

Telangana Biodiversity

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A Newsletter of Centre for Biodiversity and Conservation Studies, Osmania University

Editorial

Systematic biodiversity surveys, supported by habitat studies, are indispensable to wildlife research and conservation. These efforts, when conducted with scientific rigor and continuity, not only generate baseline data on species presence and distribution but also uncover new range extensions, new occurrence locations, and rediscoveries of species thought to be locally extinct. Such outcomes are seldom accidental. They are the result of sustained fieldwork, taxonomic and ecological knowledge, and the dedication of invested and passionate naturalists and researchers. Documenting species from new locations strengthens biodiversity inventories, refines species distribution models, and also provides insights into biogeographic patterns. In conservation practice, these records directly inform assessments of species' conservation status, habitat prioritization, and policy formulation. Rediscoveries, in particular, can serve as ecological signs, indicating that vulnerable populations can persist under pressures but may disappear without targeted protection. In the context of accelerating land-use change and climate shifts, the importance of systematic biodiversity surveys cannot be overstated. They form the foundation upon which effective wildlife conservation is built. Every new record, no matter how small, contributes to shaping conservation priorities. In a rapidly changing world, the commitment of dedicated wildlifers ensures that the richness of our natural heritage is documented and put on record for generations.



Photo: Stephen Leonardi

Briefly

New Fungal Find for Telangana at Kawal Tiger Reserve

Telangana received a first-ever record of the Purple Pinwheel fungus *Marasmius baematocephalus* to its fungal diversity. The fungal species was documented at Kawal Tiger Reserve, by Dr. Venkatesh Anagandhula, regional coordinator with the Hyderabad Tiger Conservation Society. This delicate mushroom is found during the monsoon season when moisture aids in its fruiting and is distinguished by its scarlet cap and wiry stem. It had previously been known only from regions such as Odisha, Karnataka, Kerala, Puducherry, and Assam. The species was recorded during a two-day fungal data collection survey conducted in the reserve. Its presence in Kawal is a testament to the reserve's rich and often overlooked biodiversity, highlighting the importance of documenting lesser-known species within India's protected forests. This also underscores the value of systematic ecological surveys and biodiversity documentation.

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Photo: Wynand Uys



Special Feature

Nagarjuna Srisailem Tiger Reserve

The NSTR located in the state of Andhra Pradesh is India's largest Tiger Reserve covering a total area of 3730 sq.km, making it the largest tiger reserve in India. Nestled in the Nallamalla Hills – an offshoot of the Eastern Ghats, the tiger reserve presents a diverse landscape of plateaus, hilly terrain, gorges and deep valleys. The River Krishna traverses through the reserve. Several waterfalls are also found here, including the well-known Ethpothala waterfalls, Pedda Dukudu, Gundam and Chaleswaram waterfalls. In addition to the ecological richness of the region, the reserve holds significant historical and religious value. The ancient

temples of Lord Malikarjuna and Goddess Bhramaramba, ancient ruins of the Buddhist town Nagarjuna Viswa Vidyalayam and several rock and cave temples are present within the bounds of NSTR.

The reserve is home to a rich assemblage of biodiversity. Around 1521 species of angiosperms have been documented, in addition to 29 species of grasses. *Terminalia arjuna*, *Ziziphus xylopyrus*, *Dalbergia paniculata*, and *Chloroxylon swietenia* are some of the notable floral species found here. Among this floral diversity, around 353 species are of medicinal importance.

NSTR also boasts a good faunal diversity, with 50 species of mammals, 200 species of birds, 18 species of amphibians, and 55 species of fishes making the reserve their home. Insect diversity is also well documented here and include 89 species of butterflies, 57 species of moths, 45 species of beetles, 30 species of dragonflies and damselflies. Among the charismatic Indian fauna found here are the tiger, leopard, sloth bear, nilgai, and giant squirrel.

