in Andhra Pradesh; and sets out the specific structural deficiencies — weak inter-agency fusion, absence of undercover/controlled-delivery capability, thin specialised training, and a slow, low-value informer reward system — that keep the AP Forest Department's frontline effective at interception but weak at disruption. It closes with a phased, implementable roadmap for the Andhra Pradesh State Forest Academy (APSFA) and the Department to close these gaps.

1. The Battlefield Has Changed — Has the Enforcement Model?

Wildlife crime in India has industrialised. Red sanders leave the Seshachalam and Palakonda hills of Andhra Pradesh through the same export documentation loopholes used for textile and mineral consignments; star tortoises collected from Anantapur and Rayalaseema move through courier networks that also carry counterfeit goods; ivory and pangolin scales ride the same hawala trails as narcotics money. Against this, the State Forest Department — the agency physically closest to the source — still runs on a model built for poaching control and boundary protection, not for disrupting organised, well-financed trafficking syndicates.

The Directorate of Revenue Intelligence, by contrast, was built from the outset as a criminal-intelligence organisation, and simply inherited wildlife smuggling as one more commodity to interdict at the border. The Wildlife Crime Control Bureau sits between the two — a coordinating, multi-disciplinary statutory body under the Ministry of Environment, Forest and Climate Change, with fewer resources than DRI but a wildlife-specific legal mandate the others lack. Understanding how these three institutions actually gather information, reward sources and act on intelligence — not just what their notifications say — is the starting point for reform.

2. The Money Trail — Sizing the Illegal Wildlife Trade

Every enforcement gap discussed in this review

sits on top of a very large and very liquid illegal economy. Globally, the illicit wildlife trade is estimated at somewhere between US$7 billion and US$23 billion a year — most commonly cited around US$19–20 billion — making it the fourth-largest illegal trade in the world after narcotics, counterfeiting and human trafficking. India is not a peripheral player in this economy: it has accounted for roughly a fifth of all wildlife seizures recorded worldwide over the 1996–2008 period tracked by the UN Office on Drugs and Crime, and remains both a major source country (red sanders, star tortoises, pangolin) and a transit corridor for species moving toward South East Asia and China.

2.1 The National Picture

At the national level, DRI's own wildlife-related seizures were valued at roughly ₹800 crore in 2022–23 — a figure that captures only what was intercepted, not the far larger volume that reached buyers undetected. The deterrence problem is visible in the conviction data: WCCB and State Police records show 9,253 poachers arrested nationally between 2012 and 2018, but a conviction rate of only about 2% — meaning the economics of wildlife crime remain heavily stacked in the trafficker's favour even where enforcement succeeds in making an arrest.

Metric	Value	Source / Period
Global illegal wildlife trade (annual)	US$7–23 billion (commonly cited ~US$19–20 bn)	WWF / UNODC / Interpol estimates
India's share of global wildlife seizures	~20% of seizures recorded worldwide	UNODC data, 1996–2008
DRI all-India wildlife-related seizure value	~₹800 crore	DRI Annual Report, 2022–23
Poachers arrested nationally	9,253 arrests; ~2% conviction rate	WCCB / State Police data, 2012–2018
Red sanders illegally exported from India	~19,000 tonnes (1.9 crore kg)	TRAFFIC data, 2016–2020
DRI red sanders seizure (national)	~95 tonnes, valued over ₹150 crore	PIB / DRI, FY 2021–22

2.2 The Andhra Pradesh Picture — Red Sanders as the Case in Point

Andhra Pradesh's red sanders economy remains the single clearest illustration of the money at stake in wildlife crime, precisely because the species grows naturally nowhere else in significant quantity. The State's own Forest Department

has long estimated that around 3,000 tonnes of red sanders are illegally removed from the Seshachalam, Palakonda and adjoining hill ranges every year. International prices have historically ranged from roughly ₹20 lakh to over ₹2 crore per tonne depending on grade and market conditions — with some reports from peak-demand years quoting figures as high as ₹10 crore a tonne for premium A-grade logs in the Chinese market — putting the annual value of the illegal extraction alone in the range of several hundred to a few thousand crore rupees, even before it changes hands multiple times on its way out of the country.

The trend line shows what a resourced, intelligence-led response can do to this economy — and how quickly the gains can be at risk without sustained investment. Red sanders smuggling out of Andhra Pradesh was estimated at about ₹3,300 crore a year in 2011–14; the constitution of a dedicated Special Task Force combining forest, police and revenue officials is credited with bringing this down to an estimated ₹100 crore in a subsequent year, alongside roughly 500 arrests and 74 tonnes of wood recovered in that period. Over a longer horizon, cumulative red sanders smuggling out of the State has been estimated at close to ₹25,000 crore over a fifteen-year span — a scale that puts the entire annual budget of most forest circles in perspective.

Metric	Value	Source / Period
Annual illegal extraction from AP forests	~3,000 tonnes	AP Forest Department estimate
International market price (A-grade)	₹20 lakh – ₹2 crore per tonne (peak reports up to ₹10 crore/tonne)	Press reporting, various years
Domestic black-market price	₹15–30 lakh per tonne	Deccan Herald, 2024
Red sanders smuggling value, pre-Task Force	~₹3,300 crore per year	AP Govt release, 2011–14
Red sanders smuggling value, post-Task Force	~₹100 crore per year (claimed reduction)	AP Govt release
Cumulative smuggled value (15-year span)	~₹25,000 crore	AP Govt release
DRI Chennai Zonal Unit seizures since 2021–22	~89.65 tonnes, seizure value ~₹34.61 crore	Press reporting, 2024

These figures cover red sanders alone. They exclude the parallel, harder-to-quantify markets in star tortoises, bushmeat, live birds and timber species that recur throughout the case studies in this review — meaning the true annual value of illegal wildlife trade touching Andhra Pradesh is materially higher than the red sanders numbers alone suggest. The scale of the money moving through this trade is, in itself, the strongest argument for treating it as an intelligence and financial-crime problem rather than a patrolling problem: a courier risking a two-year sentence for carrying cargo worth crores is operating in an economy where the informer and enforcement incentives on the Department's side of the ledger are, at present, simply too small and too slow to compete.

2.3 The Coastal Dimension — Marine Wildlife Trade off the AP Coast

Andhra Pradesh's roughly 975-kilometre coastline — anchored by the ports of Visakhapatnam and Kakinada and a string of smaller fishing harbours — adds a second, less-discussed trade corridor to the State's wildlife crime picture: marine species harvested at sea and moved through the same fish-trade and export channels used for legitimate seafood. Sea cucumbers, seahorses, shark fins, corals and ornamental conch shells are the recurring commodities, driven by demand in South East Asian and Chinese markets for traditional medicine, delicacy and curio use. Because this trade rides on genuine fishing activity, it is comparatively easy to conceal and, on present evidence, is enforced far less consistently than the red sanders economy on the landward side of the State.

Quantities intercepted show the trade operates in bulk. A Category-B informer-led operation traced by DRI to a Chennai-based dry-fish merchant led to the seizure of 890 kg of sea cucumbers moving through Kakinada — one of the larger single marine hauls linked to the AP coast on record, with the informer paid ₹3.5 lakh within 45 days under DRI's Secret Service Fund. More recently, in December 2024, DRI intercepted two persons at Srisailam carrying 9.81 kg of dead black corals, 0.29 kg of soft corals and six Trapezium Horse Conches, with a follow-up action against an Ongole-based supplier recovering a further 6.64 kg of black corals — indicating that AP functions not only as a harvesting source but also as an inland collection and onward-movement point for coastal marine curios before they reach export channels. Separately, in April 2024, DRI intercepted a vehicle in Anakapalli district carrying 400 live freshwater turtles bound for West Bengal, underlining that the same AP-based courier networks move both marine and freshwater protected species along shared routes.

Pricing data specific to AP seizures is limited, but the value bands recorded in comparable Coast Guard, Customs and DRI seizures elsewhere on the Indian coast give a working benchmark for what these AP volumes are likely worth in the illegal market:

Species / Commodity	Recorded Price Band (Comparable Seizures)	Primary Market / Use
Sea cucumber (dried / processed)	~₹20,000 – ₹50,000 per kg in export-grade seizures; lower (~₹2,000–₹20,000/kg) in raw or domestic black-market lots	Sri Lanka, South East Asia — delicacy and traditional medicine

Shark fin	~₹4,000/kg at domestic seizure value; international illicit market value reported as high as ~₹55,000–₹56,000/kg for the same consignment	China, Hong Kong — shark-fin soup trade
Seahorse (dried)	~US$1,800 per kg (roughly ₹1.5 lakh/kg)	China — traditional medicine
Black / soft coral, ornamental conch shells	No consistent market pricing publicly available; driven by curio, aquarium and decorative trade	Domestic curio markets; export aquarium trade

Applied to the Kakinada seizure alone, an 890 kg sea-cucumber consignment at these price bands would represent an illegal cargo worth approximately ₹1.8 crore to ₹ 4.5 crore in export-grade markets — comparable in scale to a single mid-sized red sanders seizure, and recovered through exactly the kind of paid-informer, time-bound reward mechanism this review recommends replicating at Range level. The Srisailam coral case, though far smaller by weight, points to a second and less visible layer of the same economy: low-bulk, high-value marine curios moving inland from the coast to buyers and onward exporters, largely outside the red-sanders-focused attention that currently dominates AP's enforcement effort. Neither the Forest Department's marine and coastal enforcement capacity nor its informer network has, to date, been built out to the same degree as its inland red sanders apparatus — a gap this review's roadmap addresses by extending the Range Intelligence Cell model to Kakinada and Visakhapatnam's fish-landing centres alongside the inland choke points already identified.

3. Three Agencies, One Battlefield — A Side-by-Side Comparison

The table below draws together the statutory mandate, staffing, field presence and enforcement tools of the three agencies operating against wildlife crime in India.

Parameter	DRI	WCCB	Forest Department (State)
Legal Mandate	Prevention & detection of smuggling under the Customs Act, 1962	Combating organised wildlife crime under Section 38Z, Wild Life (Protection) Act, 1972	Protection & management of wildlife and forests under the WLPA, 1972 and State Forest Acts
Staff Strength (India)	~900 officials across 12 Zonal, 35 Regional and 15 Sub-Regional Units	~150–200 officers, mostly on deputation from Police, Forest and Customs	50,000+ staff — Forest Guards, Foresters, Range Officers

Field Presence	Pan-India: HQ New Delhi; Zonal/Regional Units at every major port, airport and border	HQ New Delhi; 5 Regional and 3 Sub-Regional Offices plus 5 border posts	State-wide: Divisional/Range offices in every district and forest division
Information Source	Customs trade data, cargo manifests, surveillance, paid informers	Intelligence collation, crime reports, volunteer network, NGOs, tip-offs	Field-staff reports, village/tribal informers, beat patrols
Technical Intelligence	Risk Management System (RMS); cargo/passenger profiling; data analytics	Wildlife Crime Database Management System; WEMS	e-Green Watch portal; largely manual, paper-based recording
Control Points	Ports, airports, Land Customs Stations, border check-posts	Border/Customs posts and designated wildlife trade hubs	Forest check-posts, sanctuary and park entrances
Secret / Reward Fund	Yes — Secret Service Fund; rewards disbursed within weeks	Limited operational fund under MoEF&CC for intelligence and rewards	Limited; disbursement typically takes 8–14 months through DFO-level approvals
Undercover / Controlled Delivery	Statutory power under Ss.100–110, Customs Act	No independent statutory power; relies on partner agencies	No explicit statutory provision under the WLPA
Estimated Conviction Rate	~40–50% (smuggling cases generally)	~25–35% (wildlife crime cases)	~8–15% (varies by state; AP, TN, Odisha reported low end)
Typical Seizure Type	Red sanders, ivory, foreign currency, gold, exotic species in transit	Big-cat parts, ivory, pangolin scales, live reptiles, exotic birds	Timber/red sanders, bushmeat, live animals, snares

Note: Figures are indicative, compiled from agency annual reports, WCCB assessments and press reporting current to 2024–2025; conviction-rate estimates should be read as broad orders of magnitude rather than audited statistics.

4. DRI in Action — The Intelligence Machine at Work

DRI's record in Andhra Pradesh is built almost entirely around one commodity — red sanders — plus a growing volume of live-species interceptions traced back to AP source networks. The pattern across cases is consistent: a tip-off or data anomaly, rapid multi-location action, and coordination with Customs, the Coast Guard or the Forest Department only at the point of formal handover.

PRESS — Chennai–China Red Sanders Corridor (2023–24)

DRI's Chennai Zonal Unit tracked a red-sanders smuggling network moving timber from Andhra Pradesh through Chennai, Delhi, Mumbai and Gujarat toward China. Acting on a December seizure of 5.53 tonnes worth about ₹2.77 crore at Sriperumbudur, DRI traced and arrested a Chennai-based coordinator linked to counterparts in Cambodia, Vietnam and China. Since 2021–22 alone, the Chennai unit has accounted for close to 90 tonnes of red sanders seized, valued above ₹34 crore.

DRI ANNUAL RECORD — 34.17 Tonne Multi-Container Seizure (Nov–Dec 2021)

Acting on a single lead, DRI examined containers at ICD Piyala (Haryana) and NhavaSheva port, recovering red sanders declared as iron, brass and hardware exports — and, in a rare move, recalled an already-sailed container bound for China from the high seas. The coordinated action yielded over 34 tonnes of red sanders valued above ₹27 crore in a single operation, illustrating the reach that comes from real-time cargo-data monitoring.

DRI OFFICIAL RECORD — 9,040 kg Concealed-Cargo Seizure, Chennai (September 2018)

DRI intercepted an export container declared as polyester yarn and rice, in which over nine tonnes of red sanders logs had been concealed — the rice bags used specifically to mask the true cargo weight. The consignment, valued at over ₹4.5 crore, was seized under the EXIM policy and CITES provisions before it could leave Indian shores.

PRESS — MUMBAI MIRROR — 293 Star Tortoises Intercepted, Navi Mumbai (2018)

Acting on a tip-off, DRI's Mumbai Zonal Unit arrested two men who had travelled from Anantapur, Andhra Pradesh, carrying 293 star tortoises in backpacks, destined for a Mumbai-based buyer for onward smuggling to South East Asia. The seized tortoises were handed to the WCCB's western region for further action — a case that illustrates how deeply AP's tortoise populations feed national and international courier networks.

PRESS — 2026 — Srikakulam Trafficking Syndicate Busted (June 2026)

In a two-day operation, DRI's Nagpur Regional Unit intercepted a suspect in Srikakulam city and rescued four Malabar Giant Squirrels, one Indian Star Tortoise and fourteen jungle fowl found caged; follow-up investigation into a remote location roughly 60 km away — hampered by absence of power and mobile connectivity — recovered two Small Indian Civet infants. All species are Schedule-I protected. The apprehended suspect and rescued animals were formally handed to the Forest Department, Srikakulam.

Common thread: In every AP-linked case above, DRI's advantage was not legal jurisdiction over wildlife — that rests with the Forest Department and WLPA — but intelligence tradecraft: cargo-

data anomaly detection, a paid and protected informer network, and the ability to move fast across state lines under Customs Act powers that carry no local political friction.

5. WCCB in Action — The Coordinating Bureau

WCCB rarely acts alone; its documented record in and around Andhra Pradesh shows it functioning as the fusion point between state police, Customs, DRI and Forest Departments, and as the nodal agency to which rescued Schedule-I species are ultimately routed.

PRESS — THE HINDU — Train Smuggling of Star Tortoises Foiled, Chennai

Acting on specific intelligence, WCCB's Southern Region monitored Surat-bound railway parcels and, with Railway Police assistance, recovered 50 live star tortoises concealed beneath ornamental-fish covers. Officials noted the tortoises were likely sourced from the forests of Andhra Pradesh or Tamil Nadu, and that WCCB took up the investigation directly to establish whether an international buyer network was involved.

PRESS — Chikkaballapur Rescue — Karnataka-AP Trafficking Chain

A joint WCCB and state CID Forest Cell operation recovered 280 star tortoises from a house near the Karnataka–Andhra Pradesh border. Investigators established that the accused had been collecting tortoises from sources inside Andhra Pradesh for supply to pet shops and trading agents — a textbook illustration of AP functioning as a source state feeding a national retail network for a species now under mounting extinction pressure.

