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VANA PREMI

Nav Se Nawvey Saal Tak Ke Bachhon Ka Saathi

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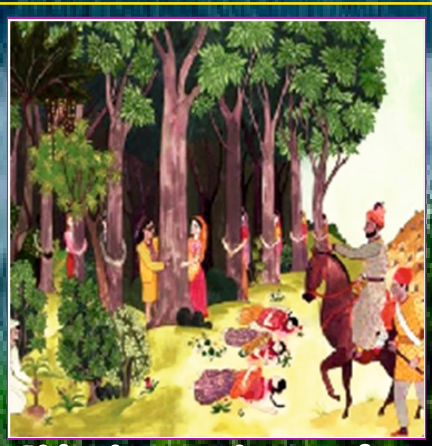

Bishnois protecting trees from the soldiers of Marwar King

Forest Martyrs' memorial, Guntur A.P.

Forester Memorial at FRI/IGNFA, Dehra Dun

Forest Martyrs' memorial, NZP Hyderabad, TG

JOURNAL OF THE ASSOCIATION OF RETIRED FOREST OFFICERS, TELANGANA & ANDHRA PRADESH
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TELANGANA FOREST DEVELOPMENT CORPORATION Ltd

- A wholly-owned, financially robust State Government enterprise, engaged in the large-scale establishment of plantations to meet the demands of the wood-based industries.
- A watershed approach has been adopted for the development of plantations, ensuring ecological sustainability, social acceptance, and commercial viability, with the long-term objective of enhancing the site quality of plantation areas.
- A major cultivator of Eucalyptus clonal plantations and Bamboo, covering a substantial area of 32,951.39 hectares. The operations are certified by the Forest Stewardship Council Forest Management / Chain of Custody (FSC FM/COC).

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

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

VANAPREMI

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

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From the Editor's Desk...

Dear All, solemn greetings on Forest Martys' Day.

One of my earliest mentors after reporting at the AranyaBhavan, was the late Dr.AVRG Krishna Murthy. We used to discuss many issues. His response to one of my questions was, "do not compare our service with the other two All-India Services". I had to think a lot on the full meaning of what he said. But, as time went by, it became clear to me that what he said was nothing less than "Prophetic".

The other two AISs deal with 'state subjects' and it's a little bit easy (if not entirely easy) to follow and implement what the state's priorities are. On the other hand, the forest subject is in the 'concurrent list' and that brings in a layered complication. You work with the state governments but most of the rules of your duty are regulated by the union government. Complete understanding of this complexity by both the state governments as well as the officers becomes essential for harmonious functioning. Unfortunately, many a time this is not the case irrespective of who is in the government. As management gurus say, "Efficiency depends on role clarity". In the given situation, clarity seems to be the scarce commodity affecting both the senior foresters as well as the frontline green warriors. Without state support, the forest regulators become the hunted and at times become 'martyrs'.

On September 11th, the nation celebrates the "Forest Martyrs' day" remembering the brave efforts of the Bishnois against the soldiers of a mighty King. Times changed and today in the complex web of modern times, the players involved are different and the civic values are different. The increasing pressure for 'land' and lack of clarity/priority on part of the various players involved, is posing unfathomable threat to the very existence of forests,forest lands and forest personnel.

One of the most comprehensive articles highlighting the whole gamut of the above issue is the opening article of this Issue. Then we have articles on 'brave hearts' from Telangana, Andhra Pradesh and Gujarat that detail out the supreme sacrifices that the ill-equipped but supremely dedicated forest officers made on the line of duty. One of the articles also brings out a different point of view to be seen from the families of those martyrs.

While human actors are at the core of the crisis, impacts of climate change on core forestry has fast emerged as the present and future threat requiring immediate and long term mitigation measures. This problem is not limited to a state or to India. In 'Texas to Telangana', the universality of the environmental impacts is discussed. Article on 'nature based solutions' offers possible solutions too. 'Urban forestry' is fast emerging as a key area what with increasing urbanization. But, this sector requires urgent expansion as well as better monitoring to realize stated objectives.

Understanding of Human-wildlife interface is increasingly becoming a top necessity. Co-existence, collaborative efforts and a greater awareness are some of the areas requiring focus and efforts.While scientific (particularly in medical field) advances significantly enhanced longevity of people and animals, radical life extension' is not on the horizon. 'Caloric restriction' and healthier lifestyles seem to help in longer, healthy lives.

Legal Note, Green Quiz and cartoon, our regular features, would continue to inform and educate you. Vanapremi wishes all friends who would be celebrating their birthdays in September, a very 'Happy Birthday'. Don't forget to make a note of the next General Body Meeting on the 14th of September.

Dr.K.Tirupataiah

Editor

Guardians of the green, fallen but never forgotten: in the silence of the woods, their courage echoes eternally

R. Hemanth Kumar

Introduction:

The tapestry of India's natural heritage is woven not only from the lush expanses of its forests and the diversity of its wildlife but also from the silent sacrifices and unwavering courage of countless individuals who have given their lives to protect these precious resources. These individuals, commonly known as forest martyrs, have shaped the country's environmental conscience, driven key policy reforms, and inspired generations to respect and defend the environment. Their sacrifice is commemorated annually on National Forest Martyrs Day—a day dedicated to remembrance and renewed commitment to India's ecological well-being. This essay explores the historical roots, philosophical foundations, personal stories, regional differences, and lasting impact of India's forest martyrs. Through the lens of history, policy changes, public awareness, and current conservation challenges, we see how these sacrifices continue to influence India's relationship with its forests.

Historical Roots of Forest Martyrdom in India: Ecological and Societal Background

India's forests have, for millennia, supported not just flora and fauna but also complex human societies—particularly tribal and Indigenous communities for whom forests are both homes and spiritual sanctuaries. The pre-colonial period saw local communities exercising customary rights—grazing, farming, and harvesting resources while maintaining their ecological base. Forest conservation was often rooted in religious or ethical injunctions, embedded through local myths, taboos, and sustainable traditional practices.

With the arrival of the colonial state, this symbiosis was broken; forests became commercial assets, marked and regulated for imperial revenue, with ruthless suppression of traditional rights. Despite the enforcement of restrictive forest policies and social upheaval that followed, the spirit of conservation endured through folklore, resistance, and, most poignantly, through martyrs who sacrificed their lives as shields against ecological destruction.

Early Resistance and Martyrdom

While the most widely recognized act of mass martyrdom in India's environmental history is the Khejarli Massacre of 1730, earlier forms of eco-resistance did exist. Folk history from various regions includes episodes of ordinary villagers, tribals, or sadhus resisting illegal tree-felling or animal hunting. However, the lack of contemporary documentation means these stories are seldom recorded with the clarity or reverence they deserve. Nonetheless, modern scholarship, especially on Adivasi uprisings (such as the Santhal, Bhil, and Munda movements), suggests that ecological protection was often linked with struggles against exploitative landlords and colonial forest officials.

The Khejarli Massacre: Genesis of Environmental Martyrdom: Details and Legacy

On September 11, 1730, an event took place in the village of Khejarli near Jodhpur in Rajasthan that would resonate through the ages as the first significant act of India's environmental sacrifice.

The Incident:

- Context: Maharaja Abhay Singh of Jodhpur, in his efforts to expand his palace and fortifications, needed wood to operate limestone kilns. Khejri trees (Prosopis cineraria), which are vital to the Thar's ecology and highly valued by the local Bishnoi community, were targeted for logging.

- Catalyst: The maharaja's minister and his men descended on Khejarli to harvest these trees. Amrita Devi Bishnoi, a woman of conviction rooted in the Bishnoi faith, resisted the felling, asserting her willingness to die rather than allow the trees to be destroyed.

- The Massacre: Upon witnessing their leader and her three daughters (Asu, Ratni, and Bhagu) executed, the villagers—men, women, and children—joined this act of passive resistance by hugging the trees one after another. The death toll reached 363, as Bishnois from 83 villages sacrificed their lives to defend the sacred Khejri groves.

- Aftermath: Moved and shamed by the nonviolent sacrifice, Maharaja Abhay Singh issued a royal decree protecting the forests and wildlife around Bishnoi villages, a protection that remains honoured in spirit to this day.

The Khejarli massacre has since attained monumental significance. It is both a symbol of the inseparability of cultural identity and environmental stewardship and a story that has inspired generations of activists, from the Chipko movement in the 1970s to countless localised resistances, to see martyrdom for the forest as a noble, even spiritual, act.

The Bishnoi Community: Environmental Philosophy and Principles

The Bishnoi community traces its origins to Guru Jambheshwar (Jambhoji), who, in 1485, articulated 29 commandments—eight of which are entirely dedicated to ecological preservation (forbidding the cutting of green trees, killing animals, polluting water, and so on). For Bishnois, the Khejri tree and wildlife (notably the blackbuck and chinkara) symbolize the continuity of all life. Their conservation is not merely policy but dharma—a spiritual and communal duty.

Visibly, Bishnoi villages remain lush in deforested landscapes and serve as sanctuaries for wildlife, testifying to a culture where ecological consciousness is faith in practice. The Khejarli story, thus, is not simply one of resistance, but of a lived philosophy where martyrdom is both an act of devotion and defiance.

In the context of the above, who are we, what do we do, and what do we face?

Scorching sun, raging fires, inhospitable terrains, and a few men trying to douse fires in these hostile conditions. People walk on foot, track wild animals, spend time in treetops, fight the vagaries of nature and poachers, and engage in other activities that threaten to degrade our forests. Does this sound like science fiction from a Hollywood blockbuster? Unfortunately, you are wrong. This is the scene in many of our jungles. We have continued this daunting task for decades in the pursuit of saving one of the country's most important natural heritages: forests and wildlife.

As the nation celebrates tremendous economic growth, many of our colleagues tirelessly work in the remote corners of our jungles, entirely disconnected from the economic boom. Better roads are built for transportation, government departments are computerised to increase efficiency, police are equipped with modern tools for better enforcement, but the forest staff continues to work with minimal facilities.

Access to drinking water comes from waterholes, most of which are shared with wild animals contaminated by animal excreta and leaf

litter. Our staff travel long distances to reach these waterholes, and if they run out of water at night, they must wait until daylight, as it is dangerous to go out in the dark, especially in elephant country.

The barefoot soldiers of our forests are the unsung heroes of India's wildlife conservation success. They have ensured that the curtains on endangered species like the tiger, elephant, one-horned rhinoceros, Asiatic lion, barasingha, and hangul are not drawn. Yet, few recognise their importance or contributions.

We are the first line of defence against wildlife poaching, forest fires, timber smugglers, and other activities that harm our wildlife habitats. This task involves serious risks, often life-threatening. Many times, we have been targets of Maoists, terrorists, organised gangs, and wild animals. Several forest personnel have been abducted or killed, but we continue our duty despite these dangers. To make matters worse, we do not even have friendly neighbours. We face the anger of local farmers, experiencing conflicts with elephants, wild pigs, deer, tigers, and leopards directed at us, the helpless warriors.

There is someone in the forest who is always risking life and limb, guarding it almost 24/7 with no proper meals, equipment, and paid a pittance. These brave, unsung heroes are the first line of defense, the Forest Guards and Forest Watchers. Their job involves long hours, and they are often forced to leave their families behind. Only a few forest guards have the luxury of living with their families in official quarters.

We, the foresters(officers and staff), are responsible for protecting forests and the environment against all odds. With a strong sense of commitment to our duty, we work hard to steadily increase Forest Cover. But is anyone listening and recognising us and our sacrifices? No!!!

Finally, would like to share an incident as told by Ms. Prerana Bindra about Mr. Mandol, a staff member working in Sunderbans, which demonstrates the highest level of commitment, bravery, and risks that people like him undertake in their work. Mandol was involved in a particularly stressful conflict and had just succeeded in manoeuvring a captured tiger into the cage when the door slammed shut and he found himself on the wrong side of the bars - with the tiger in a tiny cage. It was only his presence of mind - and courage ("and Bonobibi", the local deity worshipped as goddess of the forest) - that saved him.He held the tiger tightly in a hug, leaving little room for movement or attack. This deadly embrace lasted only a minute or two before his companions opened the door and pulled him away.

I salute the Brave Soldiers/ Green Warriors on Forest Martyrs Day.

Our work and the hurdles we face:

As mentioned in the above paragraph-who we are , what we do, and what we face, I would like to briefly elaborate on our work and the hurdles we face, as below:

(A) Facing Dreaded Gangs:

India's forests are not just ecological treasures—they are battlegrounds where forest officers risk their lives to protect biodiversity and national heritage. The rise of forest mafias and poacher gangs has turned conservation into a high-stakes struggle, demanding courage, strategy, and sacrifice from frontline defenders.

Day in and day out, the forest officers face and are facing innumerable dreaded gangs, sometimes winning and sometimes losing the battles. But, still, the battle to save ecological security continues. It's a long story with innumerable gangs actively working in the field, but I would like to give two stories from South India, mentioning how we, the foresters, faced the dreaded gangs.

1. Veerappan

Recently, a documentary was aired with interviews framed around the narration by investigative journalist Sunaad Raghuram, who authored a novel titled Veerappan: India's Most Wanted Man. Unfortunately, this documentary seems to aim more at portraying Veerappan as a good Samaritan and a well-wisher of Tamils, which I find objectionable. This brigand is extremely brutal, yet he is portrayed as a hero in the web series.

When such commentaries attempt to glorify forest brigands like Veerappan, I would like to highlight his ill deeds as follows:

An ivory trader named Sevi Gounder gifted Veerappan a pistol made in England when Veerappan was just 12 years old. This Sevi Gounder was impressed with Veerappan's kill—that is, Tiger—when he was only 12. Veerappan's first kill was a tusker at age 10. Since then, he has established himself in the crime world, and some of his notable murders are:

- Killed the first forest guard by the name Sri Prithivi in 1983, while he tried to prevent Veerappan from killing an elephant in the Hosur Forest Division
- On May 5, 1986, a "mediator" arranged a "forgive and forget" dinner with the Thangavelu gang at Gopinatham. After the dinner, Veerappan shot Thangavelu and his brothers dead. With these killings, his supremacy established, he unleashed a reign of terror till his death.
- In 1986, he killed a forest watcher by the name Sri Shiddarma Naik, who was from Karnataka
- In 1987, he killed a Range Forest Officer named Sri Chidambaram from Erode district
- In 1987, he killed Sri M. Duraiswamy, a forest guard, and Sri A. Subramaniam, a watcher from Erode division. This Killing was so horrific that the bodies of slain martyrs were boiled in a big vessel that is used for brewing arrack
- In 1987, he killed three forest personnel from the Begur Forest Division
- In 1989, he killed the Forest Guard Mohanaiah from Karnataka
- In 1990, he killed police Sub-inspectors Dinesh, Jagannath, Ramalingu and police constable Shankara Rao near Hogenakal.
- In 1991, he shot and beheaded Srinivas Sir, an IFS officer.
- In 1992, he killed 5 STF personnel after attacking the Rampura Police Station in Karnataka
- Meenyam Ambush in 1992 was another infamous one, where Sri Hari Krishna, IPS and SI Sri Shakeel Ahmad were killed. Apart from them, four constables named S/Sri Benegonda, C. M. Kalappa, Sundara and M. P. Appachu were also killed in this ambush
- In 1993, about 23 forest, police and civilians were killed in a land mine blast, which is called the Palar Blast, which happened in Tamil Nadu.
- In 1993, he killed another 6 police personnelnamed S/Sri M. Uthappa, Prabhakara, Poovaiah, Machaiah, Swamy and Narasappa - all from Karnataka
- In 1996, in revenge for the death of his brother Arjunan, he killed 19 police personnel
- A former minister, Nagappa, was killed in 2002, with a bullet that came from the rifle of TN STF, but unfortunately, the person who killed Sri Nagappa is not known.

He was ultimately eliminated by the efforts of STF, in which many people played an important role. Notable among them was Shankar Bidri, an IPS officer, who had wiped out the entire gang of Veerappan (except for 4 people, including the wife of Veerappan) and is being dubbed as Saddam Hussein. He had to face several court cases

and courts of enquiry, like the Justice Sadashiva Commission and the National Human Rights Commission (NHRC).

In this context, I would like to mention the Vachathi case, which involved a purported mass crime that occurred on 20 June 1992 in the village of Vachathi, in the Dharmapuri district, Tamil Nadu. A criminal case is filed against a team of 155 forest personnel, 108 policemen, and six revenue officials who entered the Tribal-dominated Vachathi village, searching for smuggled sandalwood and to gather information about Veerappan.

After a court order, the CBI began probing the case, which was also under the scope of the National Human Rights Commission. On 29 September 2011, a special court in India convicted all 269 accused officials,which included the then Principal Chief Conservator of Forests (PCCF), M. Harikrishnan, Conservators of Forests, P. Muthaiyan and L. Nathan and District Forest Officer, S. Balaji, under the SC-ST Prevention of Atrocities Act and 17 of those for rape. Fifty-four of the original accused had died by the time of the convictions; the remaining 215 were sentenced to jail.

Doesn't this case highlight the professional risks faced by forest staff during their duties? Are the officers and staff involved in this case any less than Forest Martyrs? Is anyone fighting for us? Meanwhile, many portray villains like Veerappan as heroes, like the Tamil novel Solagar Thotti, written by S. Balamurugan, which depicts the efforts of the STF in a negative light.

The story of Shri Srinivas IFS has inspired many. He wasn't just a brave officer—he was a visionary who believed in non-violence, community engagement, and ethical conservation. His story serves as a powerful reminder that forest protection is about more than enforcement; it involves empathy, trust, and sacrifice. He remains one of the most revered martyrs in the history of modern Indian forestry. Born in 1954 in Andhra Pradesh, Srinivas joined the IFS with a goal not only to protect forests but also to uplift the communities living within them. His tenure as Deputy Conservator of Forests in Chamarajanagar was characterized by active involvement in tribal welfare, wildlife conservation, and rehabilitating forest offenders.