Wildlife protection and conservation efforts in NSTR focus on intensive patrolling against poaching and regular monitoring of wildlife, especially the tiger

Photo: Anjani Singamaneni



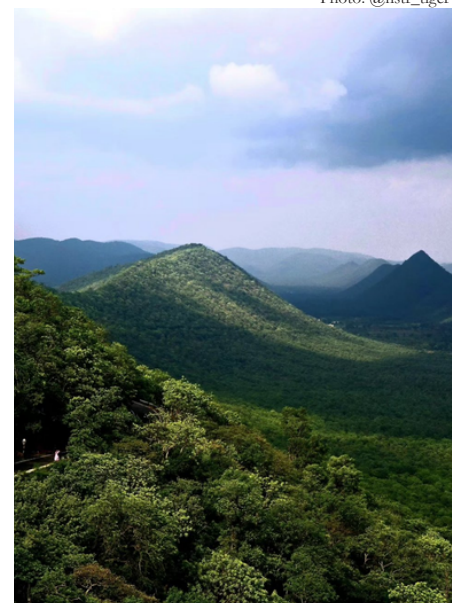
Photo: @nstr_tiger

population. As many as 63 anti-poaching camps and 6 strike forces operate at NSTR. Additionally, river patrolling through the Krishna River is also undertaken. Monitoring of the local tiger population is done via camera traps, indirect signs and through the M-Stripes program.

According to the Annual Report on Status of Tigers, Prey and Other Mammals-2024, NSTR is home to 76 tigers. Community participation is ensured by involving individuals from the local Chenchu tribe in patrolling and monitoring especially in the interior vulnerable areas of forests which are well-known to the locals. Eco-tourism initiatives are also maintained to bring an alternative source of livelihood for local communities.

Nagarjuna Srisailem Tiger Reserve is a mosaic of ecological richness, diversity, community participation, and support towards wildlife conservation. It is not just a critical wildlife refuge—it is a living example of conservation integrated with culture, ecology, and community engagement.

Protecting this vast and vibrant landscape ensures the survival of endangered species and the continued harmony between people and nature in one of southern India's most biodiverse regions. Continued investment in research, habitat management, and community partnerships will ensure that Nagarjunasagar Srisailem Tiger Reserve remains a thriving sanctuary.



Threatened Taxa

Plant - *Chlorophytum laxum* R.Br.



Photo: Yercaud Elango

Taxonomy Order Asparagales; Family Asperagaceae.

Geographic Range Widespread species, distributed in South and Southeast Asia, China, tropical Africa, Arabian Peninsula, and Australia. In India, it is distributed throughout the peninsular region.

State Distribution Rare; found in Jayashankar Bhupalapalli, Kamareddy, Nizamabad and Medak districts.

Population Nothing is known about its population status or trends.

Habitat & Ecology Erect herb, found in the undergrowth in rocky areas in scrub jungles, and dry deciduous and thorny forest patches.

Major Threats Threatened due to habitat loss and destruction, human encroachment, livestock grazing, fuel wood collection, and over-harvesting for medicinal purposes.

Use & Trade The species is in trade, collected for medicinal use.

Conservation Measures No species-specific conservation measures are in place.

Remarks

This species is found in dry deciduous and scrub forests. It does not occur in any protected areas. It is threatened by habitat destruction, livestock grazing, fuel wood collection, and harvesting for local medicinal use. The estimated number of localities is 8; the estimated extent of occurrence (EOO) in Telangana State is <20,000 km², and the area of occupancy (AOO) is <100 km². There is an inferred continuing decline in the area, extent, and quality of suitable habitat. At the global level, this species has not been assessed. In Telangana State, this species is assessed as Vulnerable, with the criteria A2d+B1ab(iii,iv)+2ab(iii,iv).

Distribution in Telangana State



Animal - *Bos gaurus* C.H. Smith, 1827



Photo: Adithya Vattam

Taxonomy Class Mammalia; Order Cetartiodactyla; Family Bovidae.

Geographic Range Widely distributed in South and Southeast Asia. In India, it is found in the Western Ghats, Eastern Ghats, central India, Bihar, West Bengal, and the Northeast.

State Distribution Occasional; found in Mancherial, Nirmal, Komaram Bheem Asifabad, Mahabubabad, Jayashankar Bhupalapalli, and Bhadrachalam districts.

Population Nothing is known about its population status. Sightings of this species have been on the decline. It is known only from the protected areas of the State.

Habitat & Ecology Found in dry and moist deciduous forests, glades, open terrain, and also in fragmented habitats. It grazes and browses. It lives in herds of 5-12 individuals. Females give birth to a single calf.

Major Threats Threatened due to habitat loss, degradation caused by encroachment, pathogens and disease, competition with livestock, and hunting.

