

Telangana Biodiversity

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Editorial

Insects, often overlooked or undervalued, are indispensable architects of ecological stability. Comprising over 80% of all known animal species, they form the foundation of terrestrial and aquatic food webs, driving ecosystem functionality through pollination, decomposition, and biological control. Their decline (driven by habitat loss, pesticides, and climate change), poses a severe threat to global biodiversity and human well-being. As primary pollinators, insects facilitate the reproduction of nearly 90% of flowering plants, including crops that constitute 35% of global food production. Bees, butterflies, and beetles enhance agricultural productivity, ensuring food security and sustaining economies. Simultaneously, decomposers like dung beetles and termites recycle organic matter, enriching soil fertility and regulating nutrient cycles. Without these silent workers, detritus would accumulate, disrupting carbon sequestration and soil health. Predatory insects, including ladybirds and dragonflies, act as natural pest controllers, curbing populations of herbivorous insects that could otherwise devastate crops and forests. This reduces reliance on chemical pesticides, mitigating environmental pollution. Additionally, insects serve as critical bioindicators; shifts in their populations reflect ecosystem health, aiding scientists in monitoring habitat degradation and climate impacts. Despite their ecological significance, insect populations are declining at an alarming rate.



Photo: Egor Kamelev

Briefly

Dung Beetles and Climate Change!

A recent study published in 2023 examined the dung-removal capacities of dung beetles across pastures worldwide. Cattle dung contributes about 8% of greenhouse gas emissions, of which dung beetles offset up to 3-4%. This contribution is indispensable given the rapid rate of climate change. Additionally, dung beetles increase soil fertility, restrict disease-vectors and aid secondary seed dispersal. The study examined the effect of cattle density on dung beetle diversity, showing that urbanization taking over farmlands and spread of invasive vegetation are greatly impacting the richness and diversity of dung beetles. The findings also underscore the essential role dung beetles play in maintaining ecosystem health. By breaking down cattle dung, they not only reduce methane emissions but also recycle nutrients, enhancing soil quality and promoting plant growth. This puts an important point across – a crucial part of addressing our environmental challenges lies in simply allowing habitats and species to thrive and perform their ecological roles.

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Photo: Charles J Sharp



Special Feature

Ranthambore Tiger Reserve

An amalgamation of historical and ecological landscapes, the Ranthambore Tiger Reserve in Rajasthan, is one of the most significant and earliest tiger reserves of India. Initially known as the Sawai Madhopur Game Reserve, the area was designated as a major tiger reserve in 1973 under the Project Tiger. Occupying an area of 1411 sq. km, it is nestled between the large expanse of the Aravalli and Vindhyan Hill ranges.

The reserve is named after the iconic Ranthambore Fort, built by the Chauhan Rajputs. The Fort overlooks the entire area from a hill-top, offering a good vantage

view. The landscape of the Ranthambore Tiger Reserve is comprised of expanses of dry deciduous forests, open grasslands and rocky terrain. The land also harbours several vital lakes and streams, which are a “bird-watcher’s paradise” as described by visiting wildlife enthusiasts.

Ranthambore hosts a high diversity of wildlife. Major flora of the reserve includes *Ficus religiosa* (Peepal), *Syzygium cumini* (Jamun), *Anthocephalus cadamba* (Kadam), *Madhuca indica* (Mahua) and *Diospyrus melanoxylon* (Tendu). Most notable is *Butea monosperma*, commonly known as ‘Flame of the Forest’ and easily recognized

by its distinct orange-red flowers. It is well adapted to the local climate, blooming in harsh dry seasons.

Home to several flagship fauna of the country, the Ranthambore Tiger Reserve holds 38 species of mammals, 315 species of both resident and migratory birds, 11 species of reptiles, 10 species of fish and a few amphibians. Six species of the cat family are reported from here, including the elusive Caracal, Rusty-spotted Cat, Desert Cat, Jungle Cat and the apex predators – Leopard and Bengal Tiger. Among the ungulates are, Sambar Deer,

Photo: Stephenekkaa



Photo: Dinesh Jaangid

Nilgai, Chital, Chinkara, and Wild Boar. Other key species of mammals found in the reserve include Sloth Bear, Striped Hyena and Golden Jackal.

However, one species steals the spotlight at Ranthambore - the Royal Bengal Tiger. Each year, a huge number of tourists visit the area, only in the hopes of spotting the beautiful large cat in its natural habitat. According to the official tiger population census of 2022, Ranthambore is home to a total of 52 tigers. Although the reserve has come a long way since its designation in 1973, it continues to face threats from agricultural expansion, unregulated livestock-grazing and illegal sandmining. However, in the face of these challenges,

efforts to mitigate threats and human-tiger negative-interactions continue to progress. This is made possible with the support of committed NGOs in the area like the Tiger Watch and WWF-India, in collaboration with the Forest Department of Rajasthan and the local communities.