In 1991, Srinivas was lured into a trap by the notorious forest brigand Veerappan under the pretence of surrender. Trusting the message conveyed through Veerappan's brother, Srinivas went alone to meet him—armed only with faith in dialogue and reform. What followed was a brutal betrayal: he was captured, tortured, and beheaded. His body was recovered, but his head was never found.

Posthumously awarded the "Kirti Chakra", India's second-highest peacetime gallantry award, Srinivas Sir is remembered not just for his bravery, but for his ethical approach to conservation. He believed in winning hearts, not waging war. His legacy lives on in the memorial museum at Kollegal, in the stories told by villagers who still revere him, and in the ethos of humane forestry he embodied.

Srinivas Sir's sacrifice is a solemn reminder that forest protection in India is not just a technical duty—it is a moral calling, often carried out in the face of grave danger. His life inspires generations of forest officers to serve with integrity, empathy, and courage.

2. Elephant poaching gangs from Tamil Nadu and Kerala:

Unfortunately, organised crime against wild animals in India is unabatedly going on, a point of serious concern. The story of Elephant poaching is greatly explained with some cinematic interventions in a web series named Poacher.

In the well-known elephant poaching case,

poachers from Kerala, like Vasu (deceased), Preston Silva, Chakka Ravi, Rajasekaran Nair, Desan, Thangarajan, Udayshankar, poachers from Tamil Nadu, like Kubendran, Singam, Nagaiah, Vanraj, Siva, Sendrayan, Selvakumar, Babu Bose, Benny Joseph, Thangam, Anbazhagan, Rangan, Chandran, Elangoan, Stalin, Mani, Sudevan, Pandi, Jose, and the middlemen, including Babu Jose, Benny Joseph, Aji Bright, and more, were involved. These individuals worked for illegal wildlife traders like Pi Mundi (based in Mumbai), Umesh Agarwal (based in Delhi), and Thanvachi, Sindhu, Sudhi, and Ajeesh (family-based in Kolkata). Umesh Agarwal, a key trader, was arrested from Lakshmi Nagar in Delhi, with 415 kgs of ivory seized from his warehouse in Jafarabad. In this case, the roles played and the suffering faced by Uma IFS and Kamalahar IFS are profound. Are they any less than Forest Martyrs?

The reach of these organised gangs is evident from the following information, which was recorded by the Hon'ble High Court at Madurai Bench, Madras, in WP No 19771 of 2018, 22415 of 2018, 23901 of 2018, and 19652 of 2018. As per the recorded testimony, Eagle Rajan received:

- 8 Lakhs from SK Bangur, owner of SK Paper Mills, for supplying Ivory artefacts in 1995-96
- Received 30 Lakhs from Kamal Murah Babu Bichu in 1995-96 for supplying an Ivory Statue.
- He supplied 100 kgs of Ivory (4 tusks) to MC Muthaiah of Chennai in 2010-11, and sent two artisans (Kumarapuram and Vijayan) for carving the Mahabharata and Krishna Leela
- In 2012, he received 5.0 lakhs from Puja Dalmia, New Delhi, for supplying an Ivory Statue.
- He received 2.0 lakhs from Sanjiv Goenka and Preeti Goenka for supplying an Ivory statue in 2012.
- In 2012, he received 3.0 lakhs from Ashok Poddar for supplying an Ivory statue.
- In 2012, he received 13.5 lakhs from Susheela Nagotia, Kolkata, for supplying an Ivory statue.
- In 2013, Eagle Rajan supplied the Ram Darbar Statue to AC Muthaiah
- In 2013, he received 7.0 lakhs from Anitha Hemanth Singhania, Kolkata, for supplying Ivory items
- In 2013, Eagle Rajan received 7.0 lakhs from AC Burman/ Ashok Burman of Dabur house, New Delhi, for supplying an Ivory statue.
- In 2013, he received 4.5 lakhs from Sonal Modi, Khan Market, New Delhi, for supplying an Ivory Statue.

I would like to give another example of how poachers, intermediaries, financiers, smugglers, carriers, and illegal traders are so intricately blended, and it's becoming difficult to break the nexus by the authorities, despite their constant efforts in checking the crime against wildlife.

Just to give an example (taking example from Tamil Nadu— not that condition in other parts of India is rosy), so far, the Tamil Nadu Forest Department has confiscated 5191 weapons from poachers in the forests, these include 665 bolt action rifles, 1125 Glock 17 pistols, one single bore rifle and two tranquiliser guns and many poachers were nabbed.

But still lots of poachers, some of them ganged together and formed gangs in Tamil Nadu, like

1. Team Nagaiyya aka Nagu, 2. Team Mani, 3.Team Anbazhagan, 4.Team Senrayan, 5. Singam, Kubendran,is still actively involved in the crime

Of the above elephant killers, Singam and Kubendran, since 2010, have accounted for 375 kgs of Tusks. They have a dealer (supplier of Arms too) to deal with by name Babu Jose, from

Udumbanchola village in Idukki district in Kerala. Kubendran is an ace shooter who can kill an elephant with a single shot, shooting between its eyes while sitting in a tree. Singam has a great technique of distracting the tusker from the group (herd) and taking it to the place where Kubendran is ready to kill the elephant.

Similarly, there is one by the name Kunjumon Devasey, from Kerala, who was a forest watcher to start with and became a killer of elephants who killed 16 elephants during his prime, but became a whistleblower/reformist and helped in busting a syndicate of Elephant Poachers headed by one named Ikkara Vasu aka Vadattupara Veerappan.

When I think of Elephant Poaching, it always reminds me of a poacher by the name Otta Kaiyyan (one-armed) Jose, resident of Randu kayye, Vellikulangara, in the early 90s. He was famous for shooting elephants from a country-made rifle, fitted into the stump of his missing arm with a specially made brace.

Our precious wildlife is exploited by a few, and the forest staff are tirelessly working to combat this kind of organized crime, often risking their lives and facing numerous court cases. Forest staff from Odisha, like Bimal Kumar Jena and Mathi Hansda, demonstrated their ultimate sacrifice in protecting wildlife.

Similarly, many organised timber mafias and land mafias operate across India, plundering forest wealth and even resorting to killing forest staff. How can we forget the supreme sacrifices made by many forest personnel all over India?

To this long list of martyrs and heroes of forests, names like Chalmala Srinivasa Rao, Forest Range Officer from Telangana, who was axed to death, and a brave woman forest ranger, Anitha, from Telangana, who risked her pregnancy to try to stop encroachment on forest land (unfortunately, she had an abortion due to the actions of the invading mob), are being added day by day.

Killings by the Timber mafia are on the rise. Stories of the atrocities by the red sandalwood mafia are well-known.

(B) Fighting Fire: a losing battle and graveyard for foresters:

Unfortunately, Forest fires have become an annual phenomenon in most parts of Indian States. The rotation of the forest fire cycle, which used to be about 4 years, has come down to one year in many parts of India.

Fires are becoming more frequent in Indian forests not only because of the accumulated flammable materials on the forest floor, but also due to the loss of moisture (decreased soil moisture, vanishing water sources from the forests). Absence of water in atmosphere (water Vapor) and reduced soil moisture (due to compacted forest soils which are devoid of humus in them in most cases) in the forests is one way responsible for premature drying and dying of trees and it is increasing the fuel load in forests— one of the reasons for reduced forest fire cycle period.

We are experiencing forest fires every year, resulting in the loss of billions of rupees' worth of biodiversity and the loss of the resilience capacity of forests, but can we still learn lessons? Probably not.

Many forest personnel are losing their lives while dealing with forest fires year after year. This pathetic news tells us about the ill-preparedness of the forest department to fight against the necessary evil (fires), which has become an annual affair. Despite this, our staff doesn't have proper gear to protect themselves and instruments to protect the forests from fire.

Recently, three people died in Almora when fire entered the premises of the Resin (Lisa) factory. The unfortunate victims are from Nepal

and belong to the same family. The department couldn't compel the factory owners to install firefighting equipment on the factory premises. To make matters worse, five people are reported to have been killed last year in various fire incidents that ravaged the forests of Uttarakhand. The services provided by Trilok Singh Mehta, a forest beat officer; Diwan Ram, a watcher; fire watchers Karan Arya, Prantiya Rakesh, Krishna Kumar, and Jawan Puran Singh from Bansar demonstrate that boundaries do not exist when it comes to their work.

Foresters like Sundaresh, Thamangal, Manjunath (Dy RO)- all from Karnataka, Sadashiv Nagthane (declared by Maharashtra Govt as Martyr), Raj Kumar Gawal from Maharashtra, KU Divakaran, Divakaran, Velayudhan and K Shankaran all from Kerala, Rajendra Kurse from M.P., and many more from different parts of India, laid down their lives in trying to control forest fires.Karnataka lost 19 of its forest personnel, trying to put down fires in the decade 2013-2023.

Thus, in India, forest fires have become synonymous with loss of precious lives of ill-trained and ill-equipped soldiers on one hand and loss of precious biodiversity on the other hand.

Concerned by the extensive damage to forests and biodiversity, the Hon'ble High Court at Nainital, in 2016, issued a 60-page judgment emphasizing the importance of forests to humanity. It referenced Rabindranath Tagore's Tapovan, Kalidas's Kumara Sambhava, and excerpts from works like "The Secret Abode of Fireflies: Loving and Losing Spaces of Nature in City." The judgment also cited the article 'Foresters without diplomas" by Kenyan Nobel Laureate Wangari Muta Maathai, as well as Vikram Soni and Sanjay Parikh's book "Nature Has Rights Too,' and Devdutt Patnaik's "Under the Banyan Tree." It incorporated all 26 principles from "The World Charter for Nature." The judgment concludes with an acknowledgement of these points and directs the government to control forest fires.

It's time to proactively work to protect our precious forests and precious lives from ravaging fires.

(C) Attack by Militants and Naxals:

India's forest personnel work in some of the most difficult terrains, not only fighting environmental threats but also facing violent insurgencies. One of the most serious dangers they encounter is attacks by Naxalite groups—left-wing extremists operating in forested areas who often target forest staff for enforcing conservation laws and resisting illegal exploitation. These clashes are likely because Naxal strongholds are often in dense forest regions rich in natural resources, such as Chhattisgarh, Jharkhand, Odisha, and parts of Maharashtra, Telangana and Andhra Pradesh. Forest officers are seen as agents of the state, blocking Naxal control over timber, minerals, and land. Naxals oppose state-led conservation efforts, viewing them as oppressive to tribal communities—though many forest officers work to protect tribal rights. Many forest staff were martyred while on duty in the Naxal-infested areas of the country.

Kamal Naidu Sir, the first IFS officer to receive the "Shourya Chakra" for saving a lion from a snake bite (he got bitten), while working as Director of Delhi Zoo, was also shot in the mouth by Naxals while working in Paloncha. This incident resulted in the loss of part of his jawbone, and he was hospitalized for about four months.

Born in 1967 in Belhami Jairam village, Sitamarhi, Bihar, Sanjay Kumar Singh, I.F.S., was a brilliant scholar and dedicated public servant. After graduating from IIT Delhi and JNU, he joined the Indian Forest Service in 1991, devoting his life to protecting India's forests and fighting ecological injustice. On February 15, 2002, while inspecting forest areas in Rehal forests near Nauhatta, Singh was ambushed by a CPI-Maoist squad. After a

heated exchange, the insurgents shot him nine times, killing him instantly. He showed the world that he led a life of purpose.

Recently, militants fired on forest staff-Imran Yousaf Wani and Jahangir Ahmed Chechi, near Bangender Bridge in Pulwama district, South Kashmir.

This shows how precarious our work is.

(D) Claws, Tusks, and Courage: Dreaded Animal Encounters Faced by India's Forest Staff:

India's forest personnel operate in some of the most biodiverse—and dangerous—landscapes on Earth. Their duties often bring them face-to-face with elephants, tigers, leopards, sloth bears, wild boars, and venomous snakes. These encounters, while sometimes accidental, can be fatal. Some of the Notable Cases of Fatal Encounters are as below:

- S. Manikandan (IFS) – Director of Nagarahole Tiger Reserve, Karnataka, was tragically trampled by an elephant in 2018 while assessing fire damage.

- Jasbin Salker Aind – A forest guard whose death (trampled by an elephant) sparked calls for better training and survival strategies in wild zones.

- Gafoor (Kerala, 2025) – Killed by a tiger in Kallamala, despite repeated warnings from locals about predator movement.

There is survival against all odds, like

- I nearly escaped from the jaws of death while tracking a wandering tiger that entered the dense human habitations of Ghazipur District in U.P. The tiger attacked us after killing a person.

- Dr. Gobind Sagar Bharadwaj, I.F.S., a 1994 batch officer, currently serving as Director of the Wildlife Institute of India, Dehradun, has many memories to share, including how he escaped with severe injuries during an encounter with a tiger while saving villagers and the animal in a conflict situation outside the forest. This incident earned him the State Award in 1999 for outstanding service in Rajasthan.

- M.P. Kartikey (Kanha National Park) – Survived a brutal sloth bear attack by playing dead. The bear gnawed at his skull, tore muscles, and left him with a moon-shaped scar. It took him 36 hours to reach a hospital.

- Sudha Dhurve (Satpura Tiger Reserve) – Famously stared down a tiger for 90 minutes and lived to tell the tale.

- Suresh and Dhanna (Satpura TR) – Dhanna was dragged away by a leopard attracted by his snoring; Suresh survived and now shares his experience to train others.

What is to be done to save the precious lives of forest personnel?

Under conditions of extreme hardship, the protectors of our forests battle numerous challenges to ensure the safety and security of the animals and the forests in which they are working. While performing their duties, unfortunately,several of our staff are getting killed year after year.

The ultimate sacrifice of Jasbin now, of Manikandan yesterday, and scores of officers and staff killed in past, probably warrants a relook into the need for revamping the training needs of the staff, for facing such fatal incidents involving wild animals.

Probably, experience-sharing lectures by forest guards like Dimbeswar Das, a winner of the Earth Hero Award from the Royal Bank of Scotland for his meritorious service in Kaziranga dealing with wild animals; or/and from Sudha Dhurve, a women forest guard in Madhya Pradesh's Satpura tiger reserve, who stared at a tiger for 90 minutes and lived to tell the tale; or/and from

Mintu Bora, known as Kaziranga's 'Google map,' who has survived numerous encounters with wild animals; or Suresh, the survivor from Satpura TR, who can tell tales about how the snoring habit of his colleague Dhanna attracted a leopard in the middle of the night and dragged Dhannu to death. (If we don't allow Suresh to share his experience, then someone like WTI will come out with their own tale like 'Death on Duty.'). There are many such examples from across India, where experienced personnel can share survival tips with their colleagues while working deep in the jungles amidst wild animals.

It is the time to compile, collate, share experiences, and train the staff and officers of the forest department, so that our staff will be safe and feel safe.

Now, the problems are worsening day by day, with animals migrating in large numbers from their habitats, and the staff try to drive them back.

Foresters' Work Ethic:

In the context of what I wrote earlier on, who are we, what do we do, and what challenges do we face, I would like to elaborate that we, the foresters, are working to help ecosystems maintain homeostasis (bio-equilibrium) and our footprint on a landscape is not always that of a logger's boot leaving destruction in its wake but forests grow in areas where people have walked.

There are many theories on how population equilibrium (homeostasis) is maintained in ecosystems, including a few like Lotka–Volterra equations (predator-prey equations), Gaia hypothesis (which suggests that living beings interact with Earth to form a complex system that self-regulates to maintain the balance of nature), Catastrophe theory, and chaos theory (the last being a controversial theory), among others.

Although some conservationist organizations argue that human activity is incompatible with a balanced ecosystem, there are many examples in history showing that several modern habitats originate from human activity: some of Latin America's rain forests owe their existence to humans planting and transplanting them, while the abundance of grazing animals in the Serengeti plain of Africa is thought by some ecologists to be partly due to human-set fires that created savanna habitats.

One of the best-known and often misunderstood examples of how human activity can enhance ecosystem balance is the Australian Aboriginal practice of "fire-stick farming." Similarly, in India, we also use controlled burning of our forests. This method involves using low-intensity fire when there is sufficient humidity to control its spread, thereby reducing the amount of ground-level combustible material and decreasing the severity and damage of forest fires. Several plant species are adapted to fire; some even require its extreme heat to germinate their seeds.

In this context, I would like to briefly mention an article titled "Global Environmental History: The First 1,50,000 Years" by JR McNeill, which appeared in the book titled: A Companion to Global Environmental History.

How fitting it is that the author mentioned in this article that the key question is not what kills forests, but what threatens their resilience, preventing them from regrowing after disturbance. He also notes that while the natural world has shaped and conditioned human experience, humans have increasingly made far-reaching changes to their environment over time. The natural world is not just the backdrop to human events; it evolves both naturally and in response to human actions. Today, nature is both natural and cultural, at least in most parts of Earth. In fact, human impact on nature has become so significant that some scholars argue life on Earth has entered a new geological period, the Anthropocene. This growing

recognition in scientific circles reflects increasing awareness of the expanding human influence on the environment.

The author discusses how deforestation fits into DE(EP) FOREST (HI)STORY. It emphasizes that the key question in forest history should not be just what kills trees, but what threatens forest resiliency, preventing them from regrowing after a disturbance

The footprint of humans on a landscape is not always that of a logger's boot leaving destruction in its wake – sometimes, forests grow in areas where people have walked, especially when they suppress fire or build soil for farming and then abandon the land.

Ancient forests pulled carbon dioxide out of the sky and into the pores of the soil, "making the interface between the atmosphere and the earth viable for an explosion of terrestrial life." Forest canopies created the first shade; forest roots bound dirt together into the first true soils; forest cellulose provided fuel for flames; and forest communities created new habitats where terrestrial animals could thrive.

The result was a series of evolving feedback relationships that transformed the earth into an interactive system tying together atmosphere, oceans, rocks, soil, bacteria, plants, and terrestrial animals.