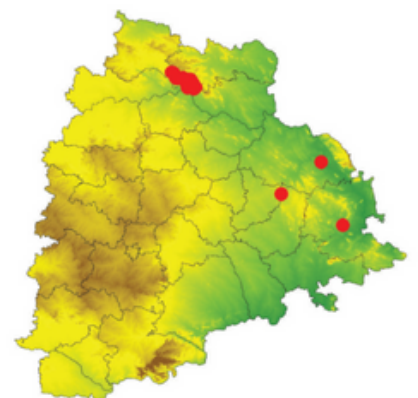
Use & Trade This species is hunted for its horns that are traded.

Conservation Measures No species-specific conservation measures are in place for this species. It is included under Schedule I of the Wildlife (Protection) Act, 1972 and listed under Appendix I of CITES.

Remarks

This taxon is found in dry and moist deciduous forests. It occurs in Kawal TR, Eturnagaram WLS, Pakhal WLS, and Kinnerasani WLS. It is threatened by habitat loss, degradation caused by encroachment, pathogens and disease, competition with livestock and hunting. It is known from 23 localities. The estimated extent of occurrence (EOO) in Telangana State is 10000 km², and the area of occupancy (AOO) is <2000 km². There is an inferred continuing decline in the area, extent and quality of suitable habitat. At the global level, this taxon has been assessed as Vulnerable. In Telangana State, this species is assessed as Vulnerable, with the criteria A2d+B1ab(iii)+2ab(iii).

Distribution in Telangana State



Pioneers in Conservation

Padma Shri Saalumarada Thimmakka

Saalumarada Thimmakka is a committed environmentalist from the state of Karnataka. Born in Gubbi Taluk, Tumkur district, Thimmakka received no formal education and worked as a quarry labourer. Having been surrounded by forests and fields all her life, she and her husband Chikkaiah regularly noticed barren roads and streets without any green cover. This sight encouraged her to take up the initiative of planting banyan and tamarind trees in their village. Soon enough others joined her as well. Her dedication to this seemingly small task of planting trees continued in silence and sincerity. Over several decades, she along with her husband had successfully planted around 8000 trees along a four-kilometre road, transforming it into a lush and cool green corridor.

Her commitment to environmentalism did not go unnoticed for long. She was first awarded the National Citizen's Award from the Government of India in 2016, followed by the Nadoja Award from Hampi University in the year 2017. Subsequently, in the year 2019 she was awarded the prestigious Padma Shri for



Photo: President's Secretariat

her indispensable contribution to environmental conservation. Even in the age of 108, she continues her unwavering plantation work with the help of several others who were inspired and encouraged through her. She presides over several afforestation and community activities for environmental protection. Thimmakka's simple yet profound wish that all species need to coexist in a healthy environment is a testament to the quiet, yet strong spirit of environmentalism and conservation.

Environment Education

Grasslands - Resilient Ecosystems

Grasslands are open ecosystems dominated by grasses and herbs. These ecosystems often dismissed as “empty” or “wastelands” are among the most productive on Earth, supporting incredible diversity. In India, grasslands like the Deccan Plateau, Banni grasslands, Terai-Duar savannas and the unique Shola Grasslands are vital habitats for iconic faunal species such as the Great Indian Bustard, Indian wolf, Blackbuck and so on. India is home to hundreds of species of grasses, such as *Dichanthium*, *Heteropogon*, *Themeda*, and *Saccharum*, each adapted to different soil and moisture conditions. Many of these grasses are perennial, with life spans ranging from several years to even decades. Their deep and fibrous root systems play a crucial role in holding the soil together, preventing erosion, improving water retention, and maintaining soil fertility. While forests have higher carbon sequestration rates, grasslands are better carbon sinks in situations of ecological catastrophes like wildfires, due to underground storage of carbon and their ability to recover quickly. Despite their importance, grasslands are often misunderstood, overgrazed, converted to agriculture, or wrongly classified as “degraded” lands. Conserving these landscapes is just as important as preserving forests, if the country is to ensure ecological balance and climate resilience for the future.



