

Telangana Biodiversity

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

Editorial

Butterflies, with their delicate wings and vibrant colours, are more than just nature's artwork; they are essential players in maintaining ecological balance. As pollinators, butterflies play a critical role in the reproduction of many flowering plants, including several crops vital to human agriculture. By transferring pollen as they feed on nectar, butterflies ensure that plants can reproduce, fostering biodiversity and contributing to healthy ecosystems. However, butterflies are not just vital for the plants they pollinate. Their presence and diversity are important indicators of environmental health. A decline in butterfly populations often signals broader ecological issues, such as habitat loss, pollution, or climate change. Therefore, protecting butterflies is not merely about preserving their beauty but safeguarding the intricate web of life they help sustain.

As we observe these graceful creatures fluttering through our gardens and landscapes, it's crucial to acknowledge their environmental significance and work toward their conservation. The present issue of this newsletter is dedicated to celebrating these fascinating insects, their role in nature, and the ongoing efforts to protect them. Through awareness, education, and collective action, we can ensure that future generations continue to enjoy the sight of butterflies, while also recognizing the broader lessons they offer about the importance of preserving our planet's fragile ecosystems.

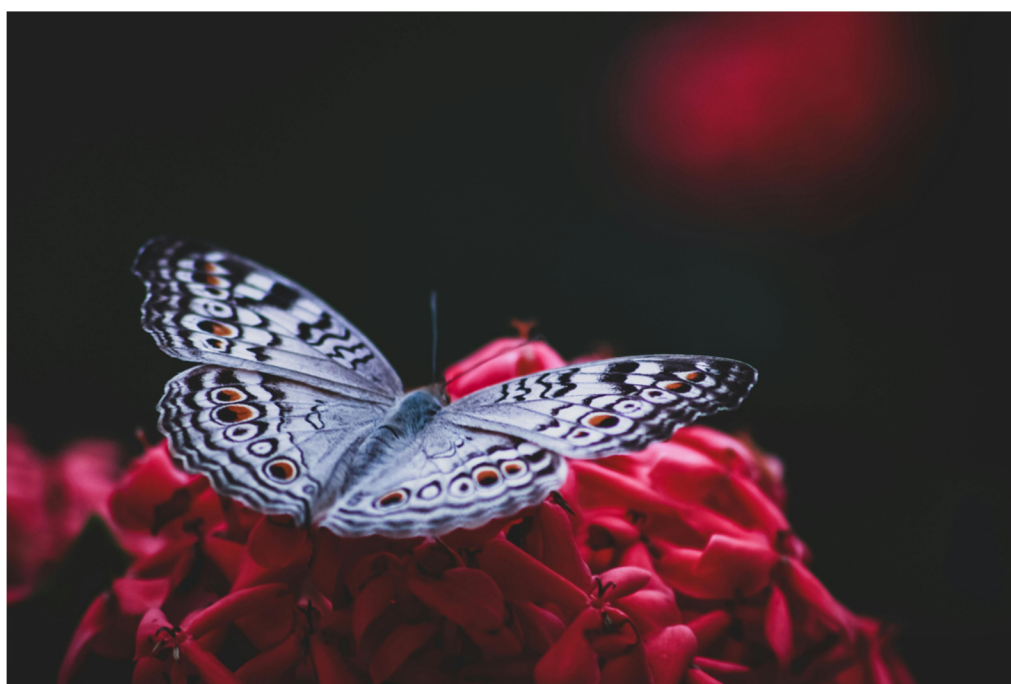


Photo: Sudipta Mandal

Briefly

Majority of Snow Leopards are in Ladakh

India's inaugural nationwide snow leopard population survey, conducted between 2019 and 2023, has estimated a total of 718 snow leopards (*Panthera uncia*) across the country. Ladakh emerged as the primary habitat, hosting approximately 477 individuals, accounting for over two-thirds of India's snow leopard population. Other significant populations were found in Uttarakhand (124), Himachal Pradesh (51), Arunachal Pradesh (36), Sikkim (21), and Jammu & Kashmir (9). The survey covered about 120,000 km² of potential snow leopard habitat across the trans-Himalayan region, including 13,450 km of trails and 1,971 camera trap locations, totaling 180,000 trap nights. This comprehensive data provides a scientifically robust baseline for future conservation efforts. The report recommends establishing a dedicated Snow Leopard Cell at WII to facilitate long-term monitoring and periodic population assessments every four years. Such initiatives are crucial for addressing threats like habitat fragmentation, human-wildlife conflict, and climate change impacts on this vulnerable apex predator.

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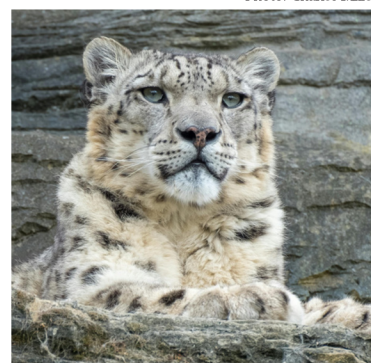
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Photo: Charles Miller



Special Feature

Dharmavana Nature Ark

Nestled in the semi-arid landscapes of Telangana's Yadadri-Bhuvanagiri district, approximately 50 kilometers from Hyderabad, the Dharmavana Nature Ark (DNA) stands as a remarkable testament to ecological conservation and biodiversity restoration. Spanning 400 acres, this sanctuary was established in 2005 as a non-profit society with a profound mission—to protect rare, endangered, and threatened plant species while fostering scientific research and community engagement. The name "Dharmavana" draws from Sanskrit, meaning a "righteous forest," symbolizing the harmonious coexistence of humans and nature.

The origins of DNA trace back to 2002, when a survey was conducted to identify suitable land near Hyderabad for creating an arboretum dedicated to India's dryland tropical flora. By 2004, it was formally registered as the Dharma Vana Arboretum under the Registrar of Societies, and a year later, it acquired nearly 90% of its current land. The early years were marked by challenges, including a devastating fire in 2011 that destroyed 70% of its vegetation. However, the resilience of the conservation team ensured its revival, and by 2019, it was rebranded as Dharmavana Nature Ark to reflect its expanded vision. In 2023, DNA took another significant leap by inaugurating the Centre of Excelle-

nce for Biodiversity & Climate Sciences, further solidifying its role as a leader in ecological research.

At the heart of DNA's work lies its unwavering commitment to conserving rare and endangered plant species. Unlike traditional seed banks, DNA focuses on maintaining living germplasm banks, particularly for woody species and shrubs with low seed viability. The sanctuary is home to a diverse range of native Indian flora, especially from the Eastern Ghats, along with carefully selected exotic species adapted to semi-arid conditions. Recognizing the alarming decline in pollinators, DNA also emphasizes the