Parting lines:

How apt is the description of a forester's work ethic as mentioned by JR McNeill? We, the Forest officers—whether living, working, retired, or those who have made supreme sacrifices—are the unsung heroes in the fight against environmental crime and in restoring forests. Their struggle goes beyond just trees and animals — it's about justice, sustainability, and the spirit of a nation. We, the foresters, aim to show that the footprint of us on a landscape is not always that of a logger's boot leaving destruction behind. Honouring their sacrifices and supporting their mission is vital for a greener, safer future.

India's forest martyrs—be they Bishnoi villagers hugging Khejri trees in 1730 or modern-day forest guards in the jungles of India—have left an indelible mark on the nation's environmental ethic. Their sacrifices underscore a fundamental truth: protecting the environment often demands not just policy or participation, but courage and readiness for self-sacrifice.

National Forest Martyrs Day stands as a national touchstone—a collective act of remembrance, gratitude, and renewed resolve. By honouring those who have paid the ultimate price, India affirms its commitment to safeguarding its natural wealth, reminding each generation that the battle for ecological justice and conservation is ongoing, urgent, and, yes, profoundly human.

The flame kindled by these martyrs continues to light the way, urging not just commemoration, but action—a commitment echoed by schoolchildren, forest officers, NGOs, and policymakers on every September 11th, and, ideally, every day the forests breathe.

The names mentioned in this article are only indicative. The author does not intend to diminish the supreme sacrifices made by brothers and sisters of the service by not mentioning their names and contributions. The greatness of the service comes from the sincere efforts of all those who have lived and laid their lives for the cause.

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COMMEMORATION OF BRAVE HEARTS of TELANGANA

K.B.R. Reddy

September 11, each year is observed as The National Forest Martyrs Day. It is a solemn occasion to remember and pay homage to Foresters for their sacrifice trying to protect forest and its dumb denizens. The Government of India in The Ministry of Forest, Environment and Climate Change specifically selected this date in 2023 to commemorate brutal killing of tribals belonging to Bishnoi community in 1730 which has come to be known as Khejarli Massacre. Maharaja Abhay Singh Rathore of Marwar Kingdom at Jodhpur wanted to build his palace in the area where the people belonging to Bishnoi tribe had been living amidst trees for ages. The king ordered for felling the trees, but the people resisted the move and embraced the trees to prevent their cutting. The soldiers stopped felling trees and started killing the people. This resulted in the death of about 300 men and women. The act of courage by Amrita Devi and others led to the Mahararaja issuing an order to protect trees and animals of Bishnoi land

Let us examine a few cases of heroic death while performing their duty.

R. Gangaiah: Gangaiah was a Range Officer in Kamareddy division. He was zealously struggling to protect Nallavelli forest. The villagers were bent upon encroaching the forest, claiming the land to be their patta granted by the Revenue department. On the night of September 14, 2013, Gangaiah received information that the villagers of Nallavelli have organized in a big way to cultivate the land by using tractors. He set out with limited staff in a jeep. As they approached the scene of offence, the villagers started sprinkling chilli powder in the eyes of the staff and attacked the Range Officer with lathis, stones, axes etc. He was seriouslyinjured and was rushed to a nearby hospital where he succumbed to the injuries. Police registered the crime under a number of sections of the Penal Code and prosecuted the accused. The Sessions Judge, Nizambad convicted and sentenced some of the accused to imprisonment while others got acquittal.

Ch. SrinivasaRao:ChalamalaSrinivasaRao, a Range Officer in BhadradriKothagudem district, was a very popular person and a man of masses. Besides performing a forest officer's duties, he earned a name of being a perfect human being. For popularizing forestry among the people, he used to conduct meetings for farmers and arranged programmes on forestry for schools. He had produced an audio song in Telugu highlighting the need to protect forests. He received many awards including a gold medal for his good work. His life was smooth and peaceful until a tribe called 'GottiKoyas' started migrating into

Telangana and encroaching forest land for cultivation. He tried to evict the encroachers and re-cloth them with forest species.

In one such plantation in a place called Erroboduarea,thetribals were trying to graze their cattle in a plantation. When he received the

information, he rushed to the spot and tried to stop grazing. As he was negotiating with people, two men armed with axes and sickles hit him from behind. He instantly fell with injuries. He was rushed to a multi-specality hospital at Khammam where he breathed his last on November 22,2022.

Ahmad Mohiuddin: He was a Forester of Gudem section in Bejjur Range working there for many years. He warned a forest encroacher katelaBakkodu not to extend his cultivation. Bakkodu bore a grudge against the Forester and played a trick to wreak vengeance against him. The Forester was given a false information about large scale fellings in Gudem Block and promised to show him the scene of fellings. On an appointed day, KatelaBakkodu and his brother took the Forester into the forest and they went round-and- round until the Forester got tired. At one place, as the Forester was negotiating a stream bank, he was hit by an axe on the temple and he fell in the stream saying, ALLAH. The dead body was left in the stream; the seizing hammer and chappals were buried in the sand. The facts were disclosed on interrogation three days after the killing. The dead body got decomposed and only putrefied parts of the body and the skull were recovered at the scene of killing at the instance of the murderers. This ghastly killing took place in 1960. I was the Range Officer at the time.

Peerla Rama Swamy: P.R. Swamy was a Forest Guard in Karimnagar East division, Azamnagar Range. On information that some men are cutting teak wood for making bullock cart wheels, the Forest Guard raided the place of occurrence and booked a case against the accused. This act of booking a case by the F.G. angered the Naxalites and they strangulated him to death by tying him to a tree. This was narrated to the Conservator of Forest. Peerla Rama Swamy's son was appointed as Forest Guard on compassionate grounds.

KondalRao: He was the Range Officer, Bejjur and Kaghaznagar was the Division Head Quarters. For preparing some reports, he had visited Kaghaznagar. Sitting in a Government quarters, he was doing some paper work when all of a sudden, some naxalites with arms swooped on him and shot him to death. Nobody knew why he became a victim of the Naxalites.

The above instances are a few killings of forest officers and frontline staff. There are many more reported and unreported deaths of forest subordinates who died in harness.

Conclusion: Ever since the Forest Department came into existence as a wing of the Government, the Forest Act as a central legislation and State Forest Acts as State made laws are intended for protection and management of the forests in the country. 'Forest' including Wildlife was a State subject,but by the 42nd amendment of the Constitution made in 1976,the subject was transposed to 'Concurrent list'. The other important changes brought in the Constitution are : Introduction of Art. 48.A as a Directive Principle of State Policy as: "State should endeavour to protect and improve and safeguard the forest and wildlife." Another new feature of the amendment is addition of Fundamental Duties of Citizen of India. In Art.51A(g), it is said

that it is the fundamental duty of every citizen of India to protect and improve natural environment including forest and wildlife.

The Central Government wanted to have better control over the forest administration in the states.When Smt. Indira Gandhi,was the Prime Miniser, a Central Act called The Forest Conservation Act was enacted in 1980.In a letter dated 20.04.1980 to all the Chief Ministers, the Prime Minister stated: "The preservation of our environment is our collective concern. Any deterioration of environment threatens the present and future well-being both our country and our people. ……The maintenance of the ecological balance should be as much a part of the developmental process as the working of our national resources".The twofold objectives of the Act are: 1. A forest land should not be used for non-forest purpose without the prior permission of the CentralGovernment and 2. De-reservation and deforestation of a forestis permitted only after the prior permission of the Central Government is obtained.The Forest Conservation Act was enacted to address the growing concern over deforestation and degradation of forest in India. Its primary objective was to ensure the conservation of forest.The main reason for enacting the Act is to protect and conserve the trees so that they can support the wildlife and save the habitat. Prevention of the use of forest land for non-forest purpose and deforestation without the prior permission of the central Government, it is the duty of the state Government only to take action. When such things along with other offences take place it is the state Government personnel to proceed according to law.

In spite of timely action, some people belonging to scheduled tribes and others have cleared the forest and have been cultivating the land for many years. For protection of rights of such people, the Government of India enacted a new law namely, The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2000 (Shortly called Forest Rights Act). This Act stipulates occupancy rights of those who are in possession of the land as on or before 13.12.2005. This is the cut-off date. But people belonging to scheduled tribes and also other forest dwellers are misguided to clear the jungle and cultivate the land.They put up bogus claim for forest right as laid down in Forest Rights Act.Such areas are called podu lands. Resistance to podu cultivation in new areas by forest staff results in criminal assault resulting even in their death.Politicians and masquerades posing themselves as well wishers of the poor promise to get pattas of the lands encroached. These illegal activities are a menace to the forest staff and eviction is looming large whenthe encroachers would not quit the podu land. This problemis prevalent over lakhs of acres of forest land. Forest protection is a hazard and is in imminent danger and some miracle or divine intervention only should solve the problem.

The Author is a retired Dy.CF and Founder-Editor of Vanapremi magazine

Be kind whenever possible. It is always possible

-Dalai Lama

The brave souls that breathed their last: Supreme sacrifice by Foresters of AP

V.V.Hariprasad

Name : N.R. SRIDHAR
Designation : Dy. Range Officer
Date of Birth: 18.02.1965
Date of Death: 15.12.2013

Those are the reserved forest areas of Seshachalam hills scouted by me in the process of searching for illegally felled trees of Redsanders and the smugglers during 1992 -1993 as Sub Divisional Forest officer Tirupati, during 2003-2006 as Divisional forest officer TTD Tirupati and as Divisional Forest officer,Flying squad during 2006-2007. It was in the month of October 2006 in the early hours of a working day I have proceeded for beat inspection of Chamalabeat of BhakrapetRange of wildlife management Tirupati division along with Sri. Devaraj Forest Range officer, one Forest section officer Sri.Kalapa Naidu and four Forestbeat officers namely Sri.Chandra Sekhar Raju, Sri.Chengal Raya Chetty, Sri. Sumantayya, FBO Chamalaand Asst. Beat officer Sri.Sundar Raju and by the time we reached the spot it was hardly 8-00 AM.

The forest beat was full of Redsanders (Pterocarpussantalinus) trees and the area was notorious for illegal cutting of Red sanders by hardcore smugglers who used to come from far off places from Tamil Nadu. The then prevailing modus operandi was that the illegal cutters of Redsanderstrees were being advanced with amounts ranging from Rs. 25000/- to Rs 50000/- per head by the habitual smugglers of Redsanders of Tamil Nadu having international commercial links.The laborers who used to come into the interior locations of the forests during midnight were well trained to cut the RS trees, convert them into logs and carry them to an identified spot wherefrom they could be transported by lorries or other four wheelers by covering them either with watermelons,Papayas or other materials.

On that day whenour entire team started searching for the illegal felling of trees in Chamala beatwe suddenly came across a group of smugglers numbering about 9 to 10 carrying Red sanders logs on their shoulders. Having seen us they dropped the huge RS logs onto the ground and began to flee from there. We ran chasing them by gritting our teeth and the forester Sri. Kalapa Naidu caught hold of a smuggler, fell upon him and kept his head pressed on to the ground whereas the rest of the smugglers went out of our sight within seconds. Aswe were in the lower stretches of the hillock number of smugglers in the upper reaches carrying axes did not approach us out of sheer moral fear and left the locations by leaving the Redsanders logs there itself. They were about twenty to thirty in number.But for the moral fear

of facing the govt. officials hardly eight in number they could have surrounded us and hacked us to death with the axes that they were carrying with them. As destiny would have it by God'sgrace they did not resort to killing us which they could have done easily as they outnumbered us.We sent a message to the FRO Bhakrapet and DFO WLM division Tirupati.Late Sri.A Ramarao Divisional Forest Officer who was stationed at Tirupati came toBhakrapet in the evening by which time we got transported a truck load of Red sanders logs to Bhakrapet with the help of Forest Range officer Bhakrapet.The arrested smuggler was produced in the court the following day.

The forest officials were not always as lucky as we were in October 2006 when we were spared without being killed for which the smugglers could have easily resorted to and all of us retired without facing un timely death until our retirement whereas the case of Deputy Range officer Sri.N.R. Sreedhar and Asst.Forest Beat officer Sri. David Karunakar was totally different in which incident both ofthem lost their lives On 15-12-2013 in the process of discharging their duty in their sincere endeavor to keep a check on smuggling of Redsanders one of the critically endangered and the rarest species that comes up naturally only in India that too only in Andhra Pradesh and part of Tamil Nadu. The following narration makes us feel highly sympathetic towards the bereaved family members of those who sacrificed their lives discharging their legitimate duty.

On 15-12-2013 the Forest Range officer SVNP Tirupati Sri B. Ramla naik made a phone call toSri. RamanaForest section officer by around 7-30 AM ,informed him that in Napier south beat located in Tirumala assault of Dy. Range officerSri. N.R Sreedhar and forest staff has taken place when they were trying to nab the Redsanders smugglers and they had to rush to the location without any delay.

Then the Forest section officerSri Ramana dashed to the Forest Range officer and reported at the Forest range office ofTirupati. From there the Forest Range officer Sri Ramla Naik, Forest section officer,Forest beat Officer Ch.Raju, Asst. Beat officer Sri. N.David Karunakar along with three Forest protection watchers rushed to the Napier South beat by a Govt.jeep,which is located abutting Tirumala central beat. By the time they reached the spot called PEDDACHENU BANDALU of the Napier south beat the time was around 9-00 AM.Having listened to the sound of approaching jeep the Dy. Range officer Sri.N.R.Sreedhar came running to the vehicle along with Forest beat officer Sri I. Reddy Prakash ofPapanasanam beat and two Forest protection watchers. He informed the FRO that on the night of 14-12-2013 he received information about the illegal transport of Red sanders and that he came to the location of PEDDACHENUBANDALU accompanied by field staff of Tirumala section by TATASUMMO after midnight and began to search for the smugglers and the smuggled produce.

As per the information furnished by him in the process of searching for the smugglersthey found number of groups of laborers carrying Red sanders logs on their shoulders keeping their torch lights on. The Dy. Range Officer and his staff ventured having mustered courage to chase them and nabbed one person.They brought him nearby to TATA SUMO and began to enquire whereas the rest of the laborers fled from the scenes. He added, "When we were questioning the accused a large group of laborers involved in smuggling came there attackedus with weapons, took the accused person forciblyaway,we being unable to withstand the attack ran away from there helter-skelter and under these circumstances Forest beat officer of T.N.Palemcentral beat and one forest protection

watcher were found missing."

Sri N.R.Sreedhar also said, "I was worried about the missing of the forest staff accompanying me and I made a call and explained the situation to you the Forest Range officer." whereas a situation cropped up later where he was forced to run to save his life from the onslaught of a violent mob.

The Forest Range officer Sri Ramla Naik consoled the Dy.Range officer and enquired about the direction from where the smuggling laborers came and as per the indication given by the Deputy Range officer all of them began to proceed in that direction passing through the Red sanders logs that were thrown on the ground by the fleeing laborers.

When they approached a firewall the laborers about one hundred in number suddenly came which was out of blue and attacked the group of Forest staff headed by Forest Range officer. The Forest staff including the Forest Range officer Sri Ramla Naik got scared and ran in different directions to save their lives so that they could come out unscathed from the hands of the violent mob.FBO Sri.Raju and Asst. Beat officer Sri. David Karunakar ran in one direction, Dy.R.O Sri. Sreedhar,Forestsection officer Sri.Ramana ran in another direction and FRO Ramla Naik also ran in a different direction to save their lives from the unruly mob of laborers. A.B.OSri.David Karunakar was running ahead of Forest Beat officer Raju who hid himself after covering certain distance behind the bushes whereas fleeing Sri.David Karunakar who was hit with stones by about 20 to 25 persons chasing him fell down having been strongly hit by a big stone on the rear portion of hishead.He fell on the ground while profusely bleeding and the unruly laborers came there and beat him with sticks black and blue with uncontrolled feeling of vengeance He was left to bleed to death.Forest Beat officer Sri Chandrasekhar Raju was lucky that the violent mob could not trace him and he was destined to be alive

Meanwhile, a jeep carrying protection watchers reached there and having seen them the FBO Sri Raju felt a bit relievedand went running to the jeep. Having heard thesound of the jeep the smuggling laborers came back running to attack the jeep with a feeling of reprisal and the FBO and protection watchers left the jeep and fled away as they outnumbered them. The jeep was destroyed by them ruthlessly.When the FBO Raju and the protection staff were running towards sandalwood plantation of Tirumala, the Dy.Range officerSri. Lakshmipati, Dy.Range officer Sri.VenkataRamana Reddy and police personnel came there by one

TATASUMO and One jeep.

The Forest Beat officer SriRajuwho came there having lost the chappals he was wearing in the turmoil and had his feet with full of thorns causing him lot of pain explained the situation in a hurried manner describing them briefly about their pathetic condition.The police who were equipped with guns asked theFBO to show the exact location where the violent mob chased them. Having mustered courage the FBO Raju proceeded towards that location. En-route they found Sri.David Karunakar the Asst. Beat officer in a pathetic and bleeding condition having fallen down on his back with his face facing the sky while bleeding profusely.

In another route Dy. Range officer Sri N.R. Sreedhar and Forest section officer Ramana were found lying on the ground bleeding profusely. Sri.NR Sreedhar wasfound motionless and the savage violence by the unruly smugglers resulted in his bleeding to death whereas Forest section officer Ramana was found to be moving his body slowly having been inflictedupon with ponderous injuries. After seeing them the Forest Beat officer Raju felldown unconscious. All the injured persons, including Dy. Range officer Sri.N.R.Sreedhar and Asst Beat Officer Sri.David Karunakar, were initially admitted into Aswini hospital Tirumala and laterthey were all shifted to SWIMS Tirupati where Sri N.R. Sreedhar and Sri.David Karunakarweredeclared dead. Later the Superintendent of police Chittoor sent communication to all the police stations in the district got the trains and buses proceeding towards Tamil Nadu and other suspected routes thoroughly checked and cases were booked against 423 persons suspected to be involved in the crime.