Photo: Yathin S Krishnappa

Nature for Kids

Dolphins - Intelligent Swimmers of the Rivers & Seas

Dolphins are some of the most intelligent and playful animals in the world. Did you know India is home to several species of these amazing creatures? While many people imagine dolphins leaping through the ocean waves, India is also famous for the Ganges River Dolphin (*Platanista gangetica*), our National Aquatic Animal! A recent survey has reported that around 6324 of them are present. Found in the Ganga, Brahmaputra, and their tributaries, this rare dolphin is blind and uses echolocation (sound waves) to find food and navigate through river waters. Another species of river dolphin is also found in India – the Indus River Dolphin (*Platanista minor*). Sadly, only three of these are alive in the country, found in Punjab.

In our oceans, you can spot the Bottlenose dolphins (*Tursiops* spp.), Spinner dolphins (*Stenella longirostris*), and even Humpback dolphins (*Sousa*) along the coasts of the Arabian Sea and Bay of Bengal. These dolphins live in groups called pods, and are known for their jumps, flips, and friendly behaviour. In the oceans, dolphins also serve as top predators, helping regulate fish populations and keeping marine life in check. They often feed on squid, fish, and other sea creatures, preventing any one species from growing too dominant. Scientists study dolphins to learn more about marine health, because dolphins are what we call “indicator species”. If dolphins are doing well, their entire ecosystem probably is too!

Sadly, dolphins face serious threats such as pollution, fishing nets, and habitat loss. River dolphins are especially at risk because of dams and reduced water flow. But the good news is that many people and groups in India are working hard to protect them. From satellite tagging projects to dolphin conservation zones, we’re learning more and taking action to keep these wonderful swimmers safe. Our dolphins definitely deserve a splash of attention!

Photo: The Indus River Dolphin (WWF Pakistan)



Photo: The Spinner Dolphin (Alexia Pihier)

Our Biodiversity

Frogs of Telangana State

Frogs, belonging to the order Anura, are among the most ecologically significant yet often overlooked components of biodiversity. India, with its diverse range of ecosystems — from the Western Ghats and northeastern rainforests to Himalayan foothills and arid zones — is home to over 400 recorded species of frogs, many of which are endemic. The Western Ghats alone harbour nearly 150 species, many found nowhere else in the world. Telangana in particular is home to 16 species of frogs, of which three Indian endemics: Gunther’s Toad (*Duttaphrynus hololius*), Schneider’s Toad (*Duttaphrynus scaber*) and Red Narrow-mouth Frog (*Microhyla rubra*) are also found in the state.

Frogs play a critical ecological role as both predators and prey. They help control insect populations, including mosquitoes and agricultural pests, thereby benefiting both human health and crop production. Their larvae contribute to aquatic nutrient cycling, and adult frogs form a key part of the diet for birds, snakes, and mammals. Frogs are excellent bioindicators — their presence or absence provides valuable insight into the health of ecosystems.

However, frogs in India face increasing threats due to habitat loss, pollution, climate change, roadkills, unsustainable tourism, and the introduction of invasive species like the American bullfrog in the northeast. Pesticide use and wetland degradation are particularly detrimental, affecting their breeding and survival.

Conservation of frog populations in India demands habitat protection, improved wetland management, reduction of chemical pollutants, and greater investment in amphibian research. Public awareness is equally important, as frogs are often misunderstood or disregarded despite their ecological importance. Preserving these tiny, beautiful species is not only about protecting amphibians but also about maintaining ecosystem balance, agricultural resilience, and biodiversity at large. Their silent decline would echo loudly across the health of our natural world.

Photo: Red Narrow-mouthed Frog (Sheshadri K.S)



Photo: Schneider's Toad (David V Raju)

Feature - Flora

Golden Shower - *Cassia Fistula* L.

Classification

Kingdom: Plantae
Division: Magnoliophyta
Class: Magnoliopsida
Order: Fabales
Family: Fabaceae
Genus: *Cassia*
Species: *fistula*
Authority: L.