The Ranthambore Tiger Reserve stands as a vital conservation area, blending rich historical heritage with diverse ecological landscapes. Despite ongoing challenges, continued collaborative efforts by NGOs, the Forest Department, and local communities remain crucial in safeguarding its flagship species, particularly the Royal Bengal Tiger, and preserving the unique biodiversity of the region.



Threatened Taxa

Plant - *Butea monosperma* var. *lutea* (Witt.) Maheshw.



Photo: Parmanu Sarkar

Taxonomy Order Fabales; Family Fabaceae.

Geographic Range Endemic to the Deccan Plateau and is found in Maharashtra and Telangana State.

State Distribution Very rare; sporadically distributed in the forests of Mahabubnagar, Nizamabad, Rajanna Sircilla, Warangal Urban, and Yadadri Bhuvanagiri districts.

Population Nothing is known about its population status or trends.

Habitat & Ecology: Deciduous tree, found in open patches of dry deciduous forests.

Major Threats Threatened due to habitat fragmentation, forest fires, and over-harvesting for medicinal purposes.

Use & Trade The species is in trade for its medicinal properties.

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

Remarks

It is threatened by habitat destruction, forest fires and over-harvesting for medicinal purposes. The estimated number of localities is 7; the estimated extent of occurrence (EOO) in Telangana State is <20,000 km², and the area of occupancy (AOO) is <200 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 Endangered, with the criteria A2d+B1ab(iii,iv)+2ab(iii,iv).

Distribution in Telangana State



Animal - *Gyps bengalensis* (Gmelin, JF, 1788)



Photo: Prasan Shrestha

Taxonomy Class Aves; Order Accipitriformes; Family Accipitridae

Geographic Range Distributed widely in South Asia and South-East Asia. In India, it is widely distributed.

State Distribution Rare; this species was earlier known from Komaram Bheem, Asifabad, Siddipet, Medchal-Malkajgiri, Rangareddy, Hyderabad, Vikarabad, Mahabubnagar, Sangareddy, Medak, Kamareddy, Warangal Urban, Mahabubabad and Nagarkurnool districts.

Population Nothing is known about its population status or trends. Last sighting of this species was in 2003 from Nallamala Hills, Nagarkurnool district.

Habitat & Ecology This species prefers plains, and less frequently in hilly regions where it uses light woodland, villages, cities, and open areas.

Major Threats Threatened due to feeding on livestock carcasses treated with the drug diclofenac and other NSAIDs and excessive use of pesticides.

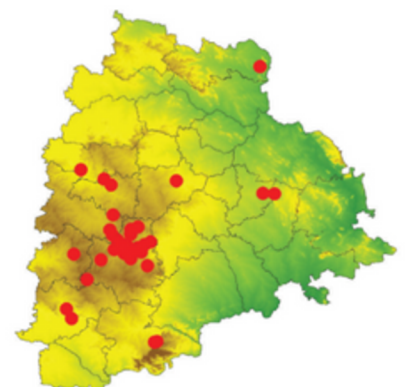
Use & Trade This species is not in trade.

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

Remarks

It is threatened due to feeding on livestock carcasses treated with the drug diclofenac and other NSAIDs and excessive use of pesticides. It used to be known from many locations in the past, no new records of this species in past 15 years. At the global level, this taxon has been assessed as Critically Endangered A2bce+4bce. Although this species is presumed to be extinct from Telangana State, it is assessed as Critically Endangered, with the criteria applied globally.

Distribution in Telangana State



Pioneers in Conservation

Padma Shri Jamuna Tudu

Jamuna Tudu, an environmental activist single-handedly mobilized support and action towards protecting 50 hectares of forest cover in Jharkhand.

Originally from Rairangpur in Odisha, Jamuna moved to Maturkham in Jharkhand after marriage. It was here, that she witnessed extensive deforestation of forest land driven by the local timber mafia. Determined to bring change, she began educating the women in the area, rallying them to take action and work towards protecting the forests. Though she was initially met with hesitance, the cause was soon supported by 32 women. Together they stepped out to confront the timber collectors and protect the forest, armed with nothing but sticks and spades. Despite significant resistance and fear, Jamuna continued her conservation efforts and formed the first Van Suraksha Samiti along with her compatriots. Overtime, she established 50 such committees, earning her the title “Lady Tarzan”. Today, Jamuna Tudu continues to advocate for forest conservation. Supported by 10,000 forest protectors (mostly women), spread



Photo Courtesy : Internet Resource

across 300 villages in Jharkhand, she and her team have implemented night patrols, prevented tree-felling and assisted reforestation activities. Going even further, Jamuna now advocates for the rights of local communities to sustainably access forest produce and encourages reforestation of native plant species. Recognizing her tireless work, she was awarded the Godfrey Phillips Bravery Award in 2014. Subsequently in 2024, the Government of India conferred her with the prestigious Padma Shri.