Later identification parades were conducted in Nellore central jail, Kadapa Central jail and Tirupati jail.After a period of 2 years, a special court was constituted in SV university Tirupati and the case was dismissed by the judge for want of proper evidence and it is a fact to state that “Judiciary has only ears,no eyes.The Forest fraternity is bound to bow down its head and pay homage to the brave souls Sri N. R Sreedhar Deputy Range officer and Asst.Beat officer Sri. David Karunakar who lost their lives on15-12-2013 while discharging their duty to protect the forest wealth of Redsanders without getting smuggled by the ruthless and unruly smugglers without even caring for their valuablelives unmindful of the limitations they had whereas both of them were personally in touch with me when I was working as Divisional Forest officer Flying squad division Tirupati during 2006-2007 and the shock that I underwent because of the gruesome incident can never be explained by me.

Consequential benefits were provided by the Govt. to the Spouse of Sri.N.R.Sreedhar who was appointed as junior asst. along with payment of compensation in cash and a Govt. plot and the daughter of Late A.B.O Sri.David Karunakar was appointed as Junior asst. by the department along with the payment of compensation in the form of cash and was allotted with a Govt. plot.

Later the Govt of Andhra Pradesh realized the gravity of the situation with regard to smuggling of Red sanders an internationally sought after species ,prevailing in Seshachalam hills of Tirupatiand made arrangement of deploying regular police force under the control of a senior police officer exclusively to take care of prevention and control of Red sanders smuggling in those areas and prior to that the department lost two valuable lives which could have been prevented if gravity of the situation was realized much earlier However. it is always “Better Late than Never:” which has been the inimitable functioning style of any Govt. department.Subbaiah: ThanadarSubbaiah in 1970

was crushed to death when he tried to apprehend a lorry carrying illicit timber. The Sessions Judge who tried the case observed in the judgment: "The first day of March is the last day of the march of his life."

Kesavulu: Forest Guard Kesavulu and Forest WachersSomaiah and Penchalaiah were done to death on 17.03.1939 and the news of their killing is etched on a rock in Chitvel R.F. in Rajampet division. This was discovered by the C.F., Tirupathi in the course of inspection of forest and he called it as a Rock Memorial.

Subbaiah: ThanadarSubbaiah in 1970 was crushed to death when he tried to apprehend a lorry carrying illicit timber. The Sessions Judge who tried the case observed in the judgment: "The first day of March is the last day of the march of his life."

(The author is a retired Deputy conservator of forests who worked for about a decade in differentcapacities in the rank of Asst. Conservator of Forests in Tirupati having Seshachalam hills as part of his jurisdiction and he is a practicingAdvocate)

- D. Nagabhushanam, IFS (R)

Forest Martyrs: Guardians Who Laid Down Their Lives for Conservation of Forest & Wildlife in Gujarat

Gali Yadaiah

Every year, **September 11** is observed as ***National Forest Martyrs Day*** in India to honour those who sacrificed their lives while protecting forests and wildlife. These unsung heroes stand as sentinels of nature, often working in silence, away from the spotlight, yet carrying on their shoulders the responsibility of safeguarding our Forest& Environment for generations to come.

Forests are not just trees, rivers, and wildlife – they are the lifeline of humanity. Behind every lush canopy and every thriving species, there are forest officers, guards, and frontline workers who dedicate their lives to protecting them. Many of them endure harsh terrains, wild animals, and threats from poachers, timber mafias, and encroachers. Their sacrifice is not just professional—it is deeply personal, as they give their lives so the forests may live and persist.

To remember their courage, the Nation pauses on this day, acknowledging that the air we breathe and the water we drink come at the cost of their relentless effortsof Forest Martyrs.They are the silent warriors who embraced death so that life on Earth could continue.

Gujarat Forest Martyrs: The Pride of the Land of Lions.

Gujarat, the land of Gir—the last abode of the Asiatic Lion, has given the nation some of the bravest forest protectors. From battling poachers who threaten lions and leopards, in preventing illegal logging that destroys habitats, Gujarat's Forest Martyrs have stood unshaken in their duty in conserving Forest and Wildlife of Gujarat.

They have walked the scorching plains of Gir, patrolled the saline stretches of the Little Rann of Kutch, and guarded the green belts of South Gujarat, often facing dangers that few can imagine. Their sacrificesare not just for the forests of Gujarat, but for the ecological balance of the nature across the entire nation.

Gujarat has established its first Forester Memorial (Vanpal Memorial) inaugurated by ShriBhupendra Patel,CM of Gujarat on National Forest Martyr Day on September 11,2023 at the Van Chetna Kendra in Sector 30,Gandhinagar.It commemorates the courage and dedication of the Forest Department's frontline personnel, including Guards, Rangers, District Forest Officers, and other officers who lost their lives while safeguarding and protecting the state's forests and wildlife.

The CM of Gujarat, Shri Bhupendra Patel inaugurated Forester Memorial on September 11, 2023, National Forest Martyr Day.

The CM had paid homage to the eight forest martyrs of the state who lost their lives protecting forests and wildlife. This memorial serves to commemorate the courage and dedication of the frontline forest personnel who made the ultimate sacrifice while safeguarding the state's natural resources, aligning with the national observance of National Forest Martyrs Day.

Forest Martyr, Shaheed ShaktisinhVisana: The Priceless Jewel

ShaktisinhVisana, born in Junagadh from an educated Mer family, was a brave Range Forest Officer who sacrificed his life protecting people during a conflict in Gir forest in 1988. When a mob attacked officials after a firing incident, Shaktisinh shielded his Senior Officer AK Sharma IFS(1978 batch) from a deadly knife attack, losing his own life in the process.The Senior Officer was immediately rushed to hospital and his life was saved. Shaktisinh was posthumously honoured with India's Gallantry Award, the "Kirti Chakra", as well as state awards, in recognition of his exceptional bravery and sacrifice for wildlife protection and forest conservation. AK Sharma, IFS, was also awarded the "Kirti Chakra" for his valour.

The Gujarat Forest Department established a public trust in Sasan, Gir Forest, named the Late ShriVisana Memorial Gir Forest Staff Welfare Association in memory of ShriShaktisinhVisana. The trust aims to provide support to forest personnel of the Asiatic Lion Landscape and to promote the welfare of the Mer community.

The local "Bhil People",under the leadership of Shri Guru Govind,fought against the injustice and tyranny of the British Government. On 17th November 1913,over 1500 Men, Women & Children sacrificed their lives. As a tribute to "Martyrs" of this historical incident, the Gujarat Forest Department has established "Govind Guru Smruti Van" at Mangadh Hill, Panchmahaland opened to the people 30th July, 2012. "Govind Guru Smruti Van" has been created in order to pay homage to ShriGovind Guru and his tribal disciples who laid their life on this pious spot.

In Gujarat Shaheed Van was createdas a memorial forest located in Bhuchar Mori, near Dhrol in the Jamnagar district of Gujarat.It was officially dedicated during the 67th Van Mahotsav by the then Gujarat Chief Minister Vijay Rupani on August 24, 2016, in memory of the martyrs

Shaheed ShaktisinhVisana, Forest martyr

of the historic Narbanka battle.This is a type of Sanskritik Van ("cultural forest"), part of a broader initiative inspired by Prime Minister NarendraModi during his term as Gujarat's CM. Spread over approximately 10 hectares, the forest comprises around 70,800 saplings planted by the Gujarat Forest Department to commemorate the martyrs.

Viranjali Van, also known as the Shaheed Van or Martyrs' Park, is a memorial forest which commemorates the battle field of tribals who fought with britishers and sacrificed their lives. It located in Pal village within the Vijaynagartaluka of Sabarkantha district. It has a lot of attractions the park serves both as a natural retreat, offering visitors a serene environment amidst lush greenery.

The people of Gujarat remember them not only with respect, but with a promise—to continue protecting the sacred bond between humans and nature. Their stories are a reminder that while monuments may fade, the forests they saved will forever stand tall as their living memorials.

Every fallen forest martyr of the state is the guardian of India's soul. Their courage flows in the rivers they protected, their spirit lives in the roars ofWildlife, and their legacy whispers in the winds that rustle through the trees."

"When a forest martyr falls, a tree of immortality rises."

The Author is a retired IFS officer and a former Addl.PCCF, Gujarat, M-9978406180

NOTICE

The 109th General Body Meeting of the Association of Retired Forest Officers of Telangana and Andhra Pradesh will be held on the 14th September 2025 (Sunday) at 10.30 AM, in the Conference Hall (6th Floor), Aranya Bhavan, Hyderabad.

All the members of the Association are requested to make it convenient to attend the meeting with their spouses.

B.M.Swami Dass
Secretary

National Forest Martyrs Day
A View Point from the Other side

Dr Akula Kishan

September 11th and November 10th each year, are observed as National Forest Martyrs Day and State Forest Martyrs Day, respectively. National Martyrs day is in memory of the massacre of 363 Bishnois whereas the State Martyrs day is the day when the Smuggler Veerappan beheaded Srinivas IFS Officer of Karnataka cadre.The day serves to raise awareness about the importance of conserving forests and to recognize the dedication of Forest Guards, Rangers, and Officers who work tirelessly to protect India's natural resources. This day not only honors past sacrifices but also serves as a reminder of the ongoing need to protect our environment for future generations.

Commemoration of Martyrs

Though there is no detailed information in website of MoEFCC on the details of Forest officials who laid their lives in discharge of their duty, the names of staff members who got killed is mentioned in the website of Andhra Pradesh Forest Department and websites of some other state forest departments.It is unfortunate that the National Portal of MoEFCCand many of the states have not given priority to this matter. Generally, on the Martyrs day, the family members of the deceased Forest official family are called and facilitated. And after the function, they are generally called for next year function.

The payments due to the family members

The details of ex-gratia to be paid and other benefits are not widely known, and the same should be put in website of each Forest Department, as in recent times, many of the executive staff and ministerial staff is ignorant of the orders applicable and the procedure to process them.

In the Army website as well AP Police website, the details of benefits offered are mentioned to officers who died in action. Similar information may be placed in national as well as State Forest websites.

The details of Martyrs

There are (19) names of forest staff in the list of forest martyrs in the Andhra Pradesh website from the year 1979 to 2018. There was no such display onTelangana website.

In Karnataka Forest Website, the details of deceased forest staff member are displayed with photographs, and the cause of death etc.In Kerala Forest website, the list of martyrs is given.

In the website of A.P.Police Department, the photo and other details of the killed Police employee are mentioned.

Mentioning the name of the Martyr will not be sufficient, as the staff member cannot be in memory of the Employees, and it is desirable that the Photo along with the details of the cause of death are to be displayed in the website of the State Forest Department, as the sacrifice should be made known to future generations.

The benefits to be given to families of Martyrs

It would be desirable to maintain files on each of the deceased employee, to contain the details of the employee, his dependents, and the benefits to be given or already given. The family members of the deceased employee should be made comfortable

and they should be confident that Forest Department would be always available to them.

Exceptions to be considered

There will be situations when the protective staff are accompanied by Civilians, and they may also lose their life, and such persons should also be remembered and needful be done.

In one incident in 1990s, in Jannaram Forest Division, a forest guard was proceeding to intercept and stop the timber smugglers, and seeing his father rush out, his 25 year old son followed. May be due to lack of experience or otherwise, the son was axed to death, and the hapless father has sacrificed his grown up son. When the matter was brought to the notice of superior for ex-gratia or compensation, it was informed that there is no such provision. It is to be understood, all situations cannot be foreseen, and instructions issued. It should be humanitarian gesture, and the Forest Department ought to have stood by the grieving father. But no such action was taken.

Use of technology for avoiding loss of life

The use of fire arms is not a practice with forest staff, and it is advisable to take assistance of Police to handle the fire arms. As recently few pistols and guns were purchased after lot of deliberations, and their use in forest protection is hardly recorded. The ammunition was given along wit weapons, and status of the weapons as well as ammunition is to be verified.

Whenever fire arms are available with staff, the same may be used to the extent of killing, and the Forest staff cannot be arrested immediately by Police for the injuries or death caused to the smuggler. The protection to forest staff in Telugu States is available vide G.O.Ms.No.182 Energy,Forest, Environment, Science & Technology (For.III) Department dated 24.07.1991. In the said orders Government permitted use of fire arms by forest officers of the rank of forester and above to protect forest property as well as their lives from the forest offenders. In case where fire is opened, and till recommendation of the Magisterial enquiry is known, the Police should not arrest or proceed against the officers who had opened fire etc.

Use of remote sensing, and use of drones etc. may be extensively put to use to ascertain the movement of smugglers, and intercept them at suitable places with sufficient manpower and firearms.

Conclusion

The dependents of deceased forest employees should be taken care of, and the Forest Department should meet all their needs to make them forget the absence of their family member. It is desirable to nominate a relationship manager from among the responsible Forest Officers so that the family members should be allowed to contact such designated person than going from pillar to post for their needs.

Simultaneously, all the staff members who are protecting the forest resource should be equipped properly and they should be made available the data obtained from different sources so that direct confrontation without preparedness can be avoided, and thereby saving valuable lives of the Forest staff.

The Author is a retired IFS Officer of AP/TG Cadre. M-7093006261

Small deeds done are better than great deeds planned.

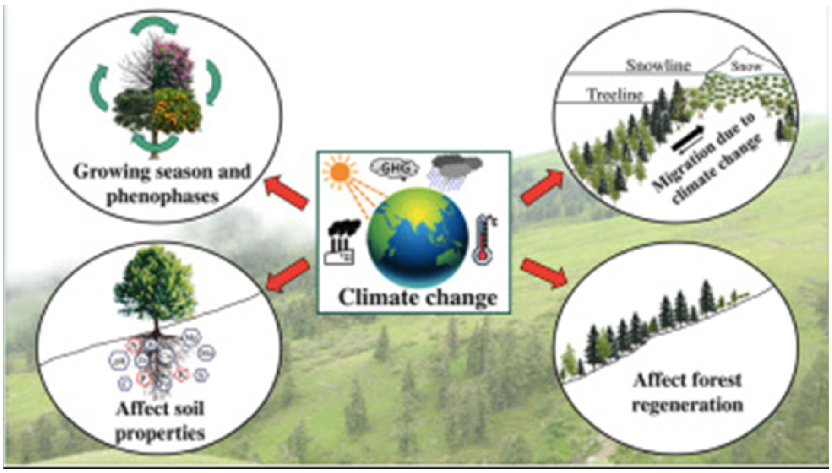
-Peter Marshall


IMPACT OF CLIMATE CHANGE ON INDIAN FORESTS

(LISTEN TO WHAT FOREST SAYS BEFORE IT GOES SILENT)

UMA SHANKER SINGH, PRAKRITI SRIVASTAVA

Global assessments have shown that future climate change is likely to significantly impact forest ecosystems. A study was carried out in two scenarios based on climate projections using two different conditions, A2 (740 ppm CO2) and B2 (575 ppm CO2). The main conclusion is that under the climate projection for the year 2085, 77% and 68% of the forested grids in India are likely to experience shift in forest types under A2 and B2 scenario, respectively. Indications are a shift towards wetter forest types in the northeastern region and drier forest types in the northwestern region in the absence of human influence. Increasing atmospheric CO2 concentration and climate warming could also result in a doubling of net primary productivity under the A2 scenario and nearly 70% increase under the B2 scenario (Ravindranath etal.2005).In yet another study by Indian Institute of Science, Bangalore covering the entire forests of the country on analysis of the 35,190 forested grids reported that more than 66.67% of the forested grids are likely to undergo vegetation change by the year 2100. Almost all major forest types are likely to be impacted by the projected climate change. The other study revealed very interesting result in which the likely impacts of climate change on forests of India have been assessed for two future time-frames i.e., 2021-50, labelled as '2035' during which atmospheric CO2 concentration is expected to reach 490 ppm, and 2071-2100, labelled as '2085' during which atmospheric CO2 concentration is expected to reach 680 ppm (MoEF, 2012). It is projected that about 30.6% of the forested grids are likely to undergo change in vegetation by 2035 and similar change is expected to the extent of 45.9% by 2085.The actual impacts may be more as different species respond differently to the changing climate. A few endemic species may show a steep decline in population and may even get extinct. These impacts are expected to have adverse socio-economic implications for the forest-dependent communities and the economy of the country.



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IMPACT OF CLIMATE CHANGE ON SOME TREE SPECIES

Sal (Shorearobusta) is found on the southern slopes of the Himalayas in Nepal, India, and Bangladesh. In India, Sal trees are located in both the northern and central regions, with the Gangetic Plain serving as a natural boundary between them (Sheetal etal2024). Climatic, anthropogenic factors and management interventions have been largely responsible for changes in distribution of Sal forests in India (Forest Types Revisited, ICFRE). Sal regeneration is a major problem this species is facing since last century, the continuously diminishing natural regeneration is associated with numerous factors like climate change and other abiotic and biotic factors, like edaphic, micro-climatic, physiological, genetic, anthropogenic, pathogens, insect-pests, etc. Following a good seed year and timely commencement of monsoon, Sal seeds germinate readily, and thousands of seedlings cover the forest floor. Subsequently, these get afflicted with dieback syndrome impeding shoot growth. Regular fire incidences during hot and dry season further aggravates the problem. Among biotic factors, Hoplocerambyxspinicornis, Cylindrocladiumfloridanum and Inonotusshoreae causes severe heartwood decay, blight and dieback leading to mortality.Moreover, overexploitation, illegal felling, grazing, etc., have severely depleted the Sal forestMishra etal (2020). The management objectives in the past were aimed at maximizing the Sal timber production by converting the forests into uniform crop. These management interventions affected the natural succession process of Sal forests resulting in the formation of even aged Sal forests. Further, the poor regeneration of Sal in the moist and very moist forests could also be attributed to the closure of canopy due to discontinuing silvicultural operations and ban on green felling. Eastern Himalayan hill Sal forests, Kamrup and khasi hill Sal forests are now dominated by Tectonagrandis and some semi evergreen species, with very few individuals of Sal species. East Himalayan bhabarsal is also found to have associated dominant species, like Lagerstroemia microcearpa (syn. L. lanceolate) and Aphanamixispolystachya (syn. Amoorarohituka).Peninsular(coastal) Sal forests has indicated the decline of Sal and its complete absence from some of the areas in coastal Odisha. Moist peninsular high-level Sal has shown occurrence of the dry teak type in the stand in place of Sal. Similarly, the present status of teak forests has shown some disturbing results with regards to density and regeneration status. Over exploitation, invasion of weeds, recolonization of undergrowth and management intervention are possible causes for the decline of the teak. The survey of very moist teak forest of Kerala and Karnataka states has revealed that the teak seedlings are completely absent in some of the areas. The other forestry species are also passing through the same critical situation for example, India has more than 150 bamboo species occurring in different parts of the country. The survey of the bamboo brakes in secondary moist semi-evergreen forest type in different states, viz. Andaman, Kerala, Nagaland, Meghalaya, Tripura and Tamil Nadu has revealed the depletion of the bamboo species.