PRESS — 2026 — Interstate Syndicate Busted with CBI and DRI (July 2026)

Building on intelligence developed by DRI Mumbai, CBI and WCCB jointly executed raids across Maharashtra and West Bengal, rescuing 52–53 Schedule-I animals and birds — including slow lorises, binturongs, star tortoises, Egyptian vultures and shikras sourced from across India — and arresting six persons. Two cases were registered jointly under the WLPA and the BharatiyaNyayaSanhita, 2023, an early example of wildlife trafficking being charged alongside organised-crime provisions.

What these cases show is that WCCB's institutional value is fusion and species-level expertise, not field reach; without a strong state-level partner feeding it real-time, AP-specific intelligence, its Southern Region can only react to what DRI, Customs or state police already surface.

5.1 Absence of Inter-Agency Fusion

DRI runs functional information-sharing arrangements with the Coast Guard, Navy, Enforcement Directorate, CBI, NIA, IB and WCCB, with joint operations as a matter of standard practice. The AP Forest Department, by contrast, typically engages police or Customs only after a seizure has already occurred — reactive coordination rather than shared, standing intelligence. There is no institutionalised monthly fusion forum linking Range-level Forest officials with DRI's Vizagzonal presence, Customs at Kakinada, or Marine and local Police.

5.2 No Undercover or Controlled-Delivery Capability

DRI's statutory powers under the Customs Act permit controlled deliveries — allowing a contraband consignment to move under surveillance so that the syndicate's buyers and financiers, not just its couriers, can be arrested. The WLPA contains no equivalent explicit provision

for Forest officers, and no operational secret fund or specialised undercover training exists at Range level. The practical effect is that AP's enforcement stops at the courier — the person carrying the red sanders log or the caged tortoise — while the buyer and financier upstream remain untouched.

5.3 Inadequate Specialised Training

DRI officers complete a structured intelligence course at NACIN Palasamudram followed by a year of mentored field deployment, and then serve 3–5 year tenures that let institutional memory and informer relationships mature. Forest Range Officers and Beat Officers face frequent transfers on a roughly two-year cycle, and receive little or no structured instruction in informer handling, intelligence-note writing, or evidence-grade documentation of a seizure — skills that determine whether a case survives cross-examination.

5.4 Weak Informer Incentive Mechanisms

DRI disburses informer rewards — up to a set share of seizure value — within weeks through a confidential Secret Service Fund, with identity protection guaranteed in law. Forest Department rewards under the relevant Government Order are smaller in absolute terms and, more damagingly, take many months to clear multi-level DFO approval, with the informer's name often recorded in physical files rather than protected by a code. Where a source waits the better part of a year for a modest payout, the deterrent economics collapse — the same information is worth more, and pays faster, sold to the syndicate than sold to the Department.

Layered on top of these four gaps are two enabling weaknesses: field technology remains largely limited to paper beat diaries, and Departmental performance appraisal still rewards administrative and plantation output far more visibly than intelligence generation or conviction support — so even where individual officers act well, the system does not reinforce it.

6. Where the System Strains? — Field Realities of the AP Forest Department

Set against the two case-study sections above, the Forest Department's position becomes clear: it is the agency with the deepest physical presence in source areas, yet the weakest ability to convert what it sees into a prosecutable case. Four structural deficiencies recur across field reporting and internal review.

7. The Gap, Stated Plainly

Deficiency Area	DRI / WCCB Standard	AP Forest Department — Current State
Inter-agency fusion	Standing MoUs; joint operations as SOP; daily data-sharing (DRI–Coast Guard, ED, CBI, WCCB)	Ad-hoc, post-seizure coordination only; no standing Range-level fusion forum
Undercover / controlled delivery	Statutory power (Customs Act Ss.100–110); dedicated funds and training	No explicit WLPA provision; no secret fund or trained personnel at Range level

Specialised training & tenure	Structured course (NACIN); 3–5 year tenures build informer networks	Minimal structured training; ~2-year transfer cycle disrupts continuity
Informer incentives	Reward up to 20% of seizure value; disbursed in weeks; identity protected in law	Smaller rewards; 8–14 month approval cycle; weak identity protection in practice
Field technology	Real-time cargo/data analytics (RMS, ICEGATE/GSTN)	Largely paper-based beat diaries; low smartphone/GPS penetration
Performance metrics	Case-outcome and conviction-linked	Predominantly plantation- and patrol-count based (ACR)

8. The Way Forward — A Phased Roadmap for APSFA and the Department

Closing these gaps does not require inventing new legal architecture from scratch — it requires adapting DRI's proven operating model to a forestry mandate, in phases that can begin immediately at Range level and scale to a State-wide institutional reform.

Tier A — Immediate Action (30-Day Pilot)

- Stand up a Range Intelligence Cell (RIC): one SI-rank FRO and two FBOs freed of all administrative and plantation duty, reporting directly to the Divisional/Circle head, with a dedicated room and a modest annual secret fund.
- Maintain three core registers — Informer (code-based, identity-protected), Suspect (vehicle/phone/MO), and Seizure (GPS- and photo-logged) — modelled directly on DRI tradecraft.
- Overhaul the informer reward scale and cut disbursement time to within 15 days of a verified seizure, under direct Divisional-level approval and a numeric informer code rather than a named file entry.
- Map and cover known choke points — markets, landing centres and highway check-posts — with periodic plain-clothes presence on market days.

Tier B — Medium-Term Expansion (3–6 Months)

- Introduce low-cost technology: vehicle-flagging analytics for repeat forest-produce transporters, and structured OSINT monitoring of known trading groups on social platforms.
- Make entry into the WCCB Wildlife Crime Database a graded, mandatory component of frontline training coursework.
- Institutionalise monthly inter-agency fusion meetings bringing together Forest, DRI's nearest zonal unit, Customs, Marine Police and the Enforcement Directorate to share a common suspect list.
- Deliver a joint practical training module with DRI/NACIN on informer handling, controlled-delivery principles and structured intelligence-note writing (Source–Reliability–Content–Action).

Tier C — Long-Term Institutional Reform (6–12 Months)

- Establish a dedicated State Wildlife Crime Wing headed by a full-time CCF (Wildlife Crime), on the lines already adopted in Tamil Nadu and Karnataka.
- Build a forensic and data-analytics capability at APSFA — including timber-DNA profiling partnerships and GIS-based crime-hotspot mapping.
- Reform ACR appraisal criteria to score intelligence generation, informer cultivation and conviction support, not administrative and plantation metrics alone.
- Pursue State Rules under the WLPA amendment framework to explicitly authorise controlled deliveries, undercover operations and a managed secret service fund for Forest enforcement.

A precedent already exists within the State: the AP Redsanders Anti-Smuggling Task Force's dedicated-intelligence phase (2019–21) is reported to have delivered a sharp fall in smuggling incidents alongside a multi-fold rise in seizure value and a much larger active informer base — evidence that the model works when resourced and insulated from routine administrative duty.

"Forest Departments must stop waiting for crime to happen in the forest. Like the DRI, we must intercept crime where it trades — in the markets and ports. Critical intelligence lives in the marketplace, not deep within the beat."

9. Conclusion

DRI and WCCB do not out-perform the AP Forest Department because they care more about wildlife — they succeed because they were built as intelligence organisations first and enforcement agencies second, with the funding, legal tools and tenure structures to match. The Department's comparative disadvantage is structural, not attitudinal, and every one of the four deficiencies reviewed here — fusion, undercover capability, training and informer economics — is addressable within existing administrative reach, without waiting for central legislative change. The Eluru Range pilot model set out above offers a realistic, low-cost first step; the State Wildlife Crime Wing offers the long-term destination. Andhra Pradesh, as the source state for one of the world's most heavily trafficked timber species and a steady supply chain of Schedule-I reptiles, has more reason than most states to move first.

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Is Management of Wildlife outside Protected Areas and Species Other Than a Few Flagship Species the Most Neglected Aspect of Wildlife Conservation in India?

Dr. D. Nalini Mohan

National Wildlife Week 2026 is being celebrated across India from **October 2 to October 8, 2026,** keeping a long-standing tradition alive since its inception in 1957. This week serves as an urgent reminder of our shared responsibility toward the natural world.

The core theme for **Wildlife Week India 2026** is **"Wildlife Conservation through Coexistence"**. This shifts the focus from keeping humans and wildlife completely separate to finding sustainable ways for them to live together. It highlights that the future of biodiversity relies on building peace between human communities and the wildlife living right next to them.

Global and Indian Contexts: Themes and Frameworks

Globally, conservation in 2026 received a major boost earlier this year during UN World Wildlife Day on March 3. That event focused on the theme *"Medicinal and Aromatic Plants: Conserving Health, Heritage and Livelihoods",* highlighting the deep connection between wild flora, local economies, and human health.

India is a mega-biodiverse nation that supports 7–8% of all recorded species on just 2.4% of the world's land area. This makes its national conservation strategies incredibly important on a global scale.

While flagship initiatives like **Project Tiger, Project Cheetah, Project Lion,** and **Project Dolphin** continue to receive strong political backing and funding, Wildlife Week 2026 focuses on a critical truth: **nature does not stop at administrative boundaries**. True conservation must look beyond well-funded protected areas to address the gaps, unprotected habitats, and hidden threats that put India's natural heritage at risk.

What is lacking in Wildlife Conservation?

Despite a strong network of **106 National Parks, 573 Wildlife Sanctuaries, and 58 Tiger Reserves,** India's conservation model faces structural gaps that undermine its long-term success:

• **Habitat Connectivity and Corridors:** Most protected areas exist as isolated green islands in a sea of human development. Linear infrastructure projects—such as highways, railway lines, irrigation canals, and power grids—cut through critical migratory corridors. Without legal protection for these transit corridors, gene flow stops, leading to inbreeding and more frequent wildlife encounters in human settlements.

• **Underfunded Non-Flagship Species:** Funding and political focus are heavily skewed toward charismatic megafauna (Tigers, Rhinos, and Elephants). Thousands of lesser-known mammals, reptiles, amphibians, and wild plants receive very little financial support or dedicated research.

• **Grassroots Community Incentives:** While communities living near forests bear the highest costs of conservation—including crop damage, property loss, and danger to their lives—they rarely receive direct economic benefits. Crop insurance programs are often slow and bureaucratic, which can turn local communities against conservation

efforts.

• **Scientific Research in Policy Making:** Wildlife management policies are often driven by administrative convenience rather than up-to-date ecological data. There is a lack of real-time population data, spatial mapping for non-flagship species, and collaborative research between state forest departments and independent scientists.

Neglected Ecosystems: Threatened Species outside Protected Areas

A significant portion of India's wildlife lives outside the safety of National Parks and Tiger Reserves. Territorial forests, revenue lands, community grasslands, and coastal areas are often neglected and face intense human pressure.

Neglected Fauna (Animals)

• **The Great Indian Bustard (GIB):** Now critically endangered with fewer than 150 individuals left in the wild, this massive bird lives primarily in the unprotected, arid grasslands of Rajasthan and Gujarat. Andhra Pradesh and Karnatakaare believed to have a few surviving individuals each. Its biggest threat is collisions with high-voltage overhead power lines installed for renewable energy projects.

• **Blackbuck and Indian Gazelle (Chinkara):** These animals thrive in agricultural landscapes and community grasslands. They face constant threats from stray dog packs, poaching, and the spreading use of razor-sharp chain-link fences by farmers.

• **Smooth-Coated and Small-Clawed Otters:** Found along rivers, wetlands, and mangrove systems outside protected areas, otters face severe threats from sand mining, water pollution, destructive fishing practices, and the clearing of riverside vegetation.

• **The Fishing Cat:** This specialized wetland predator lives in marshes and mangrove patches outside protected sanctuaries, such as the floodplains of West Bengal and Andhra Pradesh. Rapid urban development, wetland drainage, and retaliatory killing for attacking aquaculture ponds have put local populations at high risk.

• **The Indian Wolf:** Living in open scrublands and dry grasslands—habitats often dismissed as "wastelands" by land developers—the Indian wolf is losing its hunting grounds and faces high pup mortality due to diseases caught from stray dogs.

Neglected Flora (Plants)

India's wild plants are facing quiet but devastating losses both inside and outside of protected reserves, the latter being mor rampant:

• **The Malabar Mahoe and Southern Bleeding Heart Orchid:** Found in the unprotected, fragmented forest patches of the Western Ghats, these plants are highly vulnerable to plantation expansions and climate variations.

• **Red Sanders** (***Pterocarpus santalinus***): This highly prized tree grows with huge demand for its timber abroad, primarily in the forests of the Seshachalam hills and southern parts of Andhra Pradesh and border areas of Tamilnadu, and Karnataka states. It faces intense pressure from organized smuggling gangs. In spite of existence of dedicated task force, the population of exploitable girth trees is dwindling rapidly posing a great threat to the species. Experts opine that the government can do much more but not happening in reality.

• **Rare Himalayan Herbs**: Species like **Jatamansi** (*Nardostachys jatamansi*) and Kuth (*Saussurea costus*) grow on communal alpine slopes. They are heavily overharvested for the pharmaceutical and cosmetic industries, pushing them close to local extinction.

• India's immense biodiversity makes it a global

hub for traditional medicine. However, this wealth has triggered a shadow economy: the **illegal trade and smuggling of rare Medicinal and Aromatic Plants (MAPs)**. According to organizations like TRAFFIC and the International Union for Conservation of Nature (IUCN), over 90% of these plants are harvested unsustainably from the wild, pushing many close to extinction.

• The Exploitation of Wild Plants:

The illegal wildlife trade also targets India's diverse plant life. Valuable flora, including **Lady's Slipper Orchids,** and various species of wild ferns, are illegally collected from the wild. They are smuggled across international borders to supply pharmaceutical and horticultural markets; bypassing **CITES** regulations and threatening local plant ecosystems.

• Studies have proved that there is lack of proper knowledge and awareness about the high-value, rare, endangered and threatened herbs, among the general public and law enforcement agencies also.They are light, easy to dry, and difficult for border security to distinguish from regular spices, they are heavily smuggled out of the country to major traditional medicine markets in East Asia, Europe, and West Asia.

1. High-Altitude Himalayan Species (The Most Targeted)

• The fragile alpine zones of Jammu & Kashmir, Himachal Pradesh, and Uttarakhand are heavily stripped by illegal trade networks:

• **Kuth / Costus** (***Saussurea costus***): A critically endangered root extensively smuggled for traditional Chinese medicine. Due to severe overexploitation, its international trade from the wild is strictly banned under CITES Appendix I.

• **Salam Panja / Hatpanja** (***Dactylorhiza hatagirea***): A rare terrestrial orchid prized as a potent rejuvenator and aphrodisiac. Local gatherers pull up its tuberous roots, decimating its population in high-altitude meadows.

• **Indian Aconite / Patris** (***Aconitum heterophyllum***): Highly valued for its active alkaloids used to treat digestive and nervous disorders. Smugglers capitalize on the lack of pharma-forensic testing at customs checkpoints to move dried tubers disguised as common roots.

• **Tripater** (***Trillidiumgovanianum***): A relatively recent entrant to the smuggling market. Its roots contain high concentrations of sapogenins (used in anti-aging and steroid drugs), making it a massive target for underground collectors in the Kashmir Himalayas.

• **Himalayan Yew** (***Taxus wallichiana***): The bark and leaves are heavily harvested because they contain taxanes, a foundational chemical compound used to manufacture modern breast and lung cancer chemotherapy drugs.

2. High-Value Timber & Bark (Peninsular India)

• **Red Sanders** (***Pterocarpus santalinus***): Found almost exclusively in the Seshachalam hills of Andhra Pradesh, while famous as a luxury timber, its heartwood is deeply valued in international markets for its medicinal properties and value for carvings and furniture making. Massive, multi-million dollar syndicates continuously attempt to smuggle logs out via sea and land routes exploiting the systemic weaknesses.

• **Agarwood** (***Aquilaria malaccensis***): Native to Northeast India, this tree produces a highly valuable, dark, resinous heartwood when infected by a specific mold. The resin and its distilled oil (Oudh) are smuggled at astronomical prices to West Asian markets for perfumery and aromatherapy.