Environment Education

International Macaque Day - 16th March

International Macaque Day is celebrated every year on the 16th of March, to generate awareness about these ecologically important group of primates and the pressures that threaten their populations. India is home to a total of 9 species of macaques – Bonnet Macaque, Rhesus Macaque, Assamese Macaque, Tibetan Macaque, Stump-tailed Macaque, Pig-tailed Macaque, Arunachal Macaque, Lion-tailed Macaque and Nicobar Long-tailed Macaque. Macaques play a crucial role in maintaining forest ecosystems through seed dispersal and their position within the food web. However, their survival is increasingly threatened by agricultural expansion, urbanization, and infrastructure development, which lead to habitat degradation and loss. Additionally, negative human-macaque interactions further jeopardize their populations. Conservation efforts, including habitat restoration, community engagement, and conflict mitigation strategies, are essential to secure the future of these primates and ensure their coexistence with human communities. International Macaque Day serves as a reminder of the urgent need to protect these charismatic yet vulnerable species.



Photo: Nikhil More

Nature for Kids

Sharks - Superheroes of the Sea

When most people picture sharks, they imagine terrifying predators lurking in the deep - jaws wide open, ready to strike. But the reality is far more captivating! Sharks are among the oldest and most fascinating creatures on Earth, having ruled the oceans for over 400 million years, long before dinosaurs walked the land. In the rich and diverse waters of India alone, 160 unique shark species thrive, each with its own incredible adaptations and ecological role. Sharks come in all shapes and sizes, from the large whale shark (the largest fish in the world, a gentle giant that feeds on plankton) to the bizarrely shaped hammerhead shark, with its wide-set eyes granting it superior hunting vision. Then there's the elusive Pondicherry shark, critically endangered and rarely seen, and the mysterious Gangetic shark, one of the rarest freshwater sharks on the planet. Not to forget the peculiar giant guitarfish, a shark-ray hybrid that glides along the ocean floor. Each of these species plays a vital role in maintaining the delicate balance of marine ecosystems. As apex predators, sharks keep fish populations in check, preventing any single species from overwhelming the ecosystem. Without them, the ocean's food web could collapse, leading to disastrous effects on coral reefs, fish stocks, and even coastal economies.

Despite their importance, sharks face unprecedented threats today. Overfishing, driven by demand for shark fins and meat, has decimated populations worldwide. Ocean pollution (from plastic waste to chemical runoff) poisons their habitats, while the destruction of coral reefs and mangroves leaves them with fewer places to breed and hunt. Even species like the whale shark protected under Indian wildlife laws, struggle against illegal fishing and habitat loss.



Photo: Jeremy Bishop

Our Biodiversity

Odonates of Telangana State

The order Odonata, comprising damselflies (suborder Zygoptera) and dragonflies (suborder Anisoptera), represents a highly significant group of insects renowned for their striking morphological diversity and exceptional aerial agility. In India, this group exhibits remarkable species richness, with 504 recorded species, of which 175 are endemic, underscoring the country's status as a global hotspot for odonate biodiversity. Regional studies reveal notable variations in distribution, with 57 species documented in Telangana. However, compared to the well-studied Western Ghats, the odonate fauna of Peninsular India (including Telangana) and the Eastern Ghats remains under-researched, presenting a critical opportunity for scientific exploration to uncover regional endemism and potentially new species.

Odonates are inextricably linked to freshwater ecosystems, requiring wetlands, streams, and marshes for their biphasic life cycle (aquatic larvae and terrestrial adults). As apex invertebrate predators, they regulate insect populations at both life stages. Larvae consume mosquito larvae and other aquatic invertebrates, while adults prey on flying insects such as mosquitoes, termites, and aphids, providing valuable pest control services. Their predatory efficiency makes them indispensable for maintaining ecological equilibrium in both aquatic and terrestrial systems. Odonates exhibit remarkable adaptability, colonizing diverse habitats (from urban water bodies and agricultural wetlands to montane streams and forested swamps). However, their populations are increasingly threatened by habitat destruction, water pollution, and climate change. Given their tropical evolutionary origins, odonates are particularly sensitive to temperature fluctuations, making them ideal bioindicators for assessing climate change impacts on freshwater ecosystems. Their rapid response to environmental shifts provides researchers with critical insights into ecosystem health and anthropogenic stressors.



Photo: Jeevan Jose



Photo: Joydeep

Feature - Flora

Siris - *Albizia lebbbeck* (L.) Benth.

Classification

Kingdom: Plantae
Division: Magnoliophyta
Class: Magnoliopsida
Order: Fabales
Family: Fabaceae
Genus: *Albizia*
Species: *lebbbeck*
Authority: (L.) Benth.