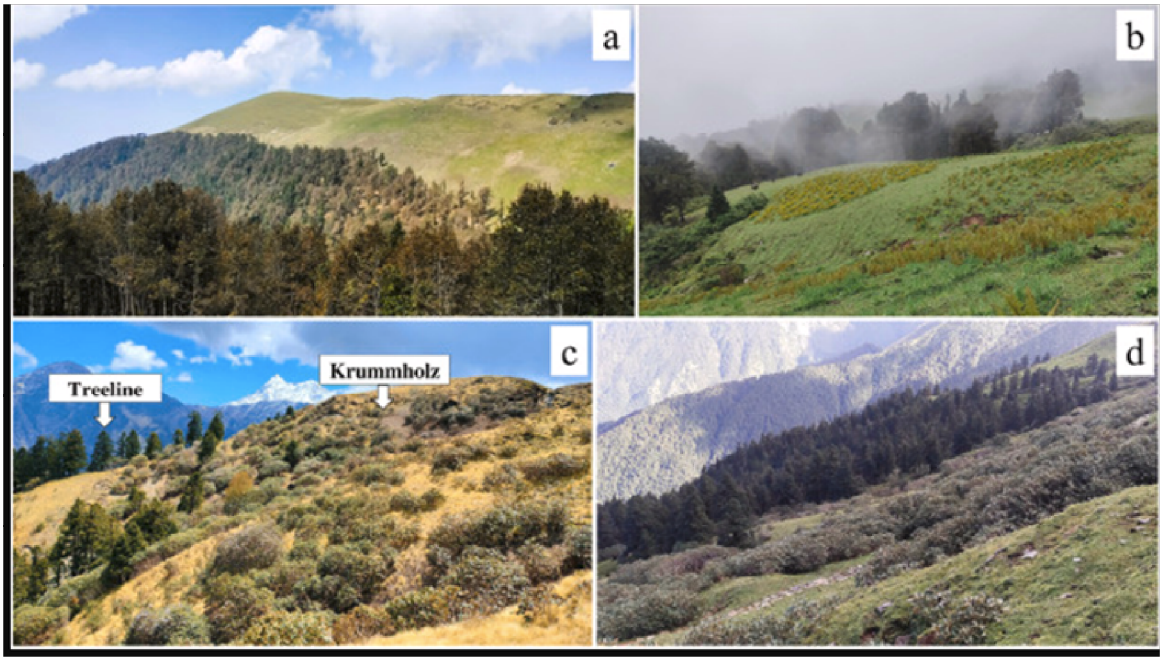
FOREST TYPES AND CLIMATE CHANGE

According to Champion and Seth's classification, India's forests are broadly categorized into six major groups, which are further divided into 16 type groups and further into over 200 types and subtypes. These classifications are based on climatic factors, physiognomy, species composition, and other ecological considerations. The most common belief amongst foresters that giant evergreen forests have shown a great resilience and have remained in climatic climax state without much disturbances is belied based

on the scientific researches and their results.The tropical wet evergreen, tropical semi evergreen and moist deciduous forest types are projected to be impacted by climate change. In the Western Ghats region, a biodiversity hotspot, evergreen forests including semi evergreen account for 30 % of the forest area and according to climate change impact model projections, nearly a third of these forest types are likely to undergo vegetation type change. Similarly, tropical moist deciduous forests which account for about 28 % of the forest area are likely to experience change in about 20 % of the area. Thus, climate change could adversely impact forest biodiversity and product flow to the forest dependent households and communities in Uttara Kannada district of the Western Ghats (K Murthy et al 2014). The other belief that the species composition has remained stable with some changes in the species density induced by natural succession and reduction in the disturbances in the evergreen forests in India is also contested. A study in the wet evergreen forests, located within protected areas in Mudumalai Wildlife Sanctuary and National Park in Western Ghats revealed changes in the species composition and other forest attributes on account of climate and onsite disturbances on a decadal scale(Ashaq Ahmad Dar etal 2023). The tropical semi-evergreen forest types of India have shown the signs of changes in the species composition and stand structure. Most of the semi-evergreen formations in western Ghats and Assam are the degraded formations of tropical evergreen forests which have the potentiality to become evergreen formations. The tropical moist deciduous forest are moist widely distributed forests types in India with about 20% of the total forest area of the country falling under this category. This is a mixed bag which shows recovery of species in some places whereas in Madhya Pradesh, Chhattisgarh and Goa the study has shown presence of more dry deciduous elements and less of moist deciduous species indicating some changes in the species composition. However, the east Himalayan moist deciduous forest has shown some resilience with no change in the composition. The wet bamboo breaks types have under gone changes in the structure and composition and are completely replaced by semi-evergreen species in Andamans. Similarly, the littoral forests are also going through different stages of degradation and this is seen in the field. The forest department has undertaken plantation with the exotic species like Casurinaequisetifolia and Anacardiumoccidentale to make the situation worse. The impact of climate change is evidently clear in the littoral forests of Odisha where the natural littoral species were found completely absent from the site. Mangrove forests in general are becoming little drier in many places due to variations in the water level and rising temperature. The swamps are repository of the primitive species and are often described as relics of old primary forests. A number of Myristica swamps have been found degraded and also converted to paddy fields. The species compositions also have undergone changes due to degradation caused by anthropogenic pressures. Some of the swamps are becoming drier due to diversion of streams and rising temperature causing swamps to remain dry during summer. Around 1.6 billion people in the world are directly dependent on forests for food, fodder, fuel, shelter, and livelihood, out of which 60 million are entirely dependent on forests. Forests silently provide us with eco system services such as climate regulation, carbon sequestration, harboring biodiversity, synchronizing nutrient cycling, and many more. Tropical Dry Forests (TDF's) occupy around 42% of total forest area of the country and facilitate sustenance of world's marginalized populations. A study was carried out in the Western Ghats regions, Central Highlands, North-eastern India and Siwalik hills on the impacts of climate change on the assessment of the distribution of

key Non-Timber Forest Product species in India, namely Aeglemarmelos, Correa, BuchananialanzanSpreng., Madhucalongifolia, Phyllanthusemblica and Terminaliabelliricaunder different scenarios and this was revealed that under the future climate change, the suitable habitat for A. marmelos and T. bellirica is expected to increase while for B. lanzan, M. longifolia and P. emblica, it is projected to decline. A. marmelos and T. bellirica are anticipated to exhibit resilience to future climate changes and are expected to be minimally affected, while B. lanzan, M. longifolia and P. emblica are highly sensitive to high temperature and alteration in rainfall pattern expected under future cli mate changes (PoojaNitinSarafetal. 2024).Unfortunately, a bulk of these forests in the country has been converted into plantations under various afforestation schemes and it's a mistake which foresters will not be able to explain to generations to come. Dry teak forests across southern states and central Indian states like Madhya Pradesh and Gujarat, has exhibited very disturbed trends. In Andhra Pradesh the study of the dry teak forests has shown almost absence of teak, while the associated species were reported dwindling at a much faster rate. Northern tropical dry deciduous forests mainly composed of Sal and associated species have shown degradation under different management and anthropogenic conditions. Dry Siwalik Sal forests in Bihar has indicated the presence of Albiziaprocera and cassia fistula. The absence of Shorearobusta is very conspicuous. The absence of Sal may be due to the poor regeneration, site disturbances and climate change. Prosopisjuliflora is dominating in the Indian dry forests due to its wide drought and fire-resistant character. Many tropical dry deciduous forests are getting converted to tropical thorn forests. The tropical thorn forests are diminishing worldwide and a study shows that the natural tropical thorn forest system of the Punjab in Pakistan has almost disappeared (Khan 1994).Tropical Thorn Forests in India are experiencing shifts in their species composition due to climate change. Climate change, including rising temperatures and altered rainfall patterns, is impacting these forests, potentially leading to a decrease in some species and an increase in others that are more tolerant of drier conditions. Sub-Tropical broadleaved Hill forests are very typical to Nilgiri, Annamalai hills and palani hills. However, the areas in Tamil Nadu (Salem) have shown the occurrence of dry deciduous species. Some of the studies have also shown degradation due to biotic interference. In Karnataka this type has shown evergreen elements occurring as an extension of the evergreen forests. Further, the sub-tropical hill and sub-montane forests have been completely converted into plantations of wattle.Sub-tropical Dry Evergreen Forests is smallest group of champion and Seth (1968) classification currently accounting for only 0.03% of the total forest cover of the country. The current assessment from J&K has shown occurrence of Olea cuspidate along with Pinusroxburghii, cedrusdeodara, punicagranatum and celtisaustralis. However, this forest type is under tremendous pressure on account of severe droughts, and subsequent droughts, increased both species and trait dispersion, while species composition were seen to be reduced. TheHimalayan Temperate and Alpine Forests are witnessing a massive change in the ecosystem. The rising temperatures, altered precipitation patterns, and other climate-related factors have initiated an upward shift in the tree line that threatens the unique biodiversity of the region. Indeed, in various parts of the Himalayas, there is evidence of the tree line moving upwards, altering plant regeneration and growing season, and impacting soil properties. There is a shift of vegetation ranging from 0.80 to 503.00 m in Himalayan tree line regions have been reported in

various studies. Abiesspectabilis and Betulautilis are the most sensitive, showing the highest upward shifts due to climate change. The repercussions of climate change on the Himalayan alpine tree line are anticipated to have significant ecological implications. Most species at the Himalayan alpine tree line, exhibit poor regeneration status, while some others reveal good, fair, or no regeneration. Consequently, new regeneration patterns are emerging. Changes in soil temperature and physicochemical properties due to climate warming are ultimately affecting Himalayan alpine tree line vegetation. Additionally, shifts in the growing season and Pheno-phases of various tree species have also been observed. The profound and far-reaching impacts of climate change, on the Himalayan alpine tree line necessitates implementing mitigation and adaptation strategies to safeguard the delicate alpine ecosystems of the region (Sandeep Kumar 2024).



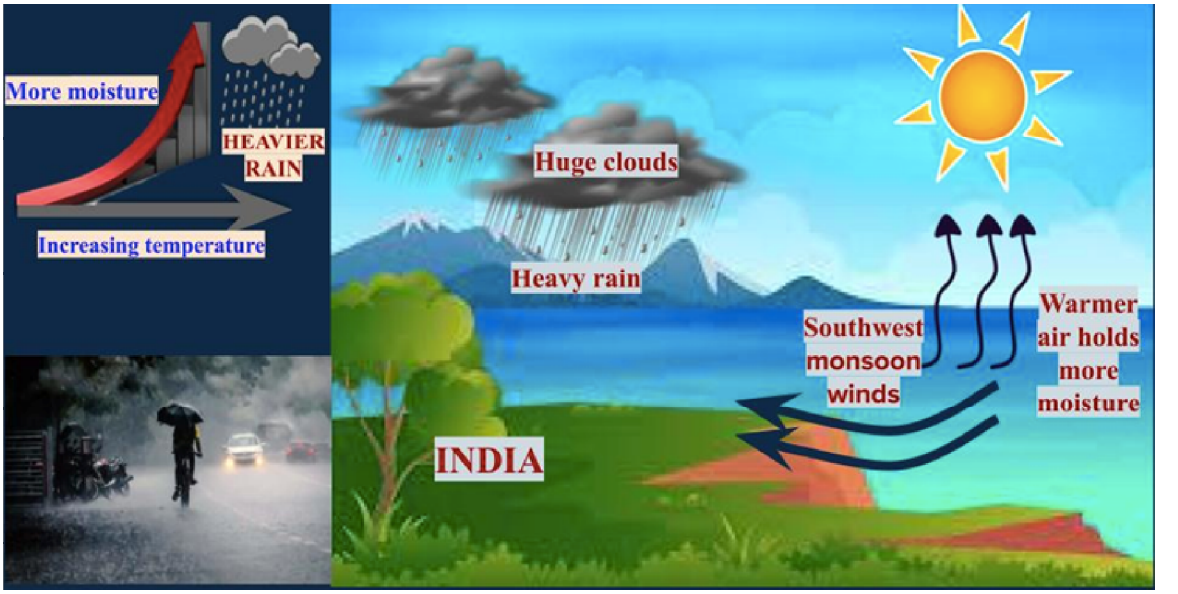
Overview of Himalayan alpine treeline; **a & b**: treeline of Ali-Bedni and Dayarabugyal, Uttarakhand, dominanted by Quercussemecarpifolia, elevation 3450 and 3340 m respectively; **c & d:** treeline dominated by Abiesspectabilis and krummholz of Rhododendron campanulatum at BedaniBugyal (c) and Tungnath (d), Uttarakhand, elevation 3340 and 3350 m respectively.

https://www.sciencedirect.com/science/article/pii/S2405844024168284

RISE IN TEMPERATUREAND RAINFALL VARIABILTY

There has been a consistent rise in temperature and if we study in three time series namely, 1931-60, 1961-90, 1991-2010 and rainfall data collected for last 80 years then it revealsa very significant variations in both rainfall and temperature regimes. There is an increase of 1.2 Celsius since 1900. However, few stations in the central India have recorded very steep rise in temperature.Rainfall during the period 1931-1960 has shown less than 10% variation but dry periods during the monsoon has gone up. At national level, the total annual rainfall and number of annual rainy days decreased by 241 mm. and 5 days respectively from the data

of 83 stations under study. During this period rainfall in different regions reduced by 55 mm in Western India to 1033 mm in North-east India. Rainy days also increased from 3 in west, to 10 in central India. There has been significant change in the rainfall intensity in Sikkim Himalayas. The rainfall has increased between 5 to 15% in Sikkim Himalayas over the years which has influenced the vegetation in many respects. On account of impact of climate change and other anthropogenic factors the classification of Indian forest, as proposed by the Champion and Seth 1968, has been revised by the ICFRE based on a comprehensive study into 10 broad climatic groups using measurable climatic variables and then a total of 44 sub-groups are assigned to these groups instead of 203 of Champion and Seth (1968).



https://herald.uohyd.ac.in/precipitation-scaling-in-extreme-rainfall-events-and-the-implications-for-future-indian-monsoon/

Precipitation Scaling in Extreme Rainfall Events and the Implications for Future Indian Monsoon

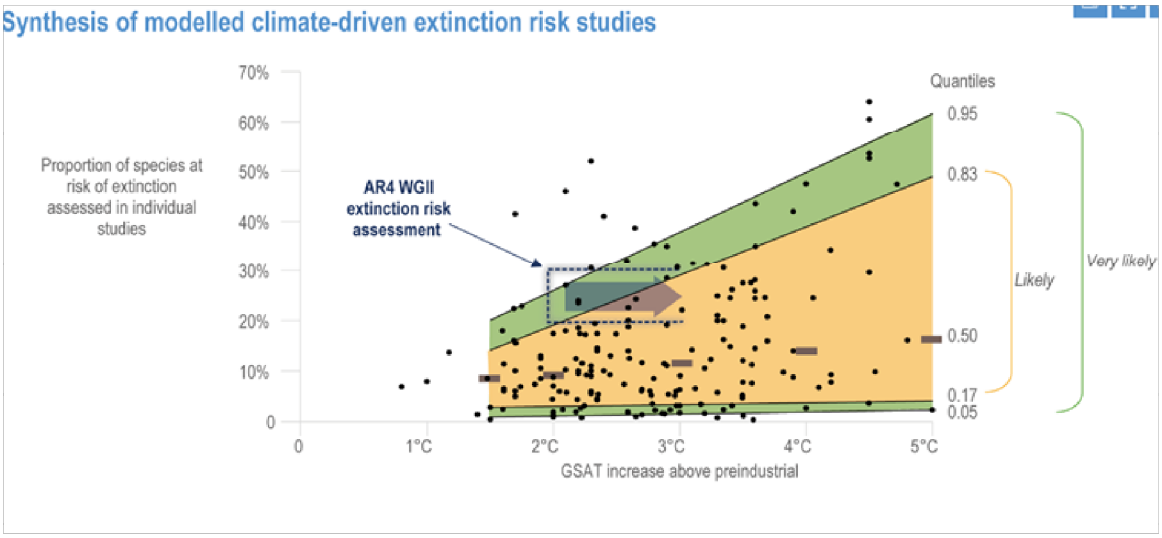
NATURAL REGENERATION IS DECLINING IN INDIA

Studies in India indicate a decline in natural regeneration for major tree species across various forest types. This decline is attributed to factors like overexploitation, habitat destruction, and climate change. Specific examples include Pterocarpus marsupium in tropical dry deciduous forests, and Abiespindrow and Aesculusindica in the western Himalayas. The regeneration failure for greatest forest forming species is a matter of concern for the studied forests. There are many studies which concludes that climate change and disturbances such as animal grazing, fuel wood collection, poles or sapling harvesting has contributed immensely to the decline of plant diversity. Although the overall species diversity was discouraging, but if sound management and protection mechanism are instituted it will help restore and improve the regeneration potential of the study area.