• **Guvada / White Cheese Wood** (***Mappia foetida***

/ Nothapodytes nimmoniana): Found in the Western Ghats (e.g., the Belagavi forest region), its twigs and leaves contain camptothecin, a potent anti-cancer compound. Huge shipments are routinely intercepted en route to China and Japan.

3. Central & Southern Indian Roots and Resins

• **Sarpagandha / Indian Snakeroot *(Rauvolfia serpentina***): Known historically as one of the world's primary natural sources of *reserpine*, a compound used to treat high blood pressure and psychotic disorders. Unregulated wild collection has decimated it outside protected zones.

• **Guggul** (***Commiphora wightii***): Thriving in the arid tracts of Rajasthan and Gujarat, this small tree yields an oleo-gum-resin used heavily in Ayurveda to regulate cholesterol. Smugglers and local collectors use destructive, deep-chemical tapping methods that kill the tree within months, pushing it to the brink of local extinction.

• **Shatavari** (***Asparagus racemosus***): The tuberous roots are globally popular in organic wellness supplements for women's reproductive health. Intense domestic demand combined with illegal cross-border trade has severely depleted its wild presence in central Indian dry forests.

The Root Causes and Challenges

• **Exploitation of Border Communities**: Smuggling rings exploit impoverished, forest-dwelling tribal communities (like the Pallyan or local Himalayan gatherers), paying them measly day wages while the kingpins pocket massive profit margins in global markets.

• **The "Look-Alike" Disguise:** Once dried, powdered, or stripped of bark, many endangered medicinal plants look identical to common kitchen spices or legal agricultural products. Customs officials lack the taxonomic and forensic tools to catch these shipments.

• **Weak Supply-Chain Traceability:** Unlike tigers or elephants, flora receives far less enforcement priority. Most herbal industries within India do not verify if their raw ingredients are sustainably cultivated or illegally poached from protected state lands.

Lesser Mammals which are rampant in illegal wildlife trade:

• **The Slender Loris:** This small, nocturnal primate lives in the southern deciduous forests of India. It is frequently captured for illegal local trade due to superstitious beliefs that its body parts can cure ailments or act as charms, and it is increasingly targeted for the illegal exotic pet market.

• **The Small Indian Civet:** Trafficked for its musk (civetone), which is used in traditional perfumes and medicines, this species faces severe pressure from illegal trapping networks operating across rural landscapes.

The Exotic Pet Trade and Exploitative Trends

• **Indian Star Tortoises:** Despite strict legal protections under the **Wildlife (Protection) Act**, thousands of these tortoises are collected from the dry zones of southern and western India every year. They are smuggled in baggage to international hubs where they are sold into the global pet trade.

• **The Red Sand Boa**: This non-venomous snake is the subject of widespread, irrational myths claiming it brings good luck, can find hidden treasure, or possesses supernatural properties. These beliefs fuel a highly secretive, expensive domestic and international black market.

• **Indigenous Birds**: Wild parakeets (such as the Alexandrine and Rose-ringed parakeets) and hill mynas are regularly stolen from their nests in the wild to supply local bird markets across India,

despite a complete ban on trading native avian species.

The Climate Multiplier: How Climate Change Aggravates Wildlife Loss

Climate change acts as a catastrophic **threat multiplier**, accelerating habitat destruction and pushing already vulnerable species closer to extinction. Its impacts are no longer a future projection; they are actively reshaping ecosystems today.

1. Habitat Shifting and Fragmentation

As global temperatures rise, vegetation zones move upward toward higher altitudes and latitudes. Species living in alpine and montane ecosystems, such as the **Snow Leopard** and the **Himalayan Musk Deer**, are running out of space as their cold habitats shrink. Concurrently, wild animals are forced to venture outside the safety of Protected Areas in search of water and food, directly exposing them to human-dominated landscapes and increasing human-wildlife friction.

2. Disrupted Ecological Calendars (Phenological Mismatch)

Climate change alters the timing of critical natural events. Flowers are blooming earlier, and insects are emerging ahead of schedule. This creates a dangerous mismatch for migratory birds and mammals that arrive at their traditional breeding or feeding grounds only to find their primary food sources have already peaked or disappeared.

3. Water Scarcity and Droughts

Rising temperatures are causing natural forest waterholes, perennial streams, and wetlands to dry up prematurely. During severe summers, desperate herds of elephants, gaur, and deer are forced to raid village wells and agricultural canals, leading to dangerous encounters, retaliatory poisonings, and electrocution.

4. Catastrophic Extreme Weather Events

Increased frequencies of intense forest fires, erratic monsoon floods (such as those routinely inundating the Kaziranga floodplains), and prolonged droughts decimate local wildlife populations, destroy delicate nesting sites, and wipe out localized, endangered flora that cannot migrate to safer grounds.

Urgent Preventive and Mitigative Measures Required

To safeguard biodiversity against climate disruptions, conservation strategies must evolve from static habitat protection to dynamic, climate-resilient landscape management:

• **Climate-Smart Wildlife Corridors**: Establish and legally protect wide, continuous habitat corridors that allow species to safely migrate across different altitudes and latitudes as local temperatures shift.

• **Resilient Water Infrastructure:** Create solar-powered borewells and desilt traditional water bodies inside forest zones to guarantee a year-round water supply for wildlife, reducing their need to enter human settlements during droughts.

• **Assisted Migration and Restoration:** Implement active, scientifically backed restoration of degraded forest edges using drought-resistant, native plant species. For highly restricted or critically endangered species, plan managed relocations to climate-stable habitats.

• **Early Warning Systems for Forest Fires:** Deploy real-time satellite monitoring, drone surveillance, and community-led fire lines to detect and control forest fires before they consume large swathes of pristine forest habitats.

• **Community-Based Adaptation:** Train forest-fringe communities in climate-resilient agricultural practices (like growing unpalatable crops like chilly

or ginger around farms) and involve them directly in ecological restoration economies.

The Path Forward: Coexistence and Comprehensive Protection

Wildlife Week 2026 highlights that saving India's biodiversity requires moving beyond old, isolated conservation models. Protecting nature effectively requires a shift toward modern, inclusive strategy:

1. Expanding Protection Beyond Reserves: India needs to establish community reserves and eco-sensitive zones that legally safeguard vital wildlife corridors and unprotected habitats.

2. Supporting Community-Led Conservation: Local communities should be equipped with quick, digital crop-compensation programs, community-led eco-tourism opportunities, and reliable solar fencing to reduce conflict losses.

3. Strengthening Wildlife Law Enforcement: Intelligence networks and forensic technology must be upgraded to track and stop illegal trade routes, focusing heavily on lesser-known animals and plants before they disappear.

True conservation means recognizing that humans and wildlife share the same landscape. By embracing coexistence, India can ensure that its economic development goes hand in hand with protecting its incredible natural heritage.

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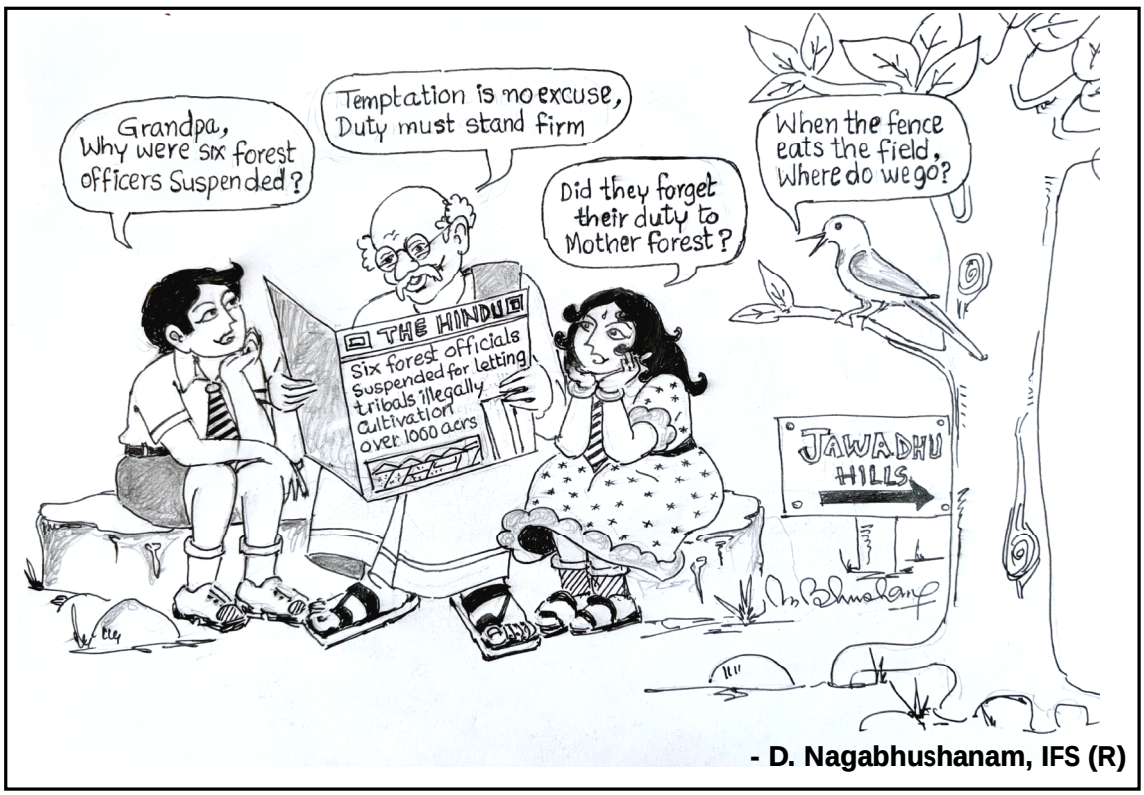


- D. Nagabhushanam, IFS (R)



Costly Displays, Fragile Survival: The Energy Economics of Lekking

R. Hemanth Kumar

Prologue

In my earlier essays-

1. Balancing Survival and Reproduction: Energy Trade-offs Shaping Tiger Ecology in India

2. The Cost of Attraction: Energy Allocation and the Evolution of Sexual Traits

3. Silent Signals, Hidden Failures: The Next Frontier in Conservation Biology

I explored how organisms negotiate the delicate balance between survival and reproduction under ecological constraints. **These writings traced the intellectual lineage from Darwin's foundational insights to modern behavioural ecology, highlighting contributions such as Fisher's runaway selection, Bateman's principle, Trivers' parental investment theory, Zahavi's handicap principle, Andersson's experimental evidence, Lack's ecological constraints, Estes' field studies of lekking ungulates, Bro-Jorgensen's multimodal signalling, Wiley's acoustic communication models, Charnov's optimization frameworks, and Stearns' life-history and evolutionary medicine. Together, these thinkers demonstrate how costly traits, signalling systems, and reproductive strategies evolve despite survival risks, driven by reproductive success.**



Photo Courtesy: blogspot.com

A detailed note was also given on how energy trade-offs in tigers reshape their ecological presence, and how, by 2035–2040, conservation biology may confront an unforeseen challenge: silent reproductive failure. Even when populations appear numerically stable, subtle disruptions to acoustic, chemical, and visual sexual signals, caused by energy stress, pollution, and climate mismatches, may erode reproductive success. Protecting biodiversity will therefore require a paradigm shift: moving beyond simple population counts to monitoring the behavioural and energetic integrity of mating systems.

In continuation of these explorations on energy trade-offs, the present essay turns to lekking in ungulates, with special attention to the Indian blackbuck. Here, the principle of energy allocation is vividly expressed, as males invest extraordinary effort in courtship displays and territorial defence, gaining reproductive success at the expense of survival and body condition.

Introduction

Lekking is a fascinating mating behaviour observed in several animal groups, including certain **ungulates**, in which males gather in specific areas called leks to perform competitive displays to attract females. Females visit these sites solely for mating and choose partners based on the quality of their displays, after which males provide no parental care.

Discovery and Description of Lekking in Ungulates

While the concept of lekking was first recognized in **birds**, particularly in species like the capercaillie and sage grouse, its application to **ungulates** emerged later through detailed behavioural ecology studies.

1. Origins of the Term

• The term **"lek"** originates from the Swedish word ***"lek", meaning play.***

• Early descriptions of lekking behavior were made in birds by Scandinavian naturalists in the **18th and 19th centuries**, but these did not involve ungulates.

2. Key Scientists Who Described Lekking in Ungulates

1. Richard D. Estes

• Richard D. Estes was instrumental in documenting and describing lekking behavior in **ungulates,** especially in African antelopes.

• His seminal work:

o **Book**: The Behaviour Guide to African Mammals (1991)

• Key Contributions:

o Provided one of the first comprehensive syntheses of social and mating systems in African ungulates.

o Described lekking in species such as:

• Uganda kob (*Kobus kob thomasi*)

• Topi (*Damaliscuslunatus*)

• Lechwe (*Kobus leche*)

o Explained the spatial organization of male territories within leks and female mate choice.

2. **J. P. (Jakob) Bro-Jorgensen**

• Jakob Bro-Jørgensen made significant modern contributions to understanding the **evolution and function** of lekking in ungulates.

• His research on **topi** and other antelopes provided insights into:

o Sexual selection

o Female preference

o The role of ornaments and weaponry in lekking systems

3. Earlier Foundational Work

• Although not focused on ungulates specifically, the theoretical framework for lekking systems was developed by:

o **Malte Andersson**, whose book *Sexual Selection* (1994) synthesized knowledge on mating systems, including leks across taxa

o **R. Haven Wiley**, who contributed to the theoretical understanding of lek evolution

Energy Trade-offs and Lekking: An Evolutionary Perspective

Reproduction is one of the most energy-intensive processes in the natural world. Every organism must balance finite energy among growth, survival, and reproduction, a principle known as **energy trade-offs**. This framework, articulated by evolutionary biologists such as **Stephen Stearns and Eric Charnov**, explains why reproductive strategies often involve costly compromises.

Among the diverse mating systems shaped by these trade-offs, lekking stands out as one of the most extreme. In **lekking** species, males congregate in communal display arenas (**leks**), where they perform elaborate courtship displays to attract females. Crucially, males provide no parental care or resources; their sole contribution is genetic. By contrast, **harem/resource defence systems** represent a different strategy, where males monopolise access to females by defending territories or resources.

While classical studies on lekking emerged from African ungulates and birds, India provides one of the most important empirical systems for understanding this phenomenon through the **blackbuck (*Antilope cervicapra*),** one of the few lekking ungulates in Asia. Integrating global theory with Indian evidence offers a comprehensive view of how energy trade-offs shape mating systems across ecological contexts.

Energy Trade-offs: Theoretical Foundation

Organisms possess limited energy, and investment in one function reduces resources available for others. In sexually selected systems, particularly those involving intense male competition, reproductive effort can become disproportionately high.

In ungulates, this manifests through:

- Development of costly secondary sexual traits (horns, antlers, ornamentation).
- Reduced foraging during mating periods.
- Increased physiological stress and mortality risk.

Lekking represents the extreme endpoint of such reproductive investment. Males sacrifice survival and future reproduction to maximise immediate mating success.

Lekking as a Mating System

Lekking involves:

- Aggregation of males in display arenas.
- Female choice based solely on male display traits.
- No male parental investment.
- High reproductive skew, with few males monopolising matings.

Richard Estes first described lekking in ungulates, while **Malte Andersson** provided theoretical development. Case studies in Africa: Uganda kob, topi, and lechwe, illustrate the energetic demands of lekking. In each, dominant males occupy central territories, achieve most matings, and suffer severe energetic costs.

Energetic Costs of Lekking

Lekking is among the most energetically demanding reproductive strategies. Males invest in:

1. Territory Defence – Continuous vigilance and fights drain energy.

2. Courtship Displays – Elaborate signals reduce feeding time and increase predation risk.

3. Secondary Traits – Antlers, horns, and ornamentation require costly growth and maintenance.

4. Reduced Feeding – Males sacrifice foraging to remain in the lek, leading to weight loss.

5. Mortality Risk – Energetic depletion and stress reduce post-breeding survival.

These costs exemplify energy trade-offs: reproductive investment diminishes survival and future opportunities.

Indian Context: Blackbuck as a Model System

India provides one of the best-studied lekking systems in mammals through the blackbuck, making it a unique model for integrating global theory with local evidence.