Golden Shower, *Cassia fistula*, is a tropical, deciduous or evergreen tree native to India. It is known as 'Rela chettu' in Telugu. It is slow growing and reaches up to 9-20 m tall and 3-5 m wide upon maturity. The leaves are green and wedge-shaped at the base. It bears characteristic yellow flowers. The fruits are borne as brown pods, and the seeds are brown and glossy. *Cassia fistula* is cultivated in tropical and sub-tropical areas as an ornamental species. In Kerala, the flowers are of ritual importance, being used during the Vishu festival. Edible parts of the tree are the young leaves, flower buds, flowers, and pulp of the pods. In particular, its ripe pods and seeds are used as a laxative. Powdered seeds can be used in the treatment of amoebiasis and bark extracts against inflammation. The pods are used against malaria, anthrax, diabetes, and dysentery. Bark and leaves are used in the treatment of various skin conditions and tropical ulcers.

Photo: Ganesh Mohan T

Feature - Fauna

King Cobra - *Ophiophagus hannah* (Cantor, 1836)

Classification

Kingdom: Animalia

Phylum: Chordata

Class: Reptilia

Order: Squamata

Family: Elapidae

Genus: *Ophiophagus*

Species: *hannah*

Authority: (Cantor, 1836)



The King Cobra (*Ophiophagus hannah*) is the world's longest venomous snake, reaching lengths of up to 5.5 meters. It is widely distributed across India. It is known as 'Rachanaagu' in Telugu. Morphologically, it is distinguishable by its long, narrow hood, olive-brown to blackish coloration with pale yellow crossbars, and large head scales. It possesses a chevron-shaped mark on the neck and lacks the typical spectacled hood mark of other cobras. It is an obligate ophiophagous predator, feeding primarily on other snakes and occasionally on lizards. Remarkably, the King Cobra is the only snake known to construct and guard a nest, usually made of leaf litter, in which the female lays 20–40 eggs during the breeding season (April to July). Preferring dense forests, bamboo thickets, and wetland edges, it is a key predator in its habitat. It is listed as Vulnerable under the IUCN Red List.

Photo: Rushen

Events

Perspectives by CBCS, OU

discussions
lectures
talks
expert Q&As
every 2nd and 4th thursday
5pm IST

PERSPECTIVES

engaging • educating • enriching

Photo: CBCS, OU

CBCS has launched *Perspectives*, an exciting new series designed to make science more accessible and engaging for learners and enthusiasts. The program involves two formats. “Discussions” held online every second Thursday, are open-table conversations where participants exchange thoughts on recent scientific developments, share papers of interest, and interact. On every fourth Thursday, “Talks” hosted both online and at OU-CBCS involve invited speakers delivering 45-minute lectures tailored to non-specialist audiences, followed by interactive Q&A sessions. By combining open dialogue with expert-led learning, *Perspectives* aims to foster curiosity, build connections across disciplines, and create an inclusive community. All are warmly invited to join this new community of science and curiosity.

News

Jerdon's Courser Rediscovered



Photo: Internet Resource

In a landmark moment for Indian bird conservation, the critically endangered Jerdon's Courser (*Rhinoptilus bitorquatus*) has been rediscovered outside its previously known range after an astonishing 125 years. Until now, this nocturnal bird was believed to survive only within a narrow 3 × 4 km stretch of scrub forest, in the Lankamalla Hills of Andhra Pradesh making it one of the most range-restricted and enigmatic birds in the world. The new finding was confirmed through an acoustic recording of the species beyond Lankamalla, raising the possibility that the species may be found in over-looked non-protected areas. This rediscovery rekindles hope for this critically endangered bird's survival while also underscoring the urgent need to conserve its dry scrub habitats across southern India that are rapidly disappearing.

Signing Off

Ecological Risks, Human Safety & Climate Change

The recent devastating landslides occurring all across the Himalayan states of India underscore a very present and happening reality - natural environments collapsing under the combined weight of climate extremes, unregulated and unplanned construction and rampant deforestation. While several experts have blamed climate change for these sudden calamities, it cannot be ignored that the effects are severely compounded by increasing anthropogenic pressures, especially in the sensitive and vulnerable mountainous regions of India. These devastating landslides point towards the larger need for scientifically-informed planning, stringent bans on deforestation, and limits on construction and infrastructure development in these ecologically-sensitive zones. Until now, the debate was development vs. environmental conservation. In the wake of recent events, the debate has now shifted to development vs. human safety. Will this be enough to prompt the systems of our country to question the ever increasing need for infrastructure and become more climate resilient?



Photo: PTI

We hope you have enjoyed this issue... If you wish to share any information, please do not hesitate to contact us.



Centre for Biodiversity and Conservation Studies

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