Poor regeneration of forest species in forests carrying Cardamom plantations-an ageing forest-Gavi

Impacts on Wildlife

Rising temperatures lower many species survival rates due to changes that lead to less food, less successful reproduction, and interfering with the environment for native wildlife. Climate change is already having major impacts on wildlife and their habitats, and these impacts are projected to significantly worsen. Unless we immediately act to reduce emissions and help wildlife and ecosystems adapt to the warming already in the pipeline, up to 60 percent of the world's species may go extinct.



https://www.ipcc.ch/report/ar6/wg2/figures/chapter-2/figure-2-007

Biodiversity and climate are interconnected to each other. Studies show that changes that occur in climate affect wildlife directly and indirectly. The basic cause of climatic change is human activities. Human activities increase the greenhouse gases which cause the greenhouse effect. The rising temperature of the atmosphere causes thermal optima to shift towards high altitudes and high latitudes. Global precipitation increases in the last few years that also affect the wildlife. Climate changes disturb the dynamic condition by biomass production, trophic interaction, and hydrological balance. Changing climate regimes directly affect the wildlife their behavior, reproduction, migration, and foraging. Drivers of phenology such as mating, breeding, hibernation, and post-hibernation activities will benefit some species and disadvantage others this will cause a new ecosystem. Some climate parameters such as photoperiod (Drive life history events) remain the same while the timing of spring weather changes because of greenhouse gases. Some pathogens can also increase their effectiveness with changes in the climate. Climate change danger the native terrestrial wildlife to extension and alters the functions and structure of their ecosystem.

Plants remove carbon dioxide from the atmosphere, but the associated animals help maintain plant productivity, diversity, and resilience through pollination, seed dispersal, selective herbivory, pest control, and the enhancement of soil nutrient supply and organic carbon storage. Studies have shown that many wild animals, exert outsized control of carbon sequestration by adding 15–250 percent more carbon in plants, soils and sediments compared to where they are absent. Plants and animals help balance levels of greenhouse gases that heat the Earth. With the help of wildlife, ecosystems can drive the fight against climate change.

CONCLUSION

India is one of the countries that is hugely affected by climate change. It has one of the highest economic activity densities in the world, as well as a large number of poor people who depend on the natural resource base for survival, with a heavy dependence on rainfall. Climate change could drive more than 100 million people into severe poverty by 2030, according to the World Bank, by disrupting agriculture and fueling the spread of malaria and other diseases. India has challenged the UN's haste to declare climate change an international security issue, potentially granting the Security Council the authority to act on it, and has highlighted the approach's flaws. According to India, a "simple Council decision" to take over climate change compliance would jeopardize the Paris Agreement and multilateral attempts to find solutions. Climate change is a global security problem in the twenty-first century. In view of climate change affecting the biosphere, this paper will address two natural phenomena: deforestation, which is one of the oldest and most important contributors to climate change, and forest fires, which occur regularly each year as a result of climate instability.

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FROM TEXAS TO TELANGANA – PLANET IN PERIL

B.K.Singh

Catastrophic flooding in central Texas on July 4 killed 88 people and 41 still remained unaccounted even on the fifth day of rescue and relief. It has been the deadliest flood in hundred years of US history. The flooding begun when a months' quantity of rain fell in a matter of hours, causing the Guadalupe river to rise by eight meters in just 45 minutes.

Back home in India, cloud bursts in Himachal Pradesh and Uttarakhand have caused landslides and flooding, claiming nearly hundred lives in the last one month. The flash floods due to incessant rains have also made life difficult in other parts of the country from north east to Maharashtra, Rajasthan, Odisha etc. Three labourers were buried alive under landslide debris, while carrying out mining operations in a Manganese mine in Baitarani Reserve Forests, in Odisha'sKeonjhar district. Why no precautions against flooding and landslides were taken in an operational mine during rainy season?, is a million rupee question.

Business as usual is not going to work in the warming world. As against this, the countries of southern Europe like Spain, Portugal, France, etc. are reeling under heat waves with maximum temperature rising above mid-forties, an all- time high. Instances of human death is also reported from among the vulnerable population, who worked outdoor for municipal cleaning and constructions.

It seems countries have not taken note of such disastrous climatic consequences and continue to expand fossil fuel consumption and favor projects requiring sacrifice of natural tree/ forest covers. Forests are the best and cheapest source of absorption of Carbon dioxide from the atmosphere, and the only practical way to prevent extreme climate events is to prevent deforestation and go for massive afforestation.

Let me reiterate a tale from Telangana where continuous misuse of Forest Rights Act (FRA) has led to large scale deforestation in the state's notified forests. TheForum for Good Governance, Hyderabad comprising some retired All India Services officers, a High court judge and a social activist, have expressed concern over approval of claims over lakhs of acres of forest lands in July 2023 under FRA, before November 2023 Assembly polls. In a letter to the Secretary, Ministry of Tribal Affairs (MoTA) three months ago, the Forum has pointed out that the regularization of 50,000 acres of forest lands by the Nizam's government in 1940s and 2.41 lakh acres by AP government in 1970s was done in undivided Andhra Pradesh before promulgation of FRA, 2006. Ahead of 2009 Parliamentary election, the state further approved claims over 3.31 lakh acres of forest land and rejected claims over 3.7 lakh acres. The clamor for clearing more forest land continued, as largescale claims were approved by incumbent governments before every election. After the bifurcation of states in 2014, the then Forest Minister of Telangana, in 2018, directed district level forest officers not to evict any encroachment on forest land.

The Minister's direction opened the floodgate for deforestation on forest land. Within two days, Head of Forest Department (HoD) wrote to the state government asking for the confirmation of

the decision; the state immediately clarified that there is no such policy decision. However, in 2023, State's tribal welfare department took up a special drive by deliberately omitting the documentary and scientific evidences (Satellite imagery) listed in FRA Rule 13(1) and relying only on village elder's statement. The action of Tribal welfare department in manipulating form provided under rule 11(1)(a) has violated Central statute. Despite objections from forest officers several district level committees (DLCs) admitted the claims, but many times there were inter departmental clashes resulting in delay.

The Chief Minister on the floor of the Assembly on 12th February 2023 promised the distribution of 11.5 lakh acres' of forest land (4 lakh acres for tribal and 7.5 lakh acres for other traditional forest dwellers). To facilitate the smooth sail by DLCs, Telangana's forest department HoD obtained facsimile signature of district officers and shared with respective DLC for pasting, fabricated opinion of Forest department on each case of the claim. While a former HoD in July 2018 referred the Minister's instruction to government for confirmation, another HoD in February 2023 facilitated the state to approve the ineligible claims. What a contrast? The claim of tribals totaling 4 lakh acres in the state was approved by July 2023.Thanks to the way shown by HoD. The certificates were distributed by political bosses across the state before the Assembly election. Though the approval of claims of other traditional forest dwellers over 7.5 lakh acres' forest land has been paused, but the tree growth over these are already cleared and the parcels are brought under plough. The forests have lost carbon sequestration potential.

Story of misuse of FRA is similar in many other states like Maharashtra, Andhra Pradesh, Chhattisgarh etc. and the latest state forest report attributed loss of forest cover to FRA among other factors. However, after 150 forest rights activists have objected to this,MoTA has questioned its sister ministry (MoEF& CC) and asked for the proof of such attribution. The state forest reports are finalized based on the satellite imagery data, whereas DLCs have been approving claims based on the village elders' oral evidence. It is now MoTA's turn to explain why satellite imagery data, which is more scientific than oral evidence, was overlooked?

Tree felling in KanchaGachibowli 400 acres forested area near Hyderabad central university was undertaken by Telangana government in April this year. The State intended to divert the area for real estate and was clearing the tree growth at quite a fast pace, to beat university students' protest. Finally, Supreme Court had to step in and stop felling. The Court rejected state's argument that thousands of trees already cut in 100 acres were within exempted category of species under Telangana Water Land and Trees Act, 2002 and did not require any prior permission for cutting. Central Empowered Committee of Supreme Court disputed the claim of the state and said that out of 1500 trees cut in the area, only 1399 trees were of exempted category. Such blatant violation of law of the land is taking place, and HoD is found to have been compromised.

Court further directed that the state should restore the 100 acres' area where tree felling is already done. The direction was to compensate the damage to environment inflicted by state of Telangana. Compensatory afforestation is in vogue in Forest department's system for a long time and no forest land is diverted for any non-forestry use without identifying the land for growing compensatory afforestation as well as without recovering the cost of growing such plantations. Court expects the state to plant up 100 acres' area, where tree growth is already cleared with suitable

native species. With moderate to scanty rainfall in Hyderabad region, the survival of the seedlings in barren area would be quite challenging, and like any other compensatory plantation, this is also likely to fail, unless special provisions for protection and watering is provided.

Supreme Court, in TN Godavarman case, had already directed states and UTs to constitute Expert Committees to identify all wooded areas, which are non-notified forests duly taking into account the dictionary meaning of the word 'forests' and states/UTs should treat all such areas as forests for the purpose of Forest (Conservation) Act, 1980. CEC has also said that KanchaGachibowli has all characteristic of forests.

One of the proposal of state of Telangana is to convert the area into 'Eco-park'. It is human centric development activity and will not render the full potential ecological services it can provide. The entire area should be restored and managed as natural forests, if we are to maximize its carbon sequestration potential.

B K Singh Retired Principal Chief Conservator of Forests (Head of Forest Force) Karnataka

Birthday Greetings

We wish the following born on the dates mentioned

"A VERY HAPPY BIRTH DAY"

S.No.	Name of the Member	D.O.B.
1.	A.H. Qureshi	07-09-1941
2.	A. Raja Reddy	13-09-1926
3.	Narpat Singh	15-09-1952
4.	B. Srinivas	20-09-1962
5.	G. Sagar	23-09-1952
6.	V.V. Hari Prasad	25-09-1953
7.	K. Someswara Rao	26-09-1948
8.	P. S. Rao	28-09-1955
9.	S.N. Jadhav	01-10-1955
10.	A.A. Rama Rao Choudhary	03-10-1952
11.	K. Purushotham	05-10-1962

S.No.	Name of the Serving Officers	D.O.B.
1.	Smt. Priyanka Varghese	08-09-1978
2.	A.Sreenivasulu	11-09-1967
3.	M.Samuel	12-09-1978
4.	N. Rama Chandra Rao	18-09-1984
5.	Laxman Ranjeet Nayak	25-09-1990
6.	S. Satyanarayana	04-10-1967
7.	Dr. Rajendra Prasad Khajuria	05-10-1968

- SECRETARY

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

Potential of Nature Based Solutions in India with focus on Andhra Pradesh & Telangana States

Dr. D. Nalini Mohan

Introduction

Nature-based Solutions (NbS) represent a paradigm shift in how societies address climate change, biodiversity loss, and socio-economic challenges. Defined by the IUCN as "actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively," NbS offer a holistic pathway to climate resilience, biodiversity conservation, and socio-economic upliftment. Globally, NbS are gaining traction as cost-effective, inclusive, and ecologically sound alternatives to conventional infrastructure. In Indian context, NbS are not just policy instruments—they are deeply rooted in cultural ethos, community practices, and ecological imperatives.

This article explores the latest trends, their applications, andsome success stories that make NbS a compelling framework for sustainable development.

Global and National Trends in NbS

1. Global Momentum

• NbS are now central to climate negotiations, with COP28 highlighting their role in achieving net-zero targets and enhancing adaptation.

• Among the efforts inthis direction are Urban NbS—such as green roofs, bioswales, and wetland parks etc., being scaled up to combat heat islands, flooding, and air pollution.

• The UN Decade on Ecosystem Restoration (2021–2030) has galvanized international efforts to restore degraded landscapes using NbS principles.

2. India's Policy Landscape

• India's Nationally Determined Commitments (INDCs) align well with the international voluntary emission cuts agreed upon during Paris Agreement. The Green India Mission, projected as India's solution to deforestation and degradation of forests, National Biodiversity Action Plan, and State Action Plans on Climate Change (SAPCCs) embed NbS principles. The reality, according to the MoEF& CC's reports themselves, much is contained in the policy than in practice.

• From Restoration of mangroves along the coastlines and grasslands in hinterlands to social forestry in vacant public places, Andhra Pradesh can embark upon these new approaches towards climate resilience and ecological stewardship. Mangroves, often referred to as "blue carbon" ecosystems, are vital for coastal resilience, biodiversity, and carbon sequestration. Andhra Pradesh has emerged as a leader in mangrove restoration through multi-stakeholder initiatives.

• MGNREGS supports watershed development, afforestation, and soil conservation—activities that qualify as large-scale NbS. But lack of coordination and exchange of information between different departments of the government implementing this programme are impacting the outcomes. The Forest Survey of India (FSI) now tracks mangrove and open forest cover, reflecting growing attention of policy planners to ecosystem services.

Some initiatives by the Non-government Players:

• TREE Foundation's MECR Programme: Launched in 2022, the Mangrove Ecosystem Conservation and Restoration (MECR)

programme is a collaborative effort between the Forest Department, TREE Foundation, and local fishing communities. It aims to restore degraded mangrove landscapes while supporting sustainable livelihoods. This is in addition to their efforts to protect the Olive Ridley Turtles for the last several years. In Nellore and Prakasam districts, efforts to develop mangroves through planting the mangrove saplings, started.

- In Bapatla district, with CSR support from ITC's Mission Sunehra Kal, a mangrove nursery was established and community based restoration of degraded land started in PottusubbaiahPalem.

- Dr. Reddy's Foundation in Tirupati: As part of its climate action initiative, the foundationplanted mangrove saplings in Tirupati district in mid-2024. Technical support was provided by the ICFRE Coastal Ecosystem Centre in Visakhapatnam. Community led activities in Kondurupalem village included planting and nurturing Aegicerascorniculatum (Guggilam in Telugu), a native mangrove species.Seeds are being nurtured on an island in the Swarnamukhiriver, with further planting scheduled for October this year.

These efforts by non-government players not only enhance coastal protection but also revive traditional ecological knowledge and create green livelihoods.

Social Forestry in Andhra Pradesh:

Social forestry has evolved from ceremonial plantations to a community-centric NbS strategy.

- The Forest Department has promoted plantations on revenue and degraded lands, engaging village-level institutions and tribal communities.

- 'Nagaravanams' have been developed over the last decade abutting many cities and towns in Andhra Pradesh. These serve as much required lung spaces for the urbanites. Such NbS can be multiplied in a planned manner.

- The State Biodiversity Board initiated massive tree planting and medicinal plants cultivation in 2020-21 through Grama panchayats and Non-governmental organizations.

- In East Godavari and Srikakulam districts, agroforestry models integrate fruit-bearing trees (tamarind, custard apple) with native species, enhancing food security and biodiversity.

- Women's Self-Help Groups (SHGs) have been trained in nursery management, plantation care, and seed collection, linking NbS with gender empowerment.

- Tribal Agroforestry in Rampachodavaram: Integration of tamarind, custard apple, and teak with millets and pulses. Tribal farmers report improved yields, reduced vulnerability to erratic rainfall, and revived cultural practices.

Continuity of efforts, long term planning of quality planting material and advance preparation of the planting sites linking to local community institutions is lacking leading to diminishing impacts of these efforts. However, experts opine that if the bottlenecks are avoided, these initiatives have the potential to align with ESG goals and offer scalable models for climate adaptation, carbon sequestration, and rural livelihoods.

Urban NbS in Telangana

Hyderabad and other urban canters in Telangana are embracing NbS to address environmental stress and enhance liveability:

- 'Telangana Ku Haritha Haram' programme aimed at afforestation and official statistics released in 2022 claim planting over 270 crore saplings, many in peri-urban zones, creating green buffers and improving air quality. Though

the survival percentage of these saplings is not known, there was an increase of 7.7% green cover in the state according to official FSI figures. Restoration of grasslands was another initiative taken by Telangana forest department moving towards NbS. These are good developments, but losing natural forests has to be stopped and adopting NbScould be a fix.

- Lake Restoration: Lakes such as DurgamCheruvu, Ameenpur, Gandipet, and Fox Sagar have been revived through Removal of encroachments and replanting of native wetland species, desilting, native vegetation planting, and community engagement. Bird populations rebounded, and the lakes now serveas a climate buffer and eco-tourism site.

- Urban Forest Parks: Initiatives like the KBR National Park and the Miyawaki forests in Hyderabad serve as carbon sinks, biodiversity havens, and wellness spaces.

- Initiatives in Adilabad: Tribal youth trained in biodiversity monitoring and eco-tourism.

These efforts demonstrate how NbS can be integrated into urban planning, public health, and climate resilience strategies and there is need for better planning and coordination among different agencies involved in such efforts for sustainable results.

Watershed and Agroecology Models

In semi-arid districts of Andhra Pradesh and Telangana, NbS are being integrated into watershed development and regenerative agriculture:

- The Rural Development Department promotes contour bunding, check dams, and agroforestry under MGNREGA.

- Farmer Producer Organizations (FPOs) are adopting native cropping patterns, organic inputs, and soil conservation techniques.

- In erstwhile Anantapuram, Kurnool, Kadapa, Prakasam, Nellore, Vizianagaram districts of Andhra Pradesh and Mahbubnagar and Nalgonda and Sangareddy districts of Telangana millet-based agroecology models are being scaled to enhance nutrition, reduce input costs, and build climate resilience.

These models offer a blueprint for integrating NbS with food systems, water security, and rural development.

Challenges:

- NbS are still underfunded and often sidelined in infrastructure-heavy development plans.

- Inter-departmental coordination remains weak, especially between forest, revenue, and rural development agencies.

- Monitoring and evaluation frameworks for NbS are nascent and need localization.

- There is no long term and integrated planning at the state level

- Lack of awareness in common people in both rural and urban areas.

Opportunities:

- Andhra Pradesh and Telangana can become NbS innovation hubs by leveraging biodiversity, community networks, and cultural narratives.

- Integration of NbS with ESG reporting can attract private investment and CSR support.

- Cultural practices—like reverence for sacred groves, water bodies, and seasonal festivals—can be harnessed to build public support.

Way Forward

To scale NbS in the region, a strategic roadmap is essential:

- Policy Convergence: Align forest, climate, and rural development policies around NbS outcomes.
- Community Stewardship: Empower Gram Sabhas, SHGs, and tribal councils as custodians of NbS assets.
- Research and Innovation: Collaborate with institutions like ICFRE, MANAGE, and CRIDA to develop region-specific NbS models.
- Youth Engagement: Promote NbS through eco-clubs, fellowships, and green entrepreneurship.
- Cultural Integration: Celebrate NbS through storytelling, festivals, and art rooted in Telugu and tribal traditions.