Foundational Study: Isvaran & Jhala (2000)

A landmark study by Kavita Isvaran and Yadavendradev Jhala at the Wildlife Institute of India examined lekking costs in blackbuck.

Key Findings:

- **Central males** (occupying core territories) achieved higher mating success but faced significantly higher energetic costs.
- These males spent more time in display and defence, foraged less, and fought more frequently.
- **Peripheral males had lower reproductive success but lower energetic costs.**

This provides direct empirical evidence of energy trade-offs in lekking systems.

Behavioural Flexibility

Blackbucks exhibit flexible mating systems, ranging from solitary territoriality to resource-defence polygyny to classical lekking. This variability depends on ecological conditions such as resource distribution, female movement, and

population density.

IISc and Recent Studies

Research from the Indian Institute of Science confirms that blackbuck males aggregate in traditional breeding grounds, forming leks, with female mate choice central to reproductive success.

Advanced Methods: Drone-based Ecology

Recent studies using UAVs (drones) have enabled fine-scale tracking of male territories, fights, and mating interactions. These reveal high interaction rates, frequent intrusions, and continuous energetic expenditure, demonstrating real-time costs of lekking.

Energetic Costs: Indian Evidence

Introduction

The study of lekking in Indian blackbuck (Antilope cervicapra) provides some of the clearest empirical evidence of how energy trade-offs shape reproductive strategies. In lekking systems, males invest disproportionately in mating effort, often at the expense of survival and body condition. Indian research has documented these costs in detail, showing how reproductive success is gained only through significant energetic sacrifice.

Central Territory Holding

Males that occupy central territories within a lek enjoy the highest mating success. Females preferentially visit these core areas, rewarding males with greater reproductive opportunities. However, the cost is substantial: central males spend less time feeding, lose body mass, and experience greater physiological stress. Their dominance comes at the expense of basic survival needs.

Frequent Fighting

Aggressive encounters are common in blackbuck leks. Males fight to maintain or challenge territorial positions, and victory in these contests enhances dominance and mating opportunities. Yet fighting is energetically costly, leading to injuries, depleted reserves, and increased vulnerability. The pursuit of dominance thus imposes high costs on the male condition.

Continuous Display

Displays, visual postures, scent marking, and vigilance are essential for attracting females. These behaviours signal stamina and genetic quality, reinforcing female choice. However, continuous display demands sustained energy expenditure, elevates stress levels, and reduces time available for feeding or resting. The physiological toll is evident in declining body condition over the breeding season.

Lek Attendance

Males must remain present in the lek to maximise encounters with females. This constant attendance increases mating opportunities but also heightens exposure to predators. By clustering in open arenas and reducing vigilance while displaying, males face elevated predation risk. Thus, lek attendance exemplifies the trade-off between reproductive success and survival.

Synthesis

The Indian blackbuck studies clearly illustrate the **energy trade-off framework:**

- **Central territory holding** → High mating success, but reduced feeding.
- **Frequent fighting** → Dominance, but injury and energy loss.
- **Continuous display** → Female attraction, but physiological stress.
- **Lek attendance** → Increased encounters, but greater predation risk.

In each case, reproductive success is achieved at the expense of survival and body condition.

The evidence from Indian blackbuck demonstrates that lekking is not simply a behavioural curiosity but a profound evolutionary strategy rooted in energy economics. Males that succeed in reproduction incur high costs, validating theoretical constructs such as the **Handicap Principle and the Bateman–Trivers framework**. In conservation biology, these findings highlight the importance of protecting grassland habitats where lekking occurs, ensuring that the delicate balance between energy investment and reproductive success continues to shape the evolutionary trajectory of this iconic species.

Energetic Costs of Lekking

Lekking is among the most energetically demanding reproductive strategies. Males invest in:

1. Territory Establishment and Defence: Continuous vigilance and aggressive encounters drain energy.

2. Courtship Displays: Elaborate signals reduce feeding time and increase exposure to predators.

3. Secondary Sexual Traits: Antlers, horns, and ornamentation require costly growth and maintenance.

4. Reduced Feeding Opportunities: Males sacrifice foraging to remain in the lek, leading to weight loss.

5. Increased Mortality Risk: Energetic depletion, stress, and predation reduce post-breeding survival.

These costs exemplify energy trade-offs: reproductive investment diminishes survival and future reproductive opportunities.

Theoretical Integration

Indian studies validate global theories:

• **Handicap Principle (Zahavi)**: Only high-quality males can afford costly displays. Blackbuck studies show that only males in superior condition occupy central territories.

• **Bateman–Trivers Framework:** Males maximize reproductive success via multiple matings, while females invest in offspring survival. In blackbuck, males invest heavily in competition, while females invest heavily in gestation.

• **Lek Paradox and Genic Capture:** Despite strong female choice, genetic variation persists. Blackbuck evidence suggests male condition reflects overall genetic quality, while environmental variability maintains diversity.

Comparative Perspective: Lekking vs. Harem/ Resource Defence Systems

Both **lekking** and **harem/resource** defence systems minimize male parental care, but they differ in energy investment, female choice, reproductive skew, and survival costs.

Male Parental Care

- **Lekking:** None.
- **Harem/Resource Defence:** None or minimal.

Energetic Investment

- **Lekking:** Extremely high in displays.
- **Harem/Resource Defence:** High in defending females/resources.

Reproductive Skew

- **Lekking:** Very high; few males dominate.
- **Harem/Resource Defence:** Moderate; subordinates may gain occasional access.

Female Choice

- **Lekking:** Direct and pronounced; females select based on display quality.
- **Harem/Resource Defence:** Indirect; choice constrained by male monopolization.

Survival Costs

- **Lekking:** High; males suffer weight loss, predation risk, and mortality.
- **Harem/Resource Defence:** Moderate; costs of defence are significant but less extreme.

This comparison illustrates that lekking represents an extreme endpoint in the continuum of mating systems, characterized by maximal reproductive investment and minimal survival benefits.

Ecological and Conservation Implications in India

1. Grassland Dependency: Blackbuck lekking occurs in open grasslands, the ecosystems under severe threat in India.

2. Habitat Fragmentation: Fragmentation disrupts lek formation and female movement patterns.

3. Human Landscapes: Blackbucks adapt to human-dominated areas, but lekking behaviour may be altered.

4. Conservation Importance: Protecting lek sites is critical for maintaining reproductive success and preserving natural behavioural systems.

Synthesis

The relationship between energy tradeoffs and lekking can be summarized as:

- **Energy acquisition → Body condition.**
- **Body condition → Ability to sustain lekking costs.**
- **Costly displays → Female choice.**
- **Female choice → Reproductive skew.**
- **High investment → Reduced survival.**

Indian studies, especially on blackbuck, provide rare empirical validation of this theoretical framework in mammals.

Epilogue

Across this series of essays, a single thread runs consistently: **energy trade-offs as the hidden architecture of life and reproduction**. From the tiger's ecological presence in India to the evolution of sexual traits across species, and now to the lekking behaviour of ungulates such as the blackbuck, the story is one of organisms negotiating finite energy in pursuit of reproductive success.

In tigers, energy allocation reshapes their ecological role with looming risks of silent reproductive failure by 2035–2040 as environmental stressors disrupt acoustic, chemical, and visual signals. In birds and mammals, costly traits and signalling systems, from Zahavi's handicap principle to Andersson's experimental evidence, demonstrate how sexual selection drives organisms to invest in displays that compromise survival. In blackbuck, Indian studies provide rare empirical clarity: central males achieve mating success only by enduring reduced feeding, frequent fighting, physiological stress, and heightened predation risk.

Together, these insights reveal a continuum of strategies, from harem defence to lekking, where reproductive gains are balanced against survival costs. Lekking represents the extreme endpoint, a vivid reminder that evolution often rewards extravagance over efficiency when reproductive success is at stake.

For conservation biology, the lesson is urgent: **protecting biodiversity requires more than counting populations.** It demands safeguarding the energetic and behavioural integrity of mating systems. Silent failures in reproduction may occur long before numbers decline, hidden in disrupted signals and exhausted bodies. By integrating ecological monitoring with behavioural ecology, conservationists can anticipate these failures and preserve not just species, but the evolutionary processes that sustain them.

Thus, the arc from tiger ecology to blackbuck lekking is not merely academic; it is a call to reimagine conservation as an endeavour that

Contd.. on page No.33

Pictures from the General Body Meeting held on 6th September 2026





Felicitations to Nonagenarian Sri A. Raja Reddy who was just a week away from attaining 100 years




Felicitations to Nonagenarian Sri C. Ramakrishna Reddy, Octogenarian Sri N. Linganna, IFS (Retd.),



Felicitation to Sri.D.Nagabhushanam, IFS (R)





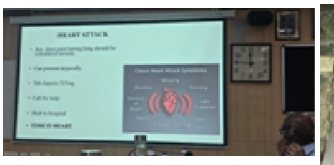
Address by the Chief Guest, PCCF (HoFF) Sri.Vinay Kumar IFS and Felicitations to him





A view of the participants








Dr Sowmya Reddy, Consultant, Dept. of Emergency Medicine, Apollo Hospital, Hyderabad, and team dealt with Emergency First Aid measures and CPR practice



Just one week after the GBM, Sri. Raja Reddy became a Centenarian

Forest Martyrs' Day 11th Sept 2026 at NZP Hyderabad





Chief Guest Hon'ble Minister Sri.Jupalli Krishna Rao and MLA Wyra Sri.Raju Naik being received; view of Officers-serving and retired; and Welcome address by Smt.Priyanka Varghese, IFS



Address by Sri.Vinay Kumar, IFS, PCCF (HoFF)




Address by MLA Wyra & Hon'ble Minister & Chief Guest



Address by DGP Sri.C.V.Anand, IPS





Presenting Government assistance to the wife of Forest Martyr late Sri. B.Naveen, FBO





Laying wreath at the Martyrs' memorial by Hon'ble Minister and MLA Wyra & view of officers and public





Forest Martyrs' Day 11th Sept 2026 at NZP Hyderabad



CS Sri.Sanjay Jaju,IAS, DGP & HoPF Sri.C.V.Anand,IPS and PCCF & HoFF Sri.Vinay Kumar, IFS laying wreaths at Forest Martyrs' memorial



PCCF (Dev) Sri.Ratnakar Jauhari, IFS; PCCF and VC & MD TGFDC Smt.Sunita Bhagwat, IFS ; CCF Charminar Circle Smt.Priyanka Varghese, IFS laying wreaths at Forest Martyrs' Memorial



CF & Director Zoo Parks Dr.Sunil Hiremath, IFS and retired PCCFs Smt.R.Sobha and Dr.D.Nalini Mohan laying wreaths at Forest Martyrs' Memorial



Dignitaries and officials observing a moment of Silence in Honour of Forest Martyrs; Group photo with Chief Guest and other Dignitaries and view of Officers, Staff and family members



పర్యావరణహితం

సింగరేణి అభిమతం



డోర్లి ఓసీ డంపుపై పెరిగిన ప్లాంటేషన్



బ్లాక్ ప్లాంటేషన్



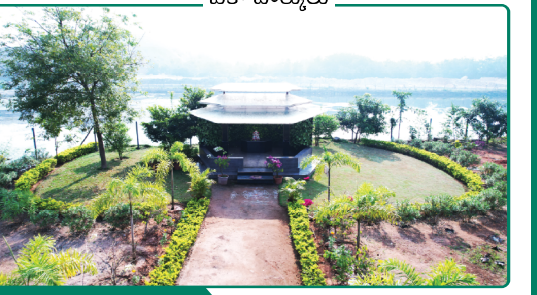
సింగరేణి ఆధ్వర్యంలో నిర్మించిన చెరువులు



అవెన్యూ ప్లాంటేషన్



ఎకో పార్కులు



SCCL

సింగరేణి

కాలరీస్ కంపెనీ లిమిటెడ్

(ప్రభుత్వ రంగ సంస్థ)

Continuation from page No. 28

protects energy balance, signal integrity, and the fragile negotiations between survival and reproduction that define life itself.

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Birthday Greetings

We wish the following born on the dates mentioned

"A VERY HAPPY BIRTH DAY"

S.N.	Name of the Member	D.O.B.
	Sarvasri	
1.	M.V.S.N.Acharyulu	01-10-1954
2.	Dr.S.N.Jadhav	01-10-1955
3.	K.Purushotham	05-10-1962
4.	O. Subramanyam	08-10-1945
5.	P.Subramanyam	08-10-1946
6.	U. Govind Rao	08-10-1953
7.	R.D. Venkateshwarlu	13-10-1960
8.	E.Anjaneylulu	18-10-1952
9.	R.K. Rao	20-10-1935
10.	V. Ranga Rao	20-10-1945
11	N. Venkatramnarsaiah	20-10-1954
12.	C.P. Vinod Kumar	21-10-1963
13	okesh Jaiswal	22-10-1963
14.	C. Subba Rao	24-10-1943
15.	B.M. Swami Dass	24-10-1954
	Sarvasri	
16.	Dr. G. Narsaiah	24-10-1957
17.	K. Murali Krishna Rao	29-10-1940
18.	K. Appala Narasiha Chary	03-11-1961
19.	Y. Madhusudan Reddy	04-11-1963
20.	D. Nagabhushanam	05-11-1955

S.N.	Name of the Serving Officers	D.O.B.
	Sarvasri	
1.	P. Krishnamachary	07-10-1964
2.	M. Ashok Kumar	13-10-1965
3.	D. Sudhakar Reddy	14-10-1966
4.	Smt. P. Rajeshwari	21-10-1963
5.	G.A.P. Prasuna	21-10-1979

- SECRETARY

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



Memoirs of my three-years stay in Hunsur:

The bond between Gentle-giants and their Caretakers ---- a Ringside View of the relationship

"Compassion for elephants and an understanding of their behaviour are key qualifications for caretakers;traditionally recruited from the forest-dwelling JenuKuruba community who have them in abundance"

Dr B Raghotham Rao Desai

Exordium:

The Asian elephant (*Elephas maximus*) is the largest land-mammal in Asia ---- listed as endangered, only 35,000-50,000 remain in the wild (across 13 range countries): these highly intelligent herbivores distinguishable from their African cousins by smaller ears, a more curved back, and a single 'finger' on the tip of their trunks. Their populations have drastically declined due to severe habitat fragmentations, poaching, and fatal human elephant conflicts as human-populations expand.

Having been posted to Hunsur Forest Division in mid-1980 (earlier known as South Coorg Forest Division, Hunsur, with jurisdiction over Virajpet, Periyapatna, Hunsur, and KR Nagar taluks), I stayed there for 3 years (till mid-1983), when the responsibility to send elephants for Mysore's Dasara was also on us (handling it for 3 seasons), as we had 5 elephant-camps (big & small) in Thithimathi, Nagerhole (Balecove), KalhallaRanges and Murkal. **Compassion for elephants and an understanding** of their behaviour being key qualifications for becoming caretakers, **we used to traditionally recruit from the forest-dwelling Jenu-Kuruba community as *mahouts&kavadis* who had the said desirable qualities in abundance**. During discussions, a few *mahouts* revealed that decorating elephants artistically (with durable paint, on their bodies) at Mysore during Dasara festivities was not desirable (as the pachyderms get irritated) and they face with problems to control them. We were seized with the matter and went deep into the problem to study the situation further by getting the opinions of our veterinarians (who take care of them when the gentle giants fall ill or show the signs of any diseases).

As elephants' skin happens to have a specialized cooling system due to the lack of any sweat-glands on their skin-spread, they rely instead on a microscopic network of cracks-and-wrinkles (that hold 5 to 10 times more water than smooth skin), allowing to evaporate heat slowly, **painting on an elephant's skin disrupts its microbiome**, causing a loss of beneficial bacteria which naturally inhibit pathogens that could lead to severe abscesses or ulcers ---- treating which becoming a **medical minefield (due to the high prevalence of multi-drug-resistant bacteria in captive populations**): regions like joint-folds, trunk-folds being highly vascular. Thus we banned painting them from 1980-Dasara itself, which remained in force for next two seasons (till I was shifted to Shimoga) ---- allowing them to be decorated instead with any number of accoutrements externally.