Albizia lebbbeck (L.) Benth. is a deciduous perennial tree, native to India and Myanmar. Commonly known as Siris, it grows up to a height of 30m. The leaves are bipinnate, with 6-18 leaflets. The flowers are easily recognizable by their white colour, long stamens and a strong fragrance. The fruit is produced as a pod, containing 6-12 seeds. The species can surprisingly grow in a wide range of climates. It is also drought-resistant and fast-growing. Due to these characteristics, it has become a highly invasive species in several countries outside its native range. It has several ethno-botanical uses for cough, eye flu and asthma. The bark is particularly used to treat inflammation. Its wood is also highly harvested as timber.

Photo: Forest Owlet

Feature - Fauna

Purple Sunbird - *Cinnyris asiaticus* (Latham, 1790)

Classification

Kingdom: Animalia

Phylum: Chordata

Class: Aves

Order: Passeriformes

Family: Nectariniidae

Genus: *Cinnyris*

Species: *asiaticus*

Authority: (Latham, 1790)



The Purple Sunbird is a small nectar-feeding bird, occurring in the Indian subcontinent, Southeast Asia and parts of the Arabian Peninsula. It bears a down-curved bill that aids in nectar-feeding. The species exhibits distinct sexual dimorphism, with the breeding male having an iridescent blue and purple plumage and maroon feathers on the breast, while the female is olive and yellow in colour. The non-breeding male is olive-brown with black upperparts and yellow underparts. They inhabit a wide range of habitats, from deciduous forests to urban gardens. Purple sunbirds are quite vocal and quick in their movements. They are efficient and essential pollinators. Although commonly spotted in the city's green spaces, these beautiful birds are often misidentified as hummingbirds which occur only in the American continents. In Telugu, they are known as '*Thene pitta*'.

Photo: Tisha Mukherjee

Events

National Youth Biodiversity Conference 2025



Photo: Jaya Kumari

The National Youth Biodiversity Conference for the year 2025 was hosted by the Telangana Biodiversity Board for three days, from 20th to 22nd February 2025. It was held at Kanha Shanti Vanam, Ranga Reddy and was attended by 70 postgraduate students from across India. Packed with hands-on activities and exhaustive sessions, the conference engaged the participants on biodiversity conservation issues, benefit-sharing, law and policy and sustainable development. Several keynote lectures were addressed during the three days, including sessions with speakers Padma Shri Rahibai Soma Popere, Mrs. Farida Tampal (State Director for WWF-India) and Dr. Yogitha Karache (President of the World Anti-Terrorism Organization Trust). The NYBD thus provided an interactive platform facilitating knowledge sharing and networking between young conservationists and subject experts.

News

Hyderabad Annual Tree Biodiversity Survey



Photo: Vee Terzy

WWF-India Hyderabad conducted the second HAT Biodiversity Survey in the city on the 9th of March, between 8 am and 11 am. The survey covered selected streets and parks from the six zones of Hyderabad, aiming to gather comprehensive data on urban biodiversity. Volunteers participating in the survey were tasked with recording the tree species observed, while also examining the trees to document the animals found in and around them. By directly involving citizens in the process, the HAT Biodiversity Survey aimed to enhance public awareness of the rich biodiversity found within the city. It provided a unique opportunity for people to engage with nature while gaining insights into the complex inter-relationships among species within urban ecosystems. The data collected from this survey will not only contribute to ecological data for Hyderabad but also serve as a valuable resource for future conservation planning.

Signing Off

RHATC 2024 with Zoo Outreach Organisation

Conservation is not just about taking action today; it's also about bringing change and fostering a positive attitude towards the natural world. That's where education comes in — by nurturing curiosity, empathy, and responsibility in young minds, it ensures that conservation action is sustained into the future. The Ram Hattikudur Advanced Training in Conservation (RHATC) organised by Zoo Outreach Organisation, Coimbatore is one such program that aims to inspire and train young conservationists with the right knowledge needed to protect and restore the wild. RHATC 2024 focused on “Inselbergs and Rocky Outcrops” - unique habitats that are often overlooked in conservation planning. Among the experts that mentored the 10 RHATC fellows were Prof. Chelmala Srinivasulu and Dr. Bhargavi Srinivasulu who accompanied them from December 2024 to January 2025, exposing them to their pioneering work on bats and squamates of the Eastern Ghats. The session also highlighted their successful efforts to conserve the threatened Kolar leaf-nosed bat. Bringing light to the world of climate change modeling, Dr. Aditya Srinivasulu led an insightful session on his work on modeling the impact of various anthropogenic factors on the future distribution of South Asian bats, offering a glimpse into how data-driven approaches can strengthen conservation evidence and action.



Photo: M. Hersher

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



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