Conclusion

Nature-based Solutions offer Andhra Pradesh and Telangana a powerful framework to reconcile development with ecological integrity. NbS have the potential to solve many issues concerning the ecology and improve the social well-being and economic development. By deepening community engagement, fostering innovation, and aligning policy with nature's rhythms, these states can lead India's NbS journey—not just as ecological stewards, but as cultural torchbearers of sustainability.

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India's Urban Green Cover: An Urgent Need for Expansion and Monitoring

R. K. Sapra

Introduction

As of 2025, the global population stands at approximately 8.1 billion, with 58% residing in urban areas. In comparison, around 34% of India's total population of 1.45 billion lives in cities (UN- DESA, 2019). The sharp increase in urban dwellers is largely due to migration from rural areas, driven by the pursuit of better employment opportunities and improved access to healthcare, education, communication, transportation services, etc. However, rapid urbanization has brought significant environmental challenges too. Rampant construction and industrial activitiesin utter disregard to environmentalconcerns, inadequate solid waste management, and rising vehicular traffic have all contributed to all types of water, air, soil pollution making the lives of the common public miserable. According to a 2020 report by a Swiss organization IQAir, 22 of the world's 30 most polluted cities are in India, with Delhi ranked as the most polluted capital globally. The impact of air pollution is now undeniably clear—it not only raises the incidence of various diseases but also leads to a substantial number of premature deaths. A 2021 report indicated that air pollution-related illnesses caused 8.1 million deaths worldwide, with India alone accounting for approximately 2.1 million of these fatalities(GBD, 2021).

Trees play a crucial role in maintaining environmental balance and improving the quality of urban life. They absorb harmful gaseous pollutants such as carbon dioxide, carbon monoxide, nitrogen oxides, and sulphur dioxide, while simultaneously releasing life-sustaining oxygen. A study conducted in Hyde Park, London, revealed that just one square kilometer of the park reduces smoke concentration by 27%. Beyond air purification, trees help cool urban environments by lowering ambient temperatures and reducing the urban heat island effect—earning them the nickname "nature's air conditioners." Recognizing their importance, Urban Local Bodies (ULBs), Urban Development Departments and State Forest Departments (SFDs) have been making consistent efforts to increase green cover in cities, aiming not only to curb air pollution but also to improve the overall aesthetics and livability of urban spaces.

Assessment of Green Cover in Urban Areas

Since 2002, the Forest Survey of India (FSI), Dehradun, has been estimating the growing stock of Trees Outside Forests (TOF) in both rural and urban areas under the National Forest Inventory (NFI) Programme. However, data on urban TOF was presented as a separate chapter for the first time in the India State of Forest Report (ISFR) -2013.

According to ISFR-2013, India's total urban green cover was estimated at 12,790 km², accounting for 16% of the country's total urban area. Among the states, Tamil Nadu had the highest urban green cover (1,509 km²), followed by Maharashtra (1,373 km²), Karnataka (1,276 km²), and Kerala (1,241 km²)—highlighting the dominance of southern states in urban greening. In terms of the proportion of green cover to total urban area, Lakshadweep and Goa led with 45% each, followed by Kerala (38%) and Karnataka (25%). The report estimated approximately 304 million trees in urban areas

across India, with a total volume of 98 million cubic metre. Among the top three states, Karnataka recorded the highest urban tree volume (9.7 million m^3), followed by Maharashtra (9.6 million m^3) and Madhya Pradesh (8.9 million m^3), again reflecting the southern region's leadership.

In terms of species-wisevolume, coconut contributed the most (16.8 million m^3), followed closely by neem (16.4 million m^3), peepal (5.8 million m^3), and mango (5.5 million m^3). Notably, two of the top four are horticultural species, which not only offer higher economic returns compared to agricultural crops but also contribute to the nutritional and ecological needs of the urban populations. Neem, a multipurpose tree, fulfills various daily needs of life, while peepal has been preserved extensively due to religious beliefs. The largest average tree sizes were recorded for peepal (2.0 m^3), followed by jackfruit (kathal) and rain tree (Samanea saman) at 1.2 m^3 each, and tamarind (imli) at 1.1 m^3. These large-sized tree species not only cater to religious, cultural, and dietary needs but are also more effective in mitigating air pollution over longer periods compared to smaller sized trees.

Somehow, after the 2013 ISFR, the FSI couldnot publishurban tree assessments as a separate chapter in subsequent reports, making it difficult to compare or track the progress of urban green cover in India since then.

Green Lungs in Mega Cities

According to the United Nations, a mega city is defined as an urban agglomeration with a population of 10 million or more. India currently has six mega cities: Bengaluru, Chennai, Delhi, Kolkata, Hyderabad, and Mumbai. Additionally, Ahmedabad is rapidly expanding and is on the verge of becoming the next mega city. The extent of forest cover in these cities varies significantly, influenced by geographic location, urban planning policies, and environmental priorities. While some cities have maintained substantial green spaces, others have witnessed a decline in forest cover due to rapid and often unregulated urbanization.

As per the ISFR-2023, the total forest cover in India's mega cities stands at 511.8 km^2, which is 10.3% of their combined geographical area. Among these cities, Delhi has the highest forest cover(194.1 km^2), followed by Mumbai (110.8 km^2) and Bengaluru (89.6 km^2). The biennial-wise performance of forest cover is presented in Table-1.

Table-1: Forest Cover in Mega Cities of India

Name of City	State	Area (km^2)*	Forest Cover (FC)-2021 (km^2)	FC as % of Geographical Area (2021)	Forest Cover (2023) (km^2)	FC as % of Geographical Area (2023)	Change in Forest Cover (km^2)
Ahmedabad	Gujarat	455	9.4	2.1	14.9	3.3	+5.5
Bengaluru	Karnataka	1307	89.0	6.8	89.6	6.8	+0.6
Chennai	Tamil Nadu	430	22.7	5.3	20.1	4.7	-2.6
Delhi	Delhi	1541	194.2	12.6	194.1	12.6	-0.1
Hyderabad	Telangana	634	81.8	12.9	80.2	12.6	-1.6
Kolkata	West Bengal	187	1.8	1.0	2.1	1.1	+0.3
Mumbai	Maharashtra	436	110.7	25.4	110.8	25.4	+0.1
Total		**4990**	**509.7**	**10.2**	**511.8**	**10.3**	**+2.1**

*digitized boundaries provided by NIC Delhi (2021) (Source: ISFR- 2023)

Between 2021 and 2023, the total forest cover across India's mega cities increased by 2.1 km². The most notable gain was recorded in Ahmedabad (+5.5 km²), followed by Bengaluru (+0.6 km²) and Kolkata (+0.3 km²). Conversely, the most significant losses occurred in Chennai (-2.6 km²) and Hyderabad (-1.6 km²).

It is important to emphasize that forest cover alone does not present a complete picture of the greenenvironsof a city. In urban environments—where space is limited—tree cover plays a vital role in ameliorating the overall environment. Therefore, a comprehensive assessment of vegetation trends in mega cities should consider both forest and tree cover. This integrated approach provides a more accurate and holistic understanding of urban ecological health and the effectiveness of greening initiatives.

An effort has been made to assess the impact of urban forestry initiatives by analyzing the green cover performance of Delhi and the Union Territory of Chandigarh—both being predominantly urban regions. The performance details are outlined below.

Delhi

The National Capital Territory (NCT) of Delhi covers a geographical area of 1,483 km². As per estimates from StatisticsTimes.com (based on projections by the National Commission's technical group), Delhi's population in 2025 is approximately 22.3 million. About 98% of Delhi's population resides in urban areas, resulting in a high population density of 11,312 people per km². With only 15% of its land under cultivation, Delhi exemplifies an urban-dominated landscape. Notably, it is also ranked as the most polluted capital city globally.

According to the ISFR- 2023, the Forest and Tree Cover (FTC) in Delhi constitutes 13.2% of its total geographical area. Trees Outside Forests (TOF) remain the dominant component, covering 8.3% of Delhi's land area. The performance of forest and tree cover in Delhi over the past decade is summarized in Table-2.

Table- 2: Forest and Tree Cover in Delhi

Year	Forest Cover (FC) inside RFAs (000 ha)	Trees Outside Forests (TOF) (000 ha)	Forest & Tree Cover (FTC) (000 ha)	FC inside RFAs (%)	TOF (%)	FTC (%)
2013	6.7	11.3	18.0	4.6	7.6	12.2
2023	7.2	12.3	19.5	4.9	8.3	13.2
Change (2023–2013)	**0.5**	**1.0**	**1.5**	**0.3**	**0.7**	**1.0**

Between 2013 and 2023, the area under TOF in Delhi increased by 1,000 hectares, while forest cover within the Recorded Forest Areas (RFAs) grew by 500 hectares. Remarkably, the TOF accounted for 70% of the total FTC increase during this period, highlighting its pivotal role in combating urban air pollution. This upward trend is primarily attributed to coordinated greening efforts by various stakeholders, including the public, industries, NGOs, municipal authorities, government agencies, and—most notably—the forest department. Their collective actions have significantly enhanced TOF, contributing to the broader urban forestry movement in Delhi.

Chandigarh

The Union Territory of Chandigarh spans a geographical area of 114 km². According to Census2011.co.in, the estimated population of the Chandigarh metropolitan area in 2025 is approximately 1.5 million, with 97% of residents living in urban areas. The average population density is 9,298 people per km². With only 13% of land under cultivation, Chandigarh is predominantly urban in character. As per the India State of Forest Report (ISFR) -2023, the Forest and Tree Cover in Chandigarh accounts for 21.9% of its geographical area, with Trees Outside Forests contributing a major share of 14.1%. The decade-wise performance of forest and tree cover is presented in Table-3.

Table- 3: Forest and Tree Cover in Chandigarh

Year	Forest Cover (FC) inside RFAs (000 ha)	Trees Outside Forests (TOF) (000 ha)	Forest & Tree Cover (FTC) (000 ha)	FC inside RFAs (%)	TOF (%)	FTC (%)
2013	0.7	1.0	1.7	6.5	8.7	15.2
2023	0.9	1.6	2.5	7.8	14.1	21.9
Change (2023–2013)	**0.2**	**0.6**	**0.8**	**1.3**	**5.4**	**6.7**

Between 2013 and 2023, the area under TOF in Chandigarh increased by 600 hectares, while forest cover within the Recorded Forest Areas (RFAs) grew by 200 hectares. Chandigarh's FTC increased by 6.7% of its geographical area over a decade. Notably, around 75% of this growth is attributed to the TOF, highlighting its key role in enhancing Chandigarh's green cover. This significant improvement is the result of proactive efforts by the UT Administration and allied agencies to enhance greenery across the city. Continuous engagement with key stakeholders, including NGOs, Resident Welfare Associations (RWAs), eco-clubs, environmental societies, and the media—has played a pivotal role in both protecting existing forests and expanding green cover in the urban landscape.

Actions Taken

To promote environmental conservation, the Ministry of Environment, Forest and Climate Change (MoEFCC) and the various State Forest Departments (SFDs) have undertaken several initiatives and are implementing a number of

programmes:

Ministry of Environment, Forest and Climate Change

A. In response to deteriorating air quality, the MoEFCC launched the National Clean Air Programme (NCAP) in 2019. The programme aims to reduce PM2.5 and PM10 concentrations by 40% by 2026, using 2019 as the base year. Initially, it targeted 102 non-attainment cities, those that failed to meet the National Ambient Air Quality Standards. A key component of NCAP is the promotion of large-scale plantation drives, which are recognized as among the most cost-effective and natural strategies to combat air pollution.

B. The MoEFCC also introduced the Nagar Van Yojana, an initiative to develop urban forests and green spaces in cities across India. The goal is to enhance environmental quality, support biodiversity, and improve the quality of life for urban residents. Implemented from 2020–21 to 2024–25, the programme proposed the development of 400 Nagar Vans and 200 Nagar Vatikas.

State Governments

A. The statesof Haryana, Rajasthan and Telangana have successfully implemented the greening programme the Green Haryana Campaign, Green Rajasthan and Telangana Ku Haritha Haram respectively.

B. Successful city greening models have been implemented in the cities of Bengaluru, Chandigarh, Delhi, Gandhinagar, and Hyderabad.

Urban Greening for Viksit Bharat–2047

To achieve the vision of Viksit Bharat–2047, an accelerated pace of development is imperative. However, this growth trajectory will inevitably exert additional pressure on an already stressed environment. A strong public interface will be crucial to engage citizens in the task of urban greening—an essential strategy to control air pollution, reduce heat stress in cities, and significantly bolster environmental conservation.

Recommendations

Forest Survey of India, Dehradun

- The ISFR may include a dedicated chapter assessing urban tree cover on a regular basis.
- The ISFR should disaggregate Tree Outside Forests (TOF) data into TOF (Rural) and TOF (Urban), allowing more effective monitoring of urban green cover.
- While evaluating urban greenery in major metropolitan areas, tree cover data should also be included for a comprehensive assessment.
- The ISFR's analysis of urban green cover may be expanded to encompass the 102 non-attainment cities monitored under the National Clean Air Programme.

Ministry of Environment, Forest and Climate Change

- The MoEFCC may consider launching a dedicated programme for "Greening the Cities" to increase green cover in urban areas. This programme could integrate existing initiatives such as "Ek Ped Maa Ke Naam" for greater impact.

State Governments

- All recorded forest areas on the periphery of mega cities should be developed as urban forests on the pattern of Hyderabad Model, enhancing both ecological value and public accessibility.
- Urban green space regulations should be modeled on successful practices from cities such as Delhi and Chandigarh.
- Given the increasing prevalence of high-rise buildings, vertical forests or green facades, inspired by models in Singapore, may be promoted alongside tall structures.
- Urban planning norms related to city size, population density, green and blue space allocation, should be critically reviewed and updated by experts, if necessary.
- Robust monitoring mechanisms should be developed to ensure strict adherence to environmental standards and goals.
- Resources from departments such as Urban Local Bodies, Town and Country Planning, and State Forest Departments should be pooled. The Forest Department, given its expertise, may be designated as the lead implementing agency.
- Incentive-based policies—such as property tax rebates—may be introduced to encourage homeowners to plant and maintain trees on private properties.

Conclusion

Green spaces are vital to the sustainability of urban environments. They help moderate city temperatures, act as importantcarbon sinks. The presence of trees and greenery not only supports environmental health but also enhances the well-being of urban communities. Therefore, a focused, integrated, and sustained commitment to greening

Contd.. on page No.51

Radical Life Extension is not possible, yet...

"Faith makes all things possible…love makes all things easy: the world is divided into people who'do things' and people who 'get the credit' Dwight Whitney Morrow (1873 - 1938)

(American Diplomat & Politician)

"I believe that knowing 'you are mortal' gives us a 'sense of purpose' and the 'drive to get somethingaccomplished', while we are alive"

–V Ramakrishnan, NL(b.1-4-1952)

(British American structural biologist)

Dr B Raghotham Rao Desai

Exordium:

Long ago, longevity studies were shunned to the backyard of science, but that's no longer the case: in the last decade alone, more than three lakh scientific articles on ageing have been published—-more than 700 startup-companies having invested tens-of-billions of dollars to prevent ageing (realising that this is going to be potentially a huge market, as there is so much of a hype about the field),----preying on people's natural fears of growing older and dying. It's a very basic and important question 'why we die' that has worried humans ever since we found out about our mortality—-only in the last few decades really understanding some of the biology of the causes of ageing, and for the first time we found ourselves able to do something about slowing it down, asitisan understood fact that as people age they want to be healthy & preferably independent : the reason (& evince so much of interest) in ageing-research, among countries!

The hard facts:

There is a lot of very good research on how to tackle ageing, but it can't be rushed because these things are complicated—-needing proper trials on humans: good if there are even long-term trials, seeing the track-record of the persons (whether they have any financial interests or are they wacky in some way, or have they been accepted by most people in their field)—-that being the way to filter it.

Being a part of Science, 'some science could be wrong' (which can then be, however, corrected)----the difference between it and pseudo-science being that the latter never gets corrected and never accepts that it is wrong! Though the existing definition of 'death' is 'cessation of heart-beat or brain-death', it could better be defined as 'the irreversible inability of the individual to function as a whole'. At the point of death, most of the cells will still be alive, and that's why onec and on a teorgans for transplantation—-and while alive, millions of cells die in fact inside, and we never think of that as death! And there are many different kinds of death-death of cells and tissues, for example; if one loses one's arm in an accident, the arm would die, but the person will still be alive—-one can also have death of larger entities: companies, cities, even entire civilisations or countries, and the universe too can die (and probably: will)!!

But what we are talking about is the death of the individual which is determined by the cessation of heart—-then it being found that in many cases, the heart can be revived, no one, however, figuring out how to revive a dead brain: and if that happens, the above definition has to be changed once again! If many of such issues get solved, what is likely to happen will be more people will start living to 100 or 110, still facing a problem: there being no physical or chemical law that says one has to die at 120. If anyone asks about any possibility to overcome death in the long run,itislike saying one can settle on a different galaxy! Even if the ageing problem

gets solved, onehas to die of infectious disease, war, violence, climate change or accidents—-so there is no such thing as immortality.

Conclusion:

People, as they age, accumulate power, wealth, influence, networks and so on, and if nobody dies, & if everybody starts living to be 100 (but very few people get born) then there will be a very changing society which will be stagnant in which the same people will be in power for a long time, which will not be a good situation.

Artificial Intelligence (AI) has been tremendously useful in all sorts of areas, including structural biology, allowing it to predict protein structures, and is able to identify things that might be beneficial (like compounds that act against some of the anti-ageing pathways). But it is not a magic tool—-it has to be used intelligently.

As far as animals are concerned, it is observed that those that are calorically restricted tend to be healthier as they age than the all-you-can-eat animals—-tending in fact to resemble much younger than those calorically not restricted. But it is a mixed bag for humans: such restrictions can make a human prone to infections: affecting other things like the ability to heal from wounds or increased frailty—-doing many things that are not beneficial. So,itisnotclearifitisanidealsolution to solve the ageing problem.