Now, Their Capturing and Taming:

Elephants being wild animals: that wild instinct remaining with them always, **they are unpredictable** ---- it is up-to us to be extra-cautious, looking for signs of their aggression: one should always remember the truth that **they're not at fault when they attack**. With over 6300 wild elephants, Karnataka is home to India's largest

population of theGentle-giants ---- having 10 elephant-camps (located in areas with the highest levels of human-elephant conflicts, allowing the tamed elephants (called *Kumkis*) to be deployed to quickly manage such contingencies ---- collectively housing more than 150 of them (trained & semi-trained). Primarily, there used to be two methods to capture and tame them:*Khedda* and *Kumki* (till early 1970s)----*Khedda*method having now been banned (which involved driving wild herds into massive stockades), being fraught with risk and danger of quite a few of them dying during the drive. Today we rely on the *kumkimethod* (or tranquilization with care) to capture.

On the first day of confinement, a mahout and a *kavadifrom* the said community are assigned to the elephant, pairing them for life ---- keeping the animal in a kraal ---- a huge cage made from heavy logs ----the elephant getting highly aggressive: constantly trying to escape (head-butting the logs, and using their trunks to push them, often falling while trying to climb out (their movements being restricted by heavy chains): the stress of captivity worsening their existing/inflicted wounds (hence monitored daily by a veterinarian). The *JenuKurubaMahout &Kavadi* remain beside the elephant at all times initially (not going home or even bathing) ---- it is during these days that they imprint their voices and body-odours on the animal (and beginning to feeding the elephant with long sticks ---- as it gradually calms and responds to commands, both the length of the stick and the size of the enclosure getting reduced) ---- the elephant only then allowed out of the kraal after it learns to obey the commands: some are brought out in 15 days, while others take 45 to 60 days; once the mahout is confident of controlling the elephant, it is brought out, still chained, and positioned between two trained elephants (giving it a sort of comfort of being 'in a herd', while making an escape more difficult), training getting intensified at the said stage (with mahout issuing commands): the trained ones only responding to their *mahouts & kavadis.*

Kumki elephants are seen as essential peace keepers in wildlife management ---- suitability depending on their physical strength, the courage they exhibit during high-risk encounters, and how well they can be controlled by their *mahouts.* While there is no concrete record of when we began domesticating elephants, it is well known that **major dynasties used elephant-cavalry in warfare.** Tamed elephants do more than help mitigate conflicts ---- **also paying a pivotal role in Mysore Dasara**, Karnataka's biggest festival. However, not all trained elephants are chosen for *kumki operations.*

Summary:

Every morning, *mahouts/kavadis* have to search, locate, and bring back their elephants from the adjacent forests where they are allowed to go during the nights for forage ---- sometimes an elephant is found to wander a bit too far, drifting away with wild herds: it is tracked by following marks left by the chain-dragging from its legs; even after such escapades it has to be patted gently on the trunk and coaxed with few soft words in its ears, which will be enough to win it over!

Once a *mahout orkavadi* spots his elephant, he calls out ---- most times it ignores and stays with the wild herd, thinking they are its new family. Then the caretakers climb a tree and make loud noises. If that too doesn't work, crackers are burst - the tamed elephant stays, being used to the said sound, but the wild ones flee, and the tamed fellow will be coaxed back with treats (like bamboo shoots)!

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.



Fire flies and Red Velvet mites – Friends of Agriculturists

Qamar Mohammad Khan

I was born and stayed up to 1955 in Secunderabad. I remember a Hindi film by name “Mr. and Mrs 1955” was released during that year, I don’t know whether readers remember this or not but I am not going to tell you anything about this film. In this article I am going to tell you about Fire flies and Red Velvet mites. During 1950s, it used to rain a lot and we can see every-day it was raining. After 1955 I lived in forested areas of Telangana up to 1968, which year I joined the forest Department. We used to see the fire flies just before the rainy season i.e. in the month of May and with the start of monsoon month of June in very large numbers.

Fireflies (*Absconditachinensis*) , popularly known as *Jugnu* in Urdu and Hindi and *MinuguruPurugulu*, in Telugu were once a familiar sight on summer evenings across the villages of Telangana. My mother used to stich small bags with *Mulmul*cloth in which we used to keep fire flies which used to produce light intermittently and can be seen through the *mulmul* cloth, during the night and next morning we used to release them in nature. Their sparkling lights in fields, gardens, and along village paths delighted children and adults alike. Today, however, this enchanting natural phenomenon has become increasingly rare, raising concerns among farmers, scientists, and environmentalists.

Fireflies are much more than beautiful glowing insects. They play an important role in maintaining ecological balance. During their larval stage, they feed on snails, slugs, worms, and other small pests that damage crops. By naturally controlling these harmful organisms, fireflies help farmers reduce crop losses and lessen dependence on chemical pesticides. Their presence also indicates healthy soil, clean water, and an unpolluted environment, making them valuable bio-indicators of ecosystem health.

Unfortunately, fireflies have almost disappeared from many parts of Telangana. Rapid urbanisation, destruction of natural habitats, excessive use of chemical pesticides and fertilisers, pollution, and increasing artificial lighting during nights have severely affected their breeding and survival. Fireflies rely on their flashing light to attract mates, but bright LED lights and streetlights interfere with this natural communication. As a result, their populations have declined sharply in villages as well as urban areas.

Although they are no longer common, fireflies can still be seen in a few undisturbed areas of Telangana. They continue to survive in and around the Amrabad Tiger Reserve, Kawal Tiger Reserve, Dandepally, and Peddapur, where forests, clean water, and dark nights still provide suitable habitats. However, even in these areas, their numbers are much lower than they were a few decades ago. Recently I had been to Western Ghat and stayed for three nights at Wayanad, I could see only a single fire fly one night.

The disappearance of fireflies is a warning that our environment is under stress. Farmers, citizens, and governments can help bring them back by reducing pesticide use, promoting organic and eco-friendly farming, conserving wetlands and forests, and minimising unnecessary outdoor lighting at night. Protecting fireflies means protecting biodiversity, sustainable agriculture, and the natural beauty of Telangana. The return of fireflies would not only brighten our nights but also signal the restoration of a healthier environment for future generations.

Red Velvet Mites: Nature's Tiny Ruby Jewels: Red Velvet mites (*Trombidiumgrandissimum*) are known as *Birbaboti* in Urdu and as

Aarudrapurugu in Telugu. These mites are known as AarudraPurugu because they are seen with the start of *AarudraKarti* during rainy season which starts from 22nd or 23rd of June every year. Red velvet mites are among the most fascinating and colourful creatures found in nature. Their bright scarlet-red, velvety bodies make them easy to recognize, especially during the monsoon season. Although many people mistake them for harmful insects, red velvet mites are actually beneficial arachnids closely related to spiders and ticks.

Red velvet mites are tiny, soft-bodied creatures covered with fine, velvety hairs that give them a striking crimson appearance. They usually emerge from the soil after the first monsoon rains. They are commonly seen in agricultural fields, gardens, forests, and grasslands, where the soil remains moist.

Life Cycle: The life cycle of red velvet mites is unique. Their eggs are laid in the soil. The young larvae often parasitize insects and other arthropods, while the adult mites become free-living predators. This change in lifestyle helps maintain ecological balance by regulating populations of many small insects.

Importance in Agriculture: Red velvet mites are considered friends of farmers because they prey on insect eggs, termites, small insects, and other tiny organisms that can damage crops. By naturally controlling pest populations, they reduce the need for chemical pesticides and contribute to environmentally sustainable farming.

Ecological Significance: These mites play an important role in maintaining soil health. Their activities help recycle nutrients and support the balance of soil ecosystems. As natural predators, they are an essential component of biodiversity and healthy agricultural landscapes. During my childhood I used to collect the Red Velvet Mites from grassy areas and keep them in a match box. Fill that match box with green grass presuming that mites will eat the green grass. Later I came to know that Red Velvet Mites are hunters and eat only non veg. I also used to shout in that match box "*BirbabotiAnkhenKholl*"

Threats to Their Survival: Despite their ecological value, red velvet mite populations are declining in many areas. The major reasons include: Excessive use of chemical pesticides and fertilizers, loss of natural habitats due to urbanization, soil pollution and degradation, climate change and irregular rainfall patterns, their disappearance serves as an indicator of declining soil health and environmental quality.

Traditional Beliefs and Scientific Interest: In many parts of India, red velvet mites have been associated with traditional medicinal practices. However, most of these medicinal claims lack strong scientific evidence. Scientists continue to study these remarkable creatures because of their ecological importance and the possibility that compounds they produce may have useful biological properties.

Conservation: Protecting red velvet mites requires reducing pesticide use, conserving natural habitats, promoting organic farming, and improving soil health. Farmers and the public should be encouraged to recognize these mites as beneficial organisms rather than pests.

Conclusion: Red velvet mites are small but valuable members of our ecosystem. Their brilliant red colour, unique life cycle, and role as natural pest controllers make them an important part of agricultural and natural environments. Conserving these tiny creatures will help protect biodiversity, improve soil health, and support sustainable agriculture for future generations.

Let us protect our small insects and mites also and save them from extinction which are much beneficial to the mankind and his agriculture.

The author is a retired DFO, worked as Editor of Vana Premi For about 12 years, Mobile No: 9849233624



A Case of killing Tiger, Peafowl & a Hare

K.Buchi Ram Reddy

Nirvana vadhyate nirayaghram chidayati vanam,

Tasmad vyagrhravanam rakseth dvayam vyaghram cha palayat

Maha Bharat

(If there is no forest, then the tiger gets killed;

If there is no tiger, then the forest gets destroyed)

Our ancient scriptures disclose how zealously the people protected Forests and their dumb denizens. Contrarily, the present generation wants more land by destroying the forests and they resort to killing wild animals for food and sport. The story described below reveals details of killing a tiger, pea-fowl and a hare.

It was the year 1975 on 18thJuly I was working as the Assistant to the Chief Conservator of Forests,Andhra Pradesh at Hyderabad. It was almost closing hour of office, I was called for by Shri A.H.Moosvi, D.F.O, Hyderabad. When I went down to meet Moosvi Sab, it looked tome that he was tense onan errand with two Range Officers and staff with two jeeps. As I approached him to pay my courtesy, he offered me a seat by his side in the jeep. As we were moving, I was told that he received information about a few persons killing a tiger and the process of its skinning was in progress. The address was clear and we reached our destination in no time. At the entry gate, there was the name plate. We were in the premises soon and the D.F.O asked hisstaffto search the premises. They found a wrapped- round-skin of the tiger in a corner of the unfinished building andthemeat of the tigerwas lying on the ground. A skinned hare and a dead pea-fowl werefound in the kitchen.

The D.F.O asked the house owner to produce the gun used for shooting tiger. When the rifle wasproduced, it was seized together with skin, skull, meat of the tiger and the skinned hare as also a dead Pea-fowl. A panchanama of the proceedings was drawn up and the events were photographed. The property consisting of semi-cured skin of tiger together with skull, carcass and meat, together with the dead and skinned hare as well as peafowlwere seized and moved into the office building.

The seized propertyincluding the car was produced in the court the next day with a request toaccord permission to conduct further investigation; for post mortem with the curator, Nehru Zoological Park, examination of the Czechoslovakia make rifle by a Ballistic Expert.

Sri A.K. Mathur, Conservator of Forests, Hyderabad Circle held a Press conference. Itwas disclosed that a few youngsters from affluent families of Hyderabad were responsible for the crime. Wide publicity was made in all the local newspapers. Preliminary enquiry revealed that the shooting took Place in the forest of Mannanur and a Forest Guard was involved. He was made one of the accused and another person by name Toucher, the taxidermist was added to the listof the accused.The killing of wild animals occurred in Mannanur forest and the concerned DFO Sri K. JaganMohan Rao, who is also a wildlife Specialist, was summoned. He examined the carcass and determined the age and sex of the tiger. It was about 3-4 years of age and a female.

After completion of the investigation, the next task was prosecution of the accused. For that we had to decide the place of prosecution – whether it should

be the court having jurisdiction over the place of occurrence of crime or the place of detection of the crime. It was open to the prosecution to choose either of them. We have decidedto prosecute the accused at Hyderabad. The next task was to find an honest and intelligent Advocate to conduct prosecution. By an order of the Government, Sri B.S. Palnitkar was appointed as the Special Public Prosecutor. He helped us in drafting the Complaint (Charge-Sheet) and it was in the Court of TheIII MetropolitanMagistrate to try the case.

The main accused were MasiuddinFaroqui and two of hisassociates. The Taxidermist Toucher, who did the job of skinning and salted the skin as pre-treatment and The F.G., who connived with the Shikar Party,were also roped in.

A famous criminal lawyer was engaged to defend the main culprits. Unfortunately after a few hearings, The Special Public Prosecutor passed away. We approached the Police Prosecuting Officer (P.P.O) with a request to conduct the prosecution. Hereadily agreed. The evidence of the prosecution was recorded. One Panchwitness turned hostile. I appeared as a Prosecution Witness and my evidence was recorded during three days which included Chief and CrossExamination and it ran into eleven pages. The other important witnesswas Sri A.H.Moosvi who detected the offence and guided the investigation.Sri Santok Singh, RangeOfficer, was the complainant and Investigating Officer.The Expert witnesses were Veterinary Officer attached to the Nehru ZoologicalPark, An Asst.Professor of Veterinary Science who conducted the post mortem. A Ballistic Expert who examined the rifle. All the expert witnesses gave their evidence.Two witnesses appeared for defense. The evidence then was closed. The case was posted for arguments.

At this stage we found that the Magistrate of the Trial Court was showing sympathy to the accused. We grew suspicious that the Magistrate was won over. We therefore approached the Sessions Court and requested for posting the case before another Bench. The Sessions Judge was pleased to order transfer and post before another Bench.

The case dragged its feet for two-and-a-half year. While it was legally a case for punishment of the accused, it was virtually test of the patience of the forest officers.The P.P.O concluded his arguments and requested the court to punish the accused according to law.

The Defense Lawyer, while referring to the conduct of the officers said, they are the 'men of trees', 'Wild Men to protect wild animals', who prefer 'Law of Jungle' to 'Rule of Law' etc. Sri Moosvi, an officer of high probity was characterized as a Villain of the drama. I wonder if all this is permissible in law.

Come what may, we remained firm and upright; and there was no change in our attitude. The complainant Sri Santok Singh was determined from the beginning to put all his might for the success of the case and Sri Moosvi continued to encourage us. The Prosecutor Sri Venkat Narayan Reddy deserved kudos for his continued interest and co-operation.The evidence was strongand overwhelming. The Learned Magistrate came to provisional conclusion that the accused deserved conviction.The accused being first offenders pleaded for mercy. TheMagistrate convicted all the accused and instead of sentencing them to imprisonment gave the benefit of Probation of Offenders Act. The case property car and rifle were confiscated. We are happy for the success but disappointed for failing to get sentence. The High Court and Supreme Court confirmed the conviction and ordered release of car and rifle.

The Wildlife Protection Act 1972 is a Central Act which came into effect in the State of Andhra Pradesh on 01.03.1973. People did not realize

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Mission Ecodevelopment Part-II

Dr. K. Thulsi Rao

Particularly the period after the death of Ramayya, one of the frontline forest personnel closely associated with the field-level work, had a profound psychological impact on the staff. The field personnel became apprehensive and demotivated, particularly because they were required to work in difficult terrain and interact continuously with forest-dependent communities under circumstances for which there were, at that time, no well-established institutional norms.

The Government subsequently issued directions for the frontline staff to remain at their headquarters and exercise greater caution. While these instructions were understandable from the standpoint of staff safety, they also created a serious challenge for eco-development. Eco-development cannot be implemented from offices or headquarters alone. Its success depends upon sustained field presence, personal interaction, mutual trust and continuous engagement with communities.

It became increasingly clear that conservation could not be treated merely as the responsibility of the Forest Department. Conservation is not one man's job, nor is it the responsibility of one institution. It requires the convergence of forest-dependent communities, multiple resource users, government departments, local institutions, NGOs and other stakeholders, supported by adequate financial resources and trained human resources.

At that stage, eco-development itself was still an evolving concept in India. There were no universally established operational norms or ready-made models that could simply be replicated. The methodology had to evolve through experimentation, field experience and, above all, by working with people.The first requirement, therefore, was to understand the immediate and location-specific needs of each village and community. The problems of one settlement could not necessarily be addressed through a uniform package for the entire landscape. Village-level needs had to be identified, prioritised and addressed in a manner that could demonstrate tangible benefits to the people.

This led to an important principle of the Nallamalai approach:

> Win the confidence of the people first; conservation will follow.

The emphasis gradually shifted from a purely protection-oriented approach towards a people-centred conservation strategy, in which livelihood improvement, reduction of dependency on forests, community participation and conservation objectives were treated as interconnected components of the same programme.This was also the stage when the need to build a large and appropriately trained human resource base became evident. Eco-development required people who could function not merely as enforcement personnel but also as facilitators, communicators, social mobilisers, development planners and conservation educators.Thus, the Nallamalais became a living laboratory for evolving eco-development practice—where many of the principles were not taken from a textbook but developed through field experience, successes, failures, community interaction and continuous adaptation.

The central lesson was simple but profound:

forests cannot be conserved against the people who depend upon them; they have to be conserved with the people.

With the support of trained NGOs and Forest Department staff, teams were jointly deployed across the Nallamalai landscape to prepare village-level microplans through direct interaction with communities. The objective was not to impose a pre-designed development package, but to understand what people themselves considered their most urgent needs.

A striking pattern emerged from these microplans: water was the overriding priority.

Many of the villages were situated at the very edge of catchments. Their agricultural lands were capable of providing nearly nine months of wage employment in a normal agricultural season, but the lack of reliable water had made cultivation increasingly precarious. What was even more alarming was that, over more than a decade, more than a hundred cascading village tanks had gradually dried up, largely because feeder channels and drainage structures had breached and remained unrepaired due to lack of maintenance.

For the villagers, these tanks were not merely irrigation structures. They were the lifeline of the community. The continuing failure of the water system had generated such frustration that people were representing their grievances repeatedly to MLAs, MPs and village institutions. Some communities had even reached a point where they were prepared to confront the system aggressively, with the possibility of seeking support from Naxal groups.

Instead of treating the situation merely as a law-and-order problem, we decided to understand the ecological and hydrological cause of the conflict.

A detailed walk was therefore undertaken with the villagers, following the irrigation channels from the tanks upstream through their silted beds, drainage lines and feeder channels towards the catchment. This was not a conventional office-based investigation. We walked the landscape with the people who knew it intimately.

The walk revealed the crux of the problem.

There was actually sufficient rainfall and runoff in the catchment. The problem was that water was escaping into the valleys instead of being conveyed into the tanks. Breaches and damaged drainage structures had interrupted the traditional cascade system. Water that should have travelled from one tank to another was being lost downstream.

Suddenly, the apparently enormous water crisis had a remarkably simple and locally manageable explanation—and therefore a solution.

The communities were brought together and the problem was discussed openly. The proposal was equally simple: the villagers would provide their labour through shramdan, while the material costs required for repairs would be borne by the Government.

The community accepted the arrangement.

People themselves repaired the damaged drains, feeder channels and structures. The work generated a remarkable sense of ownership because the villagers were not passive beneficiaries—they were active partners in restoring their own water system.

Then came the moment that transformed the entire programme

The rains arrived.

Water that had previously disappeared into the valleys began flowing through the repaired channels. The cascading tanks started filling. Soon there was abundant water in the village tanks. After nearly a decade, agricultural lands that

had remained chronically water-stressed were rejuvenated.For the villagers, seeing was believing

The news of the success travelled rapidly from village to village. What had begun as a small intervention arising from a micro-plan became a powerful demonstration of what community participation, ecological understanding and modest investment could achieve.

The approach was subsequently extended to several other villages where similar catchment failures existed. Again, the emphasis was on walking the landscape, understanding the problem with the people, identifying the simplest ecological intervention and enabling the community to implement it.

The results were extraordinary.

Villages that had previously struggled to obtain even one crop once in three years began receiving sufficient water for two crops a year. The transformation was not merely agricultural. It meant employment, food security, reduced economic distress, renewed confidence and, most importantly, restoration of the people's faith in the institutions that were supposed to serve them.

The joy of the communities was difficult to describe. Villagers from other problematic areas began visiting the successful sites to see the results for themselves. They returned convinced that their own problems too could be solved—not necessarily through massive expenditure or elaborate schemes, but through understanding the landscape, repairing what had failed, investing intelligently and working together.

This became one of the most important lessons of the Nallamalai eco-development experience:

Sometimes the solution to a major social conflict is already present in the landscape. What is required is the wisdom to discover it, the courage to work with the people, and the institutional willingness to invest in a solution owned by the community.

The restoration of the water cascades therefore became much more than an irrigation intervention. It became a bridge between conservation and development, between the Forest Department and communities, and between distrust and confidence. It demonstrated in practice that eco-development could convert a potential conflict into cooperation—and that ecological restoration, when designed around people's real needs, could become one of the strongest foundations for long-term conservation.

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that the Act provides not only for protection of wild animal and birds but also to ensuring the ecological and environmental security. The Act provides for punishment in Section 51.

Our experience in dealing with the present case showed that the Act needed an amendment for non-application of the Probation of Offenders Act for offences under The Wildlife Protection Act. The Central Government was apprised of the dire need. Government of India having been convinced of the need to amend the punishment clause under Section 51, amended the Section by adding Sub-Section (5) by Act 44 of 1991.

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Ecological Economics of Mahatma Gandhi

V.V.Hariprasad

India celebrates the 157th birth anniversary of Mahatma Gandhi on 2nd October 2026.As an eminent foreignauthor Dr John put it,**"Gandhi's environmentalism- fitted in with his overall vision for India and the world -sought to extract from nature what is absolutely necessary for human sustenance. His ideas on environment are intimately linked with his ideas relating to the polity, economy, health, and development. Gandhi's environmentalism is largely built on ecological practices of peasants and tribal communities."**

Mahatma Gandhi had anticipated most of the environmental problems that we face today. He envisaged an 'ecological or basic needs model' centred on limitation of wants in contrast to the modern civilization that promoted material welfare and profit motive.

Was Gandhi the progenitor of environmental ideas in the country?

The answer is both 'yes' and 'no'. He was an environmentalist if we discern the implications of his social, political, and economic ideas on the environment. Many environmental movements in India have drawn inspiration from Mahatma Gandhi. He cannot be called an environmentalist if we do a mechanical content analysis of his statements based on the present understanding of environmental issues, since words like 'environment' and 'ecology' do not appear in his Collected Works. The Encyclopaedia of Human Ecology edited by Julia R Miller and others did not have an entry on Gandhi in their otherwise impressive list.

Gandhi considered the earth a living organism. His ideas were expressed in terms of two fundamental laws: Cosmic law and the Law of Species. Cosmic Law views the entire universe as a single entity. Nothing could malfunction outside the threshold limits built into the grand system that includes both living and non-living phenomena. He believed that "The universe was structured and informed by the cosmic spirit, that all men, all life and indeed all creation were one. He wrote: "I believe in the Advaita (non-duality), I believe in the" essential unity of man and for that matter, of all that lives. Therefore, I believe that if one man gains spiritually, the world gains with him and if one man fails, the whole world fails to that extent".

Regarding the law of species Gandhi believed that without the cooperation and sacrifice of both human and non-humanbeings evolution is not possible. Being rational human beings, we are the custodians of the rest of creation and should respect their rights and cherish the diversity. It is for this reason that taking more than the required resources is seen as theft. Gandhi evolved these principles from his vast readings and understandings of religious traditions of Hinduism, Jainism, Christianity and Islam. His social, economic and political ideas were framed on the understanding of interdependence of the whole universe

Truth, Non-violence and Satyagraha

Truth and Non-violence are the fundamentals of Gandhian Philosophy. Non-violence or Ahimsa means non-injury, but to Gandhi non-violence was much more than the absence of violence. He used it to mean non-injury in thought, word and deed. Ahimsa, Satyagraha and Tapasya were the basic principles that guided his life. Truth and Ahimsa are intertwined terms. To Gandhi truth is that "which determines the spirit in which one lives

or the religious and ethical criteria which governs the way in which he thinks and acts." He believed that truth can be achieved only by means of non-violence. It affords the fullest protection to one's self-u respect and sense of honour.



If truth is the highest law, then non-violence is the highest duty. Gandhi claimed that truth was the most correct and fully significant term that could be used for God. To practice Ahimsa is to realize truth and to realize truth is to practice Ahimsa. The concept Satyagraha gave practical expression to the religious and ethical ideals of truth and non-violence. Tapasya or self- sacrifice is necessary to achieve the highest truth. It involves freedom from fear and a willingness to die. Gandhi believed that Satyagraha is nothing, but **tapasya** for the truth. The suffering that has to be undergone in Satyagraha is tapasya in its fullest form.

Gandhi explained his concept of non-violence in the following terms.

1. Non-violence is the law of the human race and is infinitely greater than and superior to brute force.

2. Non-violence affords the fullest protection to one's self-respect and sense of honour.

3. Individuals and nations who practice non-violence must be prepared to sacrifice everything for the welfare of the whole world.

4. Non-violence is a power which can be wielded equally by all - children, young men and women or grownup people, provided they have a living faith in the God of love and therefore have equal love for all mankind. When non-violence is accepted as the law of life it must pervade the whole being and not merely applied to isolated acts.

5. It is a profound error to suppose that whilst the law is good enough for individuals it is not for masses of mankind.

Satyagraha is an active form of non-violence. Gandhi considered it as truth force or soul force. Satyagraha is based on the idea that the moral appeal to the heart or conscience is more effective than an appeal based on the threat or bodily pain or violence. Satyagraha itself originates from the belief that while violence to persons and property diverts the minds of the parties concerned from the real issues involved, non-violent action invites the parties to a dialogue about the issues themselves.

The ecological scope of non-violence is unlimited:

Gandhi's faith in non-violence and vegetarianism made him a votary of conservation of all diversity including all forms of life, societies, cultures, religions, and traditions. Arne Naess, the pioneer of deep ecology argued that ecological preservation is non- violent in nature. Naess introduced and Thomas Weber systematized the relation between non-violence, self-realization and mutual dependence of all living beings in the following points.

1. Self-realization presupposes a search for truth

2. All living beings are one

3. Himsa (violence) against oneself makes self-realization impossible.

4. Himsa against a living being is “himsa” against oneself

5. Himsa against a living being makes complete self-realization impossible

Naess used these principles to evolve a broader philosophy of environmentalism i.e, deep ecology. He believed “Gandhi's Utopia is one of the few that shows ecological balance.” As Gandhi envisaged,

non-violence has the power to solve all our problems, including ecological crisis. Many thinkers considered the Indian Environmental Movements like Chipko movement, Narmada BachaoAndolan (NBA) etc. were the living examples of Gandhian Environmentalism and they consider Gandhi as a man with deep ecological view of life, a view much too deep even for deep ecology. The key agenda of the Chipko movement was to carry forward the vision of Gandhi's mobilization for a new society, where neither man nor nature was exploited and destroyed, which was the civilizational response to a threat to human survival. All these together made Gandhi an exponent of Indian environmentalism.

Gandhi's Critique of Modern Civilization

Modern industrial civilization has had a huge impact on human kind as well as on the environment. It made a small part of the population wealthy at the cost of exploiting the world's natural resources. Gandhi believed that it propagates nothing other than the hunger for wealth and the greedy pursuit of worldly pleasures. Hind Swaraj, published in 1909, criticized the modern civilization as 'satanic'. He observed, “Machinery is the chief symbol of modern civilization; it represents a great sin. It is machinery that has impoverished India. The distinguishing characteristic of modern civilization is an indefinite multiplicity of wants, whereas ancient civilizations were marked by an imperative restriction upon, and a strict regulating of these wants.”Gandhi believed that the ancient civilizations were religious in nature which would surely limit worldly ambitions.

Gandhi believed that true civilizational values were not present in modern civilization. In Hind Swaraj Gandhi argued, “what we think as 'civilization' today is an illusion, and that any civilization that ill- treatedoutsiders could hardly avoid ill-treating its own people.” Gandhi's critique of western civilization and science emanates from his dissatisfaction with the divorce of science and progress from morality. He was not against the technology, but the technology which creates a hierarchical relationship among men as well as between men and nature. Gandhi believed that the greatest achievements of modern civilization have been weapons of mass destruction, the awful growth of anarchism, the frightful disputes between capital and labour and cruelty inflicted on innocent, dumb, living animals in the name of science and technology. He believed a science to be science only if it afforded the fullest scope for satisfying the hunger of body, mind and soul.

Modern civilization involved an egregious amount of violence against nature which was largely seen as man's property. This undermined man's unity with his environment and fellowmen and destroyed stable and longestablished communities. Natural resources were ruthlessly exploited and their rhythm and balance disturbed while animals were killed or tortured for human needs. Gandhi believed that villages would soon disappear due to the urbanization which is part of modern civilization, and of which environmental degradation is a product.

While the western environmentalists spread the message of "going back to the nature" Gandhi spread the message of "going back to the villages". He believed that the "the blood of the village is the cement with which the edifice of the cities is built."

More materialism at the risk of environment:

Modern economy is "propelled by a frenzy of greed and indulges in an orgy of envy." It makes man more materialistic at the risk of majority and the environment. Gandhi asserted "True economics stands for social justice; it promotes the good of all equally, including the weakest and is indispensable for decent life."Dr J C Kumarappa summed up Gandhian economic ideas as constituting philosophy that sought to create an "economy of permanence". All nature is dovetailed together in

a common cause". Kumarappa argued that "when this interconnection works out harmoniously and violence does not break the chain, we have an economy of permanence." Gandhian economic Concepts like swadeshi, trusteeship, bread labour etc received attention and acceptance from the whole world.

The swadeshi spirit encourages us to consume commodities made from our own villages, thus promoting small scale industries which help ordinary farmers and weavers to live happily. Limitation of wants is another important aspect in Gandhian economics. Gandhi urged us to minimize our wants to minimize the consumption and thus reduce the burden on nature by avoiding hazardous wastes. Our civilization, culture and swaraj depend on the restriction of wants. Gandhi realized that the modern civilization and the market economics have a tendency to multiply the wants and needs of common people. Bread labour is another important economic concept of Gandhi. He valued bodily labour saying "The rains come not through intellectual feats, but through sheer bodily labour. It is a well-established scientific fact that where forests are denuded of trees, rains cease, where trees are planted rains are attracted and the volume of water received increases with the increase of vegetation." The Gandhian concept of bread labour encourages the use of human hands and body instead of machines to produce essential items like vegetables, cloth etc.

The economic ideas of Gandhi differed from conventional economics and bore close resemblances with ecological economics. The term sustainable development was not much discussed at Gandhi's time, but his ideal vision of the world known as Sarvodaya safeguards the rights of future generations, through the welfare of all.

CONCLUSION:

In conclusion, we can say that Gandhi's environmentalism fitted in with his overall vision for India and the world that sought to extract from nature is absolutely necessary for human sustenance. From a Gandhian perspective, the present environmental mess, ranging from deforestation, soil and biodiversity loss, to pollution and climate change, is not a disease but only a symptom. A good doctor treats the disease and not the symptom. The disease is the very concept and patterns of growth and development that are being followed everywhere.Hisideas on environment are intimately linked with his ideas relating to the polity, economy, health, and development. His asceticism and simple living, a rural-centred civilization based on village autonomy and self-reliance, and handicrafts are infused with elements of an ecological vision. Gandhi is a major inspiration for many environmental movements worldwide, particularly for those who link their movement with larger concerns for human sustenance and development. He would not be an inspiration for radical environmentalists who allow little space for human sustenance and livelihood issues. Although he was not anthropocentric in his approach, he was not prepared to allow the question of human survival to be sidelined in discussions on environment. Finally, non-violent methods of Gandhi also represent an evolutionary approach to resolving disputes within an overall ecological frame. There is now a rethinking on the desirability of development. An idea like 'happiness' does not suggest that high level of material progress is necessary to realize it. **Gandhi's environmentalism, it must be admitted, is largely built on ecological practices of peasants and tribal communities.**

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NEPAL FLOOD DISASTER: HIMALAYAS WARMING AT TWICE THE PACE & CHINESE RECKLESS CONSTRUCTIONS

B.K.Singh

Glacial Lake Outburst Flood (GLOF) occurs when dam of a lake held by a glacier suddenly bursts. Water pressure and the cracks in the glaciercreate a path for water to escape. A fresh barrier lake holding around 2 million cubic meters of water formed near the confluence of ChhochenKhola and PurepuTsangpo rivers close to Nepal-Tibet border had busted in the morning hours of 26th August bringing down a massive amount of snow, water and debris accumulated in the lake at very high speed that led to sudden and devastating floods in Nepal.

ChhochenKhola and PurepuTsangpooriginate in Tibet and merge before crossing into Nepal. The combined river is known as Bhote Koshi, which flows into TrishuliRiver. The release from Barrier Lake followed the downstream river course and flooded settlements down south in Nepal and up to Indian border. Landsat 9 image after the disaster on August 26 revealed a large scar identified as "zone of glacier breakage and collapse". The image also traced a broad ice launch avalanche path descending in the river. The falling ice gathered rock, uprooted trees, snow and sediments releasing the debris into KoshiTrishuli river course.

Daniel Shugar, a geo-morphologist at the University of Calgary from Planet labs imagery,found that 200 square meters of ice broke off at an altitude of around 5200 meters and collapsed vertically around 1.2 km. The collapsing glacier transformed into very large debris flow picking up rocks, sediments, trees and everything available on way. The gravitational energy generated from 1.2 km fall of 20,000 cubic meter ice is 20,000x1200x10x103 Joules = 2.4x103x108 Joules = 240 Giga Jules. The average width of glacier that broke off is taken as 100 meters and the density of ice is 1000 Kg per cubic-meter.

The debris and water flowing with such high energy has catastrophic impact on human lives and infrastructures, flooding the area and sweeping away vehicles, structures, large boulders, human and livestock. There are videos showing bridges washing away like toys. Five elephants of Chitwan National Park of Napal have been swept away and rescued in Ghaghara barrage near Dudhawa Tiger Reserve, Uttar Pradesh. More than 400 human deaths have already been reported, while thousands of tourists including those from KailashMansarovarYatra are reported missing. A few human bodies were recovered 200 km down the stream from the back water of a reservoir, in Uttar Pradesh's Maharaj gang district.

People had very little time to save themselves, as Trishuli and GalchhiRivers rose by 30 feet in 30 minutes, while River Malekhu recorded 22 feet rise in the same period. Nepal's upper basin network failed to provide advance notice, as several monitoring stations were damaged or swept away as the flood moved downstream. The automatic stations in upper Bhote Koshi stopped transmitting flood forecasting. Close to a million SMS alerts were sent to residents in Rasuwa, Nuwakot, Dhading, Chitwan regions in Nepal. The terrified eye witnesses say, "Huge trees were being uprooted, buildings were collapsing and were being swept away by powerful currents. People were drowning and bridges getting washed away and we could only watch helplessly."

China has junked the claim that it has failed to alert Nepal for such huge avalanche. Further, Chinese media has warned that the tragedy is not yet over and a barrier lake is formed near the confluence of ChhochenKhola and PurepuTsangpo in Nepal, which is at very high risk of breaching in next three days. Chinese embassy in Kathmandu added that a landslide triggered by an earthquake or an

earthquake like tremor occurred on Nepalese side on the morning of August 26, 2026. US Geological Survey earlier said that the avalanche was triggered by a 4.4 magnitude earthquake.

World Meteorological Organization (WMO) and National Oceanic and Atmospheric Administration (NOAA), in one of the latest climate bulletinshave said that the heat generated due to increased concentration of carbon dioxide, methane, and other greenhouse gases in the atmosphere increases the planet's average surface temperature and make the extreme heat more likely. But global warming does not distribute heat evenly.

Oceans warm more slowly than land, high latitudes respond differently than the tropics, and regional changes in snow, ice, air pollution, and atmospheric circulation generally accelerate. World's average rise in temperature is recorded as .20 Celsius per decade, while Europe is warming at the fastest rate of .50 Celsius per decade. Northern Europe lies close to Arctic, which is warming several times faster than the global average. The fastest Arctic warming is a phenomenon known as "Arctic Amplification". Himalayas, too, are warming at a pace similar to Arctic. This results in faster melting of ice and snow and even quick shrinking of glaciers. Snow covers are very good reflectors of sun-rays and are known to absorb only 20%, while the land without snow can absorb 80% of Sun's radiation.

The region with shrinking ice and snow absorbing more energy from Sun can accelerate the pace of warming. International center for integrated mountain development have brought out that snowfall in Himalayas between November 2024 and March 2025 has gone down by 23.6% since 2003 as compared to long term average. The catchments of river systems Ganga, Indus and Brahmaputra, which have nearly 42,000 sq km area covered by glaciers and nearly 16 lakh sq km by seasonal snow, are increasingly under stress and impacting the volume of water-flow in tributaries and rivers. Four of the last five winters have shown below average snowfall. Thus, the decline in the snowfall is the trend and not one-off event. Less snow increases the risk of droughts, forest fires and glacial lake outbursts.

Tibetan region and its fringe areas in China are seismically quite active. This is the area where India and Eurasia plates clash and the force generated can be strong enough to cause uplifts and increase the height of the Himalayan peaks. An earthquake of 7.1 magnitude was experienced in Tibet in January last year with epicenter at Tingri, 75 km north of mount Everest. 126 people were killed and 188 were injured and rescue and relief were a challenge at minus 6-degree Celsius temperature. Despite seismic vulnerability, four more hydro-projects namely Dagu dam (640 megawatt), Zangmu dam (510 megawatt), Jiacha dam (320 megawatt) and Jiexu dam (300 megawatt) were planned in the upstream of YarlungSangpo and only Zangmu is completed and the remaining three are marred by logistical and technical challenges due to steep mountains and deep gorges. A study, presented in Goldschmidt conference in Prague recently, concludes that as planet warms, glaciers melt and retreat, and release the downward pressure on earth's crust and mantle. This, in turn, causes expansion of subterranean gases and magma, leading to pressure buildups fueling explosive volcanic eruptions. As the glaciers retreat due to climate change, volcanic eruptions are going to be more frequent and explosive.

Average rise in global temperature must be restricted by transitioning away from fossil fuel consumption. The fundamental response of emission mitigation has remained weak globally. But there can't be a pause to policy, which must also prioritize scientific, well-funded cryosphere monitoring and ensure coordination and data sharing across boundaries to shape a future-ready strategy. Countries must pause hydroelectric projects in regions vulnerable to earthquake.

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A Tree's Appeal to Humanity

Dr. Padam Parkash Bhojvaid

There is a quiet journey behind every tree that grows old. It begins as a seed, becomes a fragile sapling and, with care, protection and patience, grows into a mature tree. If it survives fire, grazing, disease, storms and human interference, it may eventually become a century-old witness to a changing landscape and generations that have lived alongside it.

Human beings have planted, nurtured, used and at times, destroyed trees for centuries. Forestry transformed this relationship into a science, teaching us how to raise forests, manage their growth and harvest their products. Modern science has added inventories, satellite imagery, ecological models and carbon accounting. Yet, in our pursuit of measurable targets and ever-expanding development, we have sometimes forgotten a simple truth: a forest is more than a collection of trees, and a mature tree is far more than timber waiting to be harvested.

So, for a moment, allow me to speak—not as a plantation statistic, a cubic meter of timber, a carbon figure or a green-cover number, but simply as a tree.

I stand at the edge of your road, in your courtyard, beside your fields and deep within your forests. I have watched generations grow beneath my shade. I have witnessed celebrations, departures and homecomings. I have endured neglect, survived storms and continued to serve you without asking for anything in return.

Today, I have a few things to say—not only to foresters, but to humanity.

If you wish to honour me, do not plant a sapling merely to achieve a target or celebrate an occasion. Plant a future. Choose the right species for the right place, plant wisely and give young trees the care and protection they need. The true measure of a plantation is not how many saplings enter the ground on one day, but how many survive, mature, reproduce and become part of a living ecosystem.

Let every child inherit a greener Earth than the one you received.

When choosing my companions, give preference to my native brothers and sisters. We evolved with your soils, rivers, birds, insects and changing seasons over thousands of years. We belong here. We support biodiversity, conserve soil and water and strengthen the resilience of the ecosystems that sustain you.

Welcome exotic species when they have a legitimate place, but remember: a guest should not replace the family. A landscape that gradually forgets its native trees risks losing more than individual species—it risks losing part of its ecological memory.

If I grow beside your roads and buildings, please do not imprison my roots beneath concrete and decorative tiles. My roots are part of a living system through which water, air and nutrients move through the soil. Leave some earth around me. Let rainwater reach the ground. Give my roots room to breathe, and I shall help replenish groundwater, hold the soil and cool the city around me.

And please be patient with my branches. My canopy is not an obstruction. It intercepts rain, softens hot winds, provides shade and cools the air. At dusk, my branches become resting places for birds; in spring, they cradle nests from which new generations take flight.

Prune me when safety or sound arboriculture demands it, but do not mutilate me merely for

convenience or appearance. When you remove my crown without good reason, you do not simply trim a tree—you diminish an entire living neighbourhood.

I know that societies must develop. I have watched your cities grow and your aspirations rise. I do not ask you to stop development; I ask you to design it more intelligently.

Human ingenuity has bridged oceans and pierced mountains. Surely, sometimes, it can find a way around a tree that has stood faithfully for decades.

Remember, too, that a mature tree cannot be replaced by a sapling overnight. A newly planted tree may promise tomorrow's forest, but it cannot immediately replace the shade, habitat, carbon stored, soil protected, water cycled and memories accumulated by a tree that has lived for fifty, eighty or a hundred years.

There is nothing inherently wrong with using trees. Wood has built homes, supported livelihoods and sustained economies for generations. The question is not whether a tree may be harvested, but whether humanity understands the difference between use and abuse, need and greed, renewal and destruction.

A forest is a living system. Its value lies not only in timber, but also in the soil it protects, the water it regulates, the biodiversity it shelters, the carbon it stores and the communities whose lives depend upon it.

Perhaps the true measure of human progress is not how much of nature we can conquer, but how wisely we can coexist with it. There will be times when a tree must be removed and forests must provide resources. But there must also be times when we choose to retain, regenerate and simply allow nature to take its course.

You speak of climate change, scorching summers, erratic monsoons, floods and droughts. Alone, I may appear insignificant. Together with millions of my companions, I form one of nature's greatest shields. We cool the air, store carbon, protect soil, influence water cycles, reduce erosion and provide refuge to countless forms of life. In cities, we moderate heat; across landscapes, we strengthen ecological resilience.

All I ask is a little space to grow, water when I am young, care when I am wounded, protection when I am threatened—and respect throughout my life.

To the child planting a sapling, the farmer growing trees beside a field, the citizen demanding a greener neighbourhood, the planner designing a city, the developer building a road, the administrator making policy and the forester entrusted with a forest—I belong to all of you.

I do not ask for sentimentality. I ask for responsibility tempered with humility.

Count me when counting is necessary. Measure me when measurement matters. Use me when use is justified. But remember that not everything of value can be reduced to a number.

In return, I promise you shade without rent, cleaner air without charge, flowers and fruits without complaint, soil held beneath your feet, water retained in the landscape and branches that shelter birds and nurture generations yet unborn.

Long after today's plantation photographs have faded, targets have been forgotten and files have been closed, some of us may still be standing.

And perhaps, one day, a child will stand beneath my shade and ask:

"Who planted this tree?"

May the answer make you proud.

On Van Mahotsav, therefore, do not merely celebrate trees with photographs, speeches and chief guests. Listen to us. Let your gratitude be expressed through healthy forests, thriving

Contd.. on page No.56



Hoshiarpur: Integration of Agroforestry and Wood-Based Industry For Rural Prosperity

R. K. Sapra

Hoshiarpur, which is located largely in the Kandi region adjoining the Shivalik foothills, historically faced the twin challenges of degraded hill ecosystems and limited agricultural productivity in several areas. The experience demonstrates a fundamental principle of agroforestry development that farmers will grow trees on a large scale when tree cultivation is economically attractive, planting material and technology are available, markets are assured and local industries create sustained demand for farm wood.The foundations of this transformation were laid several decades ago. The Punjab Forest Department began systematic efforts to promote plantations on private lands as early as in 1970s, initially with the objectives of rehabilitating denuded Shivalik landscapes and meeting the fuelwood and timber requirements of rural communities. Farm forestry programmes subsequently created awareness among farmers about tree growing as a productive land-use option. The JICA-assisted Punjab Afforestation Project provided an additional impetus through distribution of quality plants and extension activities. These initiatives gradually established a culture of growing trees on field boundaries and private lands.

Emergence of Agroforestry

The real economic transformation began when farmers adopted fast-growing species such as eucalyptus and poplar. The undulating terrain of the Kandi tract made tree-based land use particularly attractive. As farmers began to recognise the economic returns from timber, plantations expanded beyond boundary planting into larger blocks. The absentee landowners, large farmers, industrialists and politicians began establishing block plantations, rapidly converting Hoshiarpur into an important producer of farm wood.It represented a transition from subsidy-driven tree planting to market-driven agroforestry. Hoshiarpur initially did not possess a local industrial ecosystem. Consequently, much of its timber travelled to the established Yamunanagar timber market in neighbouring Haryana. The farmers were therefore bearing transportation costs and receiving lower net returns.This phase illustrates an important lesson that production of wood alone does not create a successful agroforestry economy. A local or nearby value chain is essential.

Policy Turning Point

Following the Supreme Court's interventions concerning regulation of forest-based industries, establishment and licensing of wood-based industries (WBIs) became tightly controlled. A breakthrough occurred during 2007–08, when the Central Empowered Committee permitted the issuance of new licenses for plywood units in Punjab. This helped unlock an important missing link that the conversion of locally produced wood into locally manufactured value-added products. Once policy permitted industrial expansion, investment in processing capacity became possible.This experience therefore demonstrates the importance of policy synchronisation. Agroforestry policy, tree-felling and transit regulations, industrial licensing, infrastructure development and market access must converge around creating a farm-wood economy.

Wood Production Centre to Wood-Industry

Cluster

The decisive transformation occurred when three mutually reinforcing developments took place in Hoshiarpur:

1. Establishment of Modern Clonal Nurseries by Pragati Biotechnologies (2001)

2. Establishment of a CenturyPly MDF Plant-2017, capacity-1.98 lakh m^3 per year; Expansion – 2023, enhanced capacity-3.13 lakh m^3 per year

3. Development of a Wood Industrial Park (2021)

These three interventions acted as the key elements in the transformation of Hoshiarpur from a wood producing district into a hub of WBIs.The importance of the CenturyPly MDF Plant deserves particular emphasis. A large processing unit creates confidence among farmers that a market will exist when their trees reach harvestable size. This establishment changes the risk perception associated with tree crops. CenturyPly confirms Hoshiarpur as one of its manufacturing locations, alongside facilities in several other parts of India. The resulting feedback loop is powerful thatIndustry creates demand → demand creates a market → market encourages farmers to plant → plantations increase raw-material availability → greater raw-material availability attracts more industry → industrial clustering creates employment and value addition → stronger markets further stimulate tree planting. This is the essence of the Hoshiarpur model.



EucalyptusPlantation

Seedlings to Superior Clones

Another important feature of the Hoshiarpur success story is the role of improved clonal plants,which changed the economics of plantations by providing greater uniformity and substantially higher productivity. Luna, Thakur and Kumar reported that some eucalyptus clones produced 28.8–36.1 m^3/ha/year, while clone 288 recorded an MAI of 48.8 m^3/ha/year on a private farm. The study concluded that some clones produced two to six times more volume/ha than seed-origin plants. Pragati Biotechnologies became an important centre for the development and dissemination of improved eucalyptus and poplar clones. The literature identifies clones such as 23, 71, 288 and 411 from Pragati Biotechnologies among commercial clones. Hoshiarpur's success resulted from the interaction of genetics, silviculture, extension, markets and industry.

Agroforestry Improve Farm Economics

The economic rationale for farm forestry has also been supported by recent research in Punjab. A 2024-25 study by Bhangu, Gohain and Kaur, based on a survey of 100 farmers in Ludhiana and Hoshiarpur, found that boundary plantations of both poplar and eucalyptus were financially viable and generated additional income for farmers at relatively low cost. The study further reported that poplar was more profitable than eucalyptus because of its shorter rotation.Agroforestry therefore creates a dual-income land-use system in which farmers harvest agricultural crops in the short term and timber in the medium term.

Emergence of Cluster of Wood-Based Industries

The significant evidence of Hoshiarpur's success is the emergence of a wood-based industrial cluster. The demand for raw material has increased to such an extent that the CenturyPlyMDF plant is now procuring timber not only from district but also from other states.Hence, CenturyPly should strengthen its extension activities for promoting



CenturyPly MDF Plant

tree farming in a radius of 100-150 km to ensure the local availability of raw material. Secondly, the state has a large chunk of area under waterlogged lands due to rising water table along Rajasthan border. The forest department may focus on promoting the boundary planting of eucalyptus for shorter duration (2-3 yr) in these areas, which will not only rehabilitate the problematic lands but also provide the raw material to MDF plant and additional income to farmers. The most important lesson is that agroforestry succeeds when the entire value chain succeeds.

Conclusion

Hoshiarpur represents an important success story because it demonstrates that agroforestry can move from environmental protection to commercial agriculture and ultimately to rural industrialisation. The district's journey began with Forest Department initiatives in the 1970s, progressed through farmer adoption of eucalyptus and poplar, was strengthened by clonal plants and finally accelerated through the emergence of a local wood-processing industry.In the early phase, Hoshiarpur produced timber but lacked local processing capacity, forcing farmers to depend on markets such as Yamunanagar. Subsequently, industrial investment created local demand, while clonal plants enhanced productivity. The future of agroforestry lies not in planting trees in isolation but in building completely tree-based value chains. Where farmers have access to superior plants, technology, finance, markets and assured industrial demand, trees can become a competitive farm enterprise. Where industries are located close to production centres, farm wood can become the foundation of rural manufacturing and employment.Hoshiarpur therefore offers a highly relevant template for India's vision of wood security, farmer prosperity and sustainable industrial development by 2047.

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MINUTES OF THE GENERAL BODY MEETING

The Association of Retired Forest Officers - Telangana and Andhra Pradesh

Venue: Aranya Bhavan, HyderabadDate: 06-09-2026

Time: 10:30 AM onwards

Chairperson: Sri P.K. Jha, IFS (Retd.), President of the Association

The General Body Meeting of "The Association of Retired Forest Officers - Telangana and Andhra Pradesh" was conducted under the Chairmanship of Sri P.K. Jha, IFS (Retd.), President of the Association, on 06-09-2026 from 10:30 AM onwards.

The meeting began with the welcome speech made by Sri V.V. Hariprasad, Secretary of the Association.The participants paid homage to the departed souls - Sri Hanumanta Reddy, DFO (Retd.), Sri K. Chandrasekhar Pillai, DFO (Retd.), Sri Lakshman, DFO (Retd.), and Sri A.V. Govindarajulu, DFO (Retd.). All the participants observed two minutes of silence by standing in their respective places as a mark of respect to the departed souls. Later, Sri P.K. Jha, the President, delivered the opening speech addressing the participants.

This was followed by the felicitation of nonagenarians Sri A. Raja Reddy and Sri C. Ramakrishna Reddy and octogenarian Sri N. Linganna, IFS (Retd.), by presenting them all with shawls and plants as a mark of respect by retired senior officers on behalf of the Association.

Later, Sri D. Nagabhushanam, IFS (Retd.), former Associate Editor, was felicitated by the President as he had discharged his duties as Associate Editor of VANAPREMI for a long period of about 9 years untiringly with utmost sincerity and perseverance.

Sri Vinay Kumar IFS, HOFF and Principal Chief Conservator of Forests, Telangana, attended the meeting as Chief Guest and addressed the participants. At the very outset, he expressed immense joy at being able to address the participants in front of a number of senior forest officers who were instrumental in developing the Department and also in paving the way for better protection of forests. He also requested the senior retired officers to advise him as and when necessaryin taking suitable measures in the context of present-day technological development and also the prevailing immense pressure on the forest staff to protect the vast tracts of forest areas by preventing large-scale encroachments. After the conclusion of his speech, the HOFF was felicitated by the President of the Association with a shawl and a flowering indoor plant.

Later, the members of the General Body resolved ratifying the approval of the Executive Committee in deploying the retired officers for the posts as stated below:

1. **Sri P.V. Ramakrishna, DFO (Retd.)** was deployed as Internal Auditor of the Association.

2. **Dr N.V. Jayanth Babu as Associate Editor** of VANAPREMI the monthly magazine being published by the Association. The tenure of both the Internal Auditor and Associate Editor was approved to be coterminous with the tenure of the members of the existing Executive Committee.

Later, Dr Tirupataiah, Editor of VANAPREMI, placed the following proposals before the General Body for ratification / passing resolution and the same were unanimously ratified / resolved accordingly by the General Body as already approved by the Executive Committee:

1. A resolution was passed unanimously in

connection with the proposal of the Editor to take the services of one more Associate Editor in addition to the existing one for VANAPREMI, either from AP or from Telangana, preferably from those who are residents of Hyderabad, with the approval of the EC, and the tenure of the second Associate Editor is also coterminous with that of the members of the present EC.

2. The proposal of the Editor VANAPREMI to deploy five persons with the permission of EC as members of the Editorial Board was also approved and was resolved unanimously by the General Body and their tenure was approved to be coterminous with that of members of the existing EC.

3. In view of the proposal of the Editor, which was already approved by the EC, with regard to complete handling of getting the pictorial telephone directory printed on the lines of the 2019 directory, and taking care of all its requirements including taking decisions in case of financial implications by following due procedure along with making provision of QR codes wherever necessary depending upon technical feasibility, the General Body resolved ratifying all the decisions taken in this regard by the EC. The General Body passed a resolution unanimously entrusting the total responsibility and decision-taking powers to the Editor in this regard under due intimation to the EC and its consequent approval.

4. The General Body resolved ratifying the decision taken by the EC enhancing the monthly wages of **Technical Assistant / Computer Operator from Rs. 5,000/- to Rs. 6,000/-** and the monthly wages of the Attender from Rs. 3,000/- to Rs. 4,000/- which came into effect **from 01-08-2026** onwards, which have been paid from VANAPREMI funds.

5. Issue of admitting retired officers from TSFDC in the rank of Divisional Manager and above as associate member was discussed. The president informed that required resolutions were already taken from General Body in earlier meeting and it was also informed to TSFDC. It seems the said resolution could not be traced out. In view of the above contingency, General Body re-approved proposal to incorporate retired officers from TDFDC/APFDC as associate members based on payment of life time membership fee. Necessary amendment shall be carried out in the bye laws of the association in due course depending upon legal requirement.

The passing of resolutions was followed by a PowerPoint presentation by Dr Sowmya Reddy, **Consultant, Department of Emergency Medicine, Apollo Hospital, Hyderabad, on the topic 'FIRST RESPONDERS'.** It dealt with Emergency First Aid measures to be taken up in connection with Stroke, Heart Attack, Trauma, Snake Bite, Electric Shock, Burns, Dog Bite and Sprains etc. The experienced doctor also exhibited the method of carrying out CPR **(Cardiopulmonary Resuscitation)** as First Aid to a heart patient. The participants interacted with the doctor by expressing a number of doubts in the context of the presentation made and the erudite doctor responded to the queries raised by the participants to their best satisfaction. The President felicitated DrSowmya Reddy and her assistants on completion of the presentation.

The meeting came to an end with the Vote of Thanks offered by Sri M.A. Akbar, Vice President of the Association and felicitation to the hosts of lunch.The meeting was followed by a delicious lunch hosted by Sri J.S.N. Murty, IFS (Retd.), Sri P.V. Raja Rao, IFS (Retd.) and Sri M.A. Waheed, IFS (Retd.).

V.V. Hariprasad

Secretary



Green Quiz – October 2026

Quiz Master : Dr. K. Tirupataiah

1. The Bandra-Kurla-Complex (BKC) in Mumbai was developed from a 'Marsh land' on the banks of which River?
2. Who invented the Cat Eyes or reflectors on roads that are inspired by the eyes of a cat that reflected his car lights?
3. Which birds make 'edible nests' from out of their saliva on steep rock faces of caves in Borneo, Indonesia?
4. The Mayans deliberately built their temples above water-filled sub-terranean aquifers. What name is given to these sink holes?
5. What is the name given to the boundary layer formed between the dense Sea water and the Light potable water where the two meet?
6. Termed as the 'Tower in the Sky', stationary at 2 km above Earth, it supports non-terrestrial network connectivity and disaster management in regions lacking infrastructure. What is it?
7. Ronaldo Laishram hailing from Manipur works with the National Astronomical Observatory, Japan. He discovered a 12.6 billion year old galaxy proto-cluster. What name did he give it?
8. 'Spirit of the Wildflower" is a documentary by SrimoyeeChakraborty about two Tribal sisters about what activity?
9. Dedicated to 'Ajivikas' or Hermits, these caves of Mauryan times have walls polished to such perfection that they look like mirrors even after 2,300 years. What caves are these?
10. Which Wild-domesticated animal is largely associated in Mauryan symbols on arches and played key role in their trade clearing routes and transporting goods?

For School Students

1. What shape are the pupils of Goats that enable them almost 360 degree view of surroundings?
2. Which insect has 'compound eyes' that consist of about 30,000 smaller eyes in each compound eye?
3. Growing in the desert areas of Africa, these plants are called 'living stones'. Name them.
4. 'I am just like a Cockroach; you just can't get rid of me'. Which Pop diva said this?
5. What is the name of the insect whose arrival marks the beginning of agriculture season as per Indian traditions?

Answers on page no :57

Continuation from page No. 50

plantations, greener cities, flourishing native landscapes and trees allowed to grow old with dignity.

Celebrate the sapling, certainly. But also celebrate the young tree that survived, the mature tree that endured and the grand old tree that has carried the memory of generations.

Above all, remember: we do not merely protect trees; we protect the conditions that make our own lives possible.

For the timeless wisdom of our civilization remains as true today as ever:

Vriksho Rakshati Rakshitah — Protect the trees, and the trees will protect you.

Author is a Former Principal Chief Conservator of Forests, Haryana & Former Director, Forest Research Institute, Dehradun. Mobile no -70879 56657.



LEGAL NOTES

PERPETRATORS OF CRIMINAL ASSAULT ON FORESTERS, PUNISHEDBY THE ADDITIONAL SESSIONS JUDGE, ADILABAD (Telangana)Ms. R. DANIE RUTH.

(Justice delayed, not denied)

K. Buchiram Reddy

Criminal Assault was committed by the villagers of Sarasala in Kadamba forest in Compartment Nos. 133 & 136, six years ago in 2019, while the forest staff was preparing the ground for raising plantation on June 30,2019. The mob was led byKoneru Krishna Rao, ex-vice chairman ZillaParishad, and younger brother of ex-M.L.A of KagaznagarKoneruKonappa.





As a result of the criminal assault on forest staff, many of them sustained injuries, particularly the Forest Range Officer Anitha sustained grievousinjuries and she had tobe rushed to Hyderabad for medical attention. She was admitted into the KIMS Hospital for treatment.

On complaint by the Forest Divisional Officer, Kaghaznagar Sri M. Raja Ramana Reddy, cases were registered against 39 persons at the EasagaonPolice Statation for rioting and voluntarily causing hurt and deterring public servants from doing their duty. The cases were investigated by the Dy.S.PKaghaznagar Sri Sathyanarayana and Inspector Waheeduddin. The trial lasted for six years. SriM. Ramana Reddy, Public Prosecutor appeared for the State and conducted prosecution. 37 persons were examined as witnesses for prosecution.

Of the 39 accused, two persons died and the trial proceeded against the remaining 37. The sad part of the story is that during the trial,one Forester turned hostile and he was cross examined by the Public Prosecutor. A special Sessions Court for SC and ST for Asifabaddistrict held the trial. Out of the 39 accused who faced trial, 8 persons were convicted on Thursday16.07.2026under Sections 323,353and 427 of BharatiyaNyayaSanhitaand sentenced to undergo six months simple imprisonment and pay a fine ofRs. 8,500/- each.

SOURCE; News Reports

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

Answers: 1.The Mithi River, 2.Percy Shaw of UK, 3.Swiftlets,4. Cenotes,5.Haloclines, 6.Super Pressure Balloon,7.Loktak, the famous lake in Manipur,8. Mahua distillery, 9. Barabar caves near Rajgir, Bihar, 10. Elephant

For School Students: 1.Horizontally Rectangular, 2. Dragonfly, 3. Lithops,4. Madonna, 5. Red Velvety Mite (Arudrapurugu)

OBITUARY FOR LATE SRI. A.V. GOVINDARAJULU (1945-2026)



Sri.A.V. GOVINDARAJULU was born on 11th December 1945 .He was born in Chennai to A.V. Naidu, an Electronics Engineer with Indian Railways, and A. Amruta Sanjaveeni, a convent-educated home -maker. He began his early education at Chennai, and later pursued his college education at Pachaiyappa's College. During his college years, he was an active member of the National Cadet Corps (NCC). His NCC journey brought several notable accomplishments. He served in senior leadership roles, participated in the Delhi Republic Day Parade 1966, and underwent senior leadership training in Kashmir. A Life dedicated to Forestry at the young age of 21, Govindarajulu began his professional career after being selected for the post of Forest Range Officer. He underwent two years of specialized training at the Forest Training College, Coimbatore, from 1966 to 1968, completing his trainingand standing third in his batch. His first posting was at Kunavaram Range, an area with one of the largest and highest levels of forest cover in the thenAndhra Pradesh, followed by a posting at Chintoor. He served as an Instructor and Warden at the Yellandu Forester Training School, helping to train and develop future forestry professionals. He subsequently moved to the Andhra Pradesh Forest Development Corporation (APFDC) at Kothagudem. A Distinguished Career with Singareni Collieries In 1980, Govindarajulu joined the Singareni Collieries Company Limited (SCCL) as a Timber and Plantation Officer. He progressed through the organization, first becoming Senior Manager and later Deputy General Manager. His professional responsibilities took him to Kothagudem and Godavarikhani. During his years with SCCL, he played a key role in establishing and managing important forestry and timber-related operations. At the age of 56, while pursuing his professional career, he completed his post-graduation at Osmania University. After a long and fulfilling professional career, he retired in 2005 at Godavarikhani and subsequently moved to Hyderabad. In 1991, he constructed his own house in Tarnaka, Hyderabad. While his professional accomplishments were significant, he shared his life with his beloved wife, his two sons, daughters-in-laws,three grandsons and a grand-daughter. His elder son, VikramSimha, is an accomplished chef whose career has spanned ITC and several restaurant chains across India, along with international assignments. His second son, Hema Chandra, is an IT Manager who spent more than 27 years working in the United States, working for Philips and Johnson & Johnson, focusing on the transformation of global supply-chain and IT processes.. His eldest grandson, Yeshwanth, is an architect working in Delhi. His second grandson, Mohnish, works as an engineer in US. His third grandson, Tushaar, is pursuing engineering at Rutgers University, while his granddaughter is pursuing her Chartered Accountancy (CA). He became an active member of the Retired Forest Officers Association, and was the Secretary during 2020-2022. His physical presence may have left us, but the imprint of his life remains—in the forests he served, the homes he built, the relationships he cherished and the generations that carry his values forward. A.V. Govindarajulu will be remembered not only for what he accomplished, but for the person he was—disciplined yet warm, deeply connected to nature, devoted to his family, and always willing to contribute to the lives of others. He passed away on 3rd September 2026. He was paid tributes by Sri Qamar Mohammed Khan, former editor VANAPREMI Sri. V.V.Hariprasad Secretary and Sri Raman Gowd EC member,at his residence on behalf of the Assn.

BY

V.V.Hariprasad, A.Hemachandra

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Theme of 72nd National Wildlife Week
"Connecting Habitats, Thriving Wildlife"
animal overpass corridor on Delhi-Mumbai Expressway

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