Because of the advances in the last 50 years in molecularbiology & cellbiology, we now know why diet, exercise, and sleep are important and are currently better than any anti-ageing therapy on the market. Even earlier, we knew that exercise was good forourhealth,butwedidnot know all the things that exercise does to our metabolism and ourmakeup:understandingitmore now, being same with diet and sleepaswell—-followi ngamoderatedietbeingcloselyrelatedto the idea of caloric restriction, while we are increasingly learningmoreaboutwhathappensduring the sleep and how body does a lot of repair & recycling of materials then. And that is very important for not ageing too rapidly!

The author is a retired IFS officer of Karnataka cadre and Chief Editor of "Vana Vikas", a quarterly magazine of the retired forest officers of Karnataka.

Continuation from page No. 49

our cities is essential to mitigate the impacts of air pollution and promote healthier, more livable urban spaces-paving the way toward the visions of a Viksit Bharat–2047.

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Human-Wildlife Interface Management: Past Experiences and Future Strategies in India

B.Vijaya Kumar

Human-wildlife conflict (HWC) is a complex and pressing issue in India, where the expanding human population and habitat encroachment have led to increased interactions between humans and wildlife. As damages are inevitable in shared spaces, foresters and wildlife managers need to be prepared for conflict mitigation. This article explores the past experiences and future strategies in dealing with HWC, with a focus on elephants, tigers, and leopards in India.

Human-Nature Relationships: Coexistence in the Past

Historically, humans and wildlife coexisted in harmony, with many communities living in sync with nature. However, with increasing human population and habitat destruction, the relationship has become adversarial. Understanding the past dynamics of human-nature relationships is crucial for developing effective conflict mitigation strategies.

Co-Resistance and Landscape-Level Approach

Co-resistance, or the collective effort of humans and wildlife to adapt to changing environments, is essential for addressing HWC. A landscape-level approach, which considers the ecological and social context of the conflict, is necessary for developing effective mitigation strategies. For example, the Asian elephant conservation project in Kerala uses a landscape-level approach to identify conflict hotspots and develop solutions that balance human and elephant needs.

Learning from Past Experiences

India has decades of experience dealing with HWC, particularly with elephants, tigers, and leopards. Past experiences have shown that a one-size-fits-all approach is ineffective, and that each conflict requires a unique solution. For example, in Karnataka, the Forest Department has implemented measures such as elephant-proof fencing and community-led conservation initiatives to mitigate human-elephant conflict.

Cross-Sector Collaboration

Effective HWC mitigation requires cross-sector collaboration among various stakeholders, including forest departments, local communities, NGOs, and government agencies. This collaboration is essential for developing comprehensive solutions that address the root causes of conflict. For instance, the National Tiger Conservation Authority (NTCA) works with state forest departments, NGOs, and local communities to develop and implement tiger conservation plans.

Interlink between Conservation and Land Use Planning

Conservation of elephants and large carnivores requires careful land use planning that balances human and wildlife needs. In India, the fragmentation of habitats and lack of connectivity between protected areas have exacerbated HWC. Effective land use planning can help reduce conflict by providing wildlife corridors and minimizing human-wildlife interactions.

Understanding Elephants as Individuals

Every human-wildlife conflict is unique, and understanding the behavior and personalities of individual animals is crucial for developing effective

mitigation strategies. For example, research has shown that some elephants are more aggressive than others, and understanding these differences can help managers develop targeted solutions.

Interactions Beyond Protected Areas

Human-wildlife interactions cannot be restricted to protected areas, as many species require large home ranges that extend beyond protected areas. In India, the high food and water requirements of elephants and other species mean that they often venture into human-dominated landscapes, leading to conflict.

High Range of Conflict

The high range of conflict in India is due to the large percentage of home ranges outside protected areas. Protected edges are often ecological traps, where wildlife is more vulnerable to human-wildlife conflict.

Some Conflicts are about Identity

Some human-wildlife conflicts are not just about resource competition but also about identity and cultural values. For example, in some communities, elephants are revered as sacred animals, while in others, they are viewed as pests. Understanding these cultural nuances is essential for developing effective conflict mitigation strategies.

Species-Wise Mitigation Strategies

Different species require different mitigation strategies. For example:

- Elephants: Elephant-proof fencing, community-led conservation initiatives, and creation of elephant corridors can help mitigate human-elephant conflict.

- Tigers: Habitat management, prey base management, and community engagement can help reduce human-tiger conflict.

- Leopards: Use of leopard-proof enclosures for livestock, community education, and compensation schemes for crop damage can help mitigate human-leopard conflict.

Solution Lies in Transferring Ownership

The solution to HWC may lie in transferring ownership of the process and decision-making responsibility to local communities. By empowering local communities to manage their own resources and develop solutions that balance human and wildlife needs, we can reduce conflict and promote coexistence. For example, the Van Gujjars, a forest-dwelling community in Uttarakhand, have developed their own conservation initiatives to protect forests and wildlife.

In conclusion, human-wildlife interface management requires a comprehensive approach that considers the ecological, social, and cultural context of conflict. By learning from past experiences, adopting a landscape-level approach, and promoting cross-sectoral collaboration, we can develop effective strategies for mitigating HWC in India. By understanding the unique characteristics of each species and developing species-wise mitigation strategies, we can reduce conflict and promote coexistence between humans and wildlife

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The idea of wilderness needs no Defence; it only needs Defenders

-Edward Abbey

Rare Weather Phenomenon Devastates MULUGU FORESTS: Five Year Plan for Restoration

C.Ramakrishna Reddy

1-0 : The Phenomenon :Trees Lost On Aug 31 In a Rare Phenomenon:

A major forest rejuvenation project has commenced in Mulugu district of Telangana state, months after more than 36,000 trees collapsed in a rare weather phenomenon, potentially a combination of strong winds and a cloud burst, on Aug 31. 2024, in the Eturnagaram Wildlife Sanctuary. The incident spread over an area of about 332 ha. The phenomenon resulted in trees getting uprooted or losing their crown or falling being broken. Forest officials initiated a five-year plan aimed at restoring the damaged area, reducing biotic interference and fire management and soil erosion control, among others.

1-1 :5-YEAR ACTION PLAN OF RESTORATION – REVIEW :

An area of 332 hectares was affected by the natural disaster in Tadvai reserve forest. According to Rahul KisanJadhav, Mulugu district forest officer, the plan includes measures such as fire management, soil erosion control, weed management and reducing biotic interference.

FOCUS ON WEED MANAGEMENT

- Weed infestation possible due to exposed ground
- It poses significant threat to wildlife habitat
- Increases fire risks during summer
- Plan proposes managing weeds and spreading native grass species

Soil erosion: Absence of trees increases riskof soil erosion, as many small water streams are present. Plan includes constructing percolation tanks with solar pumps

"The trees in the area fell or were uprooted and many lost their crowns. Although good regeneration is observed in the area, grazing by domestic cattle, human and cattle movement and the risk of fire incidences could adversely affect natural rejuvenation," Jadhav explained.

To address these issues, it is proposed to construct a chain link fence along the boundary to control human movement and prevent encroachments, he added.

Fire poses a significant hazard to rejuvenation due to uprooted trees and dried biomass. To mitigate this risk, Jadhav proposed the creation of 5m wide firelines around the affected area and within it, covering a total length of 80km. The plan includes artificial regeneration by planting bamboo in affected areas. "Bamboo acts as a natural windbreak. It is proposed to plant bamboo wherever felled timber species are removed," Jadhav said.

A permanently stationed quick response team will be deployed at the site. "The QRT will include 10 local tribal youth trained in forest protection, fire prevention and plantation management," Jadhav said. Continuous scientific monitoring will be conducted with institutions such as FCRI, TSFA. A LiDAR survey is also proposed to obtain accurate statistics on forest's status.

1-2 :Restoration

For restoring Mulugu forests to its past and pristine glory, a group of reputed senior IFS forest officers

of Telangana State had meticulously inspected the Mulugu and adjoining forests where destruction occurred, prepared 5-year action plan report and submitted to the Government of Telanganaduring the last week of October 2024, for the sanction of rupees Five Crores. The PCCF (HoFF) put together this team.

TEAM OF FOREST OFFICERS :

1. Sri Siva Sankar Reddy, IFS – PCCF (Retd) of Composite Andhra Pradesh
2. Sri ManoranjanBanja, IFS, PCCF (Retd).
3. Sri Yusuf Shariff, APCCF (Retd).
4. Sri M.J.Akbar, CCF (Retd) along with
5. CCF Kaleswaram Circle
6. District Forest Officer, Mulugu
7. Forest Divisional Officer, Eturnagaram.

Unless the proposed 5-year action plan is implemented aggressively, the restoration process cannot be completed. Delays are causing the local inhabitants express doubts and fears with regards to its restoration. Mulugu forest area contains fertile soil and is plain. Taking advantage of any delayed action, it is feared that greedy persons will resort to encroachments of land which should be prevented at all costs. The sooner the forests are restored, the better for all locals inhabiting the area. There is an imperative need for speedy action on this issue.

2-0 : CONCLUSION :

In this connection, I earnestly request all VanaPremi readers to kindly peruse the action plan report published in VanaPremi issue November 2024 under the caption "CATACLYSM IN TADVAI – MEDARAM FORESTS OF ETURNAGARAM WILD LIFE SANCTUARY".

The sanctuary is rich in wildlife – the most prominent one being the Bison. How nature acts is unknown to us. When I was working as DFO, Warangal south (1978 to 1981) in the Mulug Area (Warangal North),Bisons died in large numbers and were almost wiped out due to Nature's furious acts. Dr. Pushpa Kumar IFS (retd) PCCF AP and the famous, versatile, eminent wild life expert (Founder of Nehru Zoological Park, Hyd) of Immense repute, visited the area and commented that nature has taken corrective action to reduce the number of Bisons because of their overpopulation. May be, nature may have its own reasons in destroying Mulugu forests by creating torrential winds, which is unknown to us. Whatever it may be, let us not bother. The immediate task for us is to take prompt quick measures for restoration of forests to its past glory. All forest savvy public should induce the government of Telangana to take speedy action to implement the five year action plan in entirety.

Author is a Retd. DFO of combined Andhra Pradesh, Mobile No.8125325399, 9347593393.

Earning revenue is not everything.Revenue cannot be earned at the cost of environment and ecology-Supreme Court of India, July 2025 on floods and landslides in Shimla and Mandi, Himachal Pradesh

Green Quiz – JuLY 2025

Quiz Master: Dr. K. Tirupataiah

1. The present temperature setting in India made ACs is 16-30 degree centigrade. It is proposed to change this range at manufacturing, to reduce the use of excess electricity for cooling or heating. What is the new range proposed?

2. Where is the Indian Institute of Oil Palm Research (IIOPR) located?

3. Celebrated as the second longest caves in the World and the longest in India, Which caves in A.P. recently got the 'Geo-Heritage tag?

4. After the sinking of the Titanic, a convention came in to being to issue regular guidelines on safety of lives on ships. Name the convention.

5. The UN Oceans Conference 2025 ratified the Biodiversity Beyond National Jurisdiction (BBNJ). By what popular name is the treaty called?

6. Code named T-84, which famous Tigress of the Ranthambore Tiger Reserve that passed away recently, became famous for her fearless hunting of crocodiles?

7. What method is generally used to identify Snow Leopard?

8. The female Aedes Egyptii cannot smell. Where are its taste receptors located?

9. By what name are the famous 'sand drawings' in the desert of Southern Peru called?

10. What pressure is maintained at the 'interchange' of astronauts from their capsule to the ISS? It is the same as the pressure at MSL.

For Students

1. Who wrote the famous poem 'Tyger, Tyger Burning Bright?...In the Forests of the Night?....

2. The number 142857, when multiplied by any digit from 1 to 6, yields the same number but with displaced digits. By what name did the math genius Shakunthala Devi call it?

3. Indian astronaut Shubhanshu Shukla belongs to the Indian Air Force. What rank does he hold in the IAF?

4. He gave the call for 'one constitution, one flag'. When Indians from other states needed permission to enter J&K, he entered without permission, was arrested and kept in one of the famous Gardens of Kashmir where he died in 1953. Name him.

5. Which Indian state/UT has the maximum number of Snow Leopards?

Answers on page no : 58

Be a bush if you can't be a tree. If you can't be a highway, just be a trail. If you can't be a Sun, be a Star. For it isn't by size that you win or fail. Be the best of whatever you are.

-Martin Luther King Jr.

LEGAL NOTES

K. Buchiram Reddy

(Supeme Court on Zudpi jungle lands of Vidarbha)

GodavarmanThirmapadVs. Union of India and Ors

And

Prasad Khole (Intervenor) Vs. The State of Maharashtra and Ors

This is a land-mark judgment of the Supreme Court Bench presidedover by The Honourable Chief Justice ShriB.R.Gavai and The HonourableJusctieShriAugustine George Masih. The judgment puts an end to the unresolved question,'whether Zudpi lands are forest lands attracting the provisions of the Forest Conservation Act'?. The matter was pending a resolution over the past several decades.

ZUDPI is a word in Mararathi language meaning 'land having bushes and shrubs and un-occupied land'.These lands(with murmudi soils) occur in six districts of Maharashtra in Eastern Vidarbha viz. Nagpur, Wardha, Bhandara, Gonda, Chandrapur and Gadchiroli, over a total extent of 86,409 ha;and the land was found unfit for forestry. The stand taken by the State Government was that the Forest Conservation Act does not apply to the Zudpi lands.

These lands, before Statesreorgnaisation, were inthe Central Province consisting of Nagpur, Wardha, Present day Madhya Pradesh, Chattisgarh and Vidarbha. The Zudpi lands were used for residential, agricultural, government offices, public schools, water supply pipelines, electrical poles, burial grounds etc.

The Maharashtra Government in November 1987issued an order declaring that Zudpi lands are not forest lands and therefore, they would not attract the provisions of the Forest Conservation Act. The 1987 0rder of the state Government was challenged in the Bombay High Court (Nagpur Branch) by the Bombay Environmental Action Group. The Central Government clarified that the Zudpi jungle lands are forest lands. Consequently, the Maharashtra Government in 1997 withdrew its 1994 order. According to the judgment of theS.C. in GodavarmanThirumalpaddated 12.12.1996, Zudpilands have to be treated as Forest Lands.

The High Power Committee constituted by the State Government under the orders of the Supreme Court recommended that land of 92,115 ha should be declared as Protected Forest while 86,409 should be de-notified.

The court made exception for lands used for various purposes before 12.12.1996 allowing regularisation without the condition of compensatory afforestation. But post 1996 encroached lands, it was held, require scrutiny and further action as per law.

In 2019, the Maharashtra Government filed an interlocutory application (I.A. No. 12465 of 2019)in the Supreme Court seeking approval to exclude latter category of forest from the purview of the Forest Conservation Act . The apex court formed the Central Empowered Committee with a direction to report after field visit. Thecommittee's report formed the basis for the 22.05.2025 order of the court.

Maharashtra Government never treated Zudpi lands as forest lands. If zudpi lands are treated as forest lands, it would result in denying relief to many and would cause great and irreparable damage to lakhs of citizens and stall several projects.

The intervener, a resident of ofDombivli, filed I.A. No. 127871 of 2020, arguedthat de-notifying these lands,which are healthy forests,will disrupt wildlife corridors and alsoalleged that the CEC ignored ecological concerns.

The court ordered that lands allowed prior to 12.12.1996 must seek approval of the G.O.I. within three months. That is where land classification has not changed and theymay seek approval under Sec. 2 of the F.C.A. The Union of India shall approve Pre-1996 without imposing compensatory afforestation or N.P.V deposits. As for post 1996 violations are concerned, the errant officers must face punitive action under Sec. 3- A and 3- B of the Forest Conservation Act.

The court ordered that for each district there shall be a Committee consisting of Sub-Divisional Magistrate, Deputy Supdtof Police, Asst. Conservator of Forests and Taluk Inspector of Survey for investigation and settlement of cases. This Special Task Force shall remove encroachments within two years and the Committee shall have this duty only as its sole purpose.

The Supreme Court gave definitive clarity on decades old Zudpi lands dispute, while enabling a frame work that protects environmental interest recognizing existing ground realities for 1996 allotments while ensuring compliance for future conversions, thereby giving sustainable approval for fresh conversions. This strikes a balance between developmental needs with environmental protection across the country. Emphasis is laid on administrative accountability and the primacy of forest conservation laws.The order recognizes existing ground realities forPre-1996 allotments while ensuring ground realities for Pre-1996allotments for future conversions.

The Revenue Dept. of Maharashtra state should hand over possession of the remaining area, if any, from the area of 7,76,767.622 ha which is still in the possession of revenue Dept. to the Forest Dept. This should be done within a period of one year and the land should not be utilized for compensatory afforestationexcept only in exceptional cases when there is no area available and it is recommended by the Chief Secretary.. The CEC is made responsible to monitor the progress of the transfer.

This is a unique judgment covering 97 pages and citing 33 rulings.The judgment discussed various provisions of constitutional law dealing with Directive Principles of State Policy, Fundamental Rights, Right to shelter, Right to livelihood. Sustainable development, Right of citizens at large on one hand and interest on the environment other hand etc. The court appreciated the service rendered by amicus curiae, other advocates and the CEC.

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

Answers: 1.20-28 degree centigrade,2.Pedavegi, West Godavari District,3.Belum caves, Nandyal district of AP;4.Safety of Life at Sea (SOLAS),5. The High Seas Treaty, 6.Arrow Head, so called for its unique arrow shaped stripes on the forehead just above its eyes, 7.Scent-Lure method; 8.On its feet; 9.Nazca sand drawings, 10. 14.7 psi.

For School Students: 1.William Blake, 2. Revolving number or Ghumakkad number, 3. Group Captain; 4. Shyama Prasad Mukherjee,Nishat Gardens, 5. Ladakh, with 417 out of 718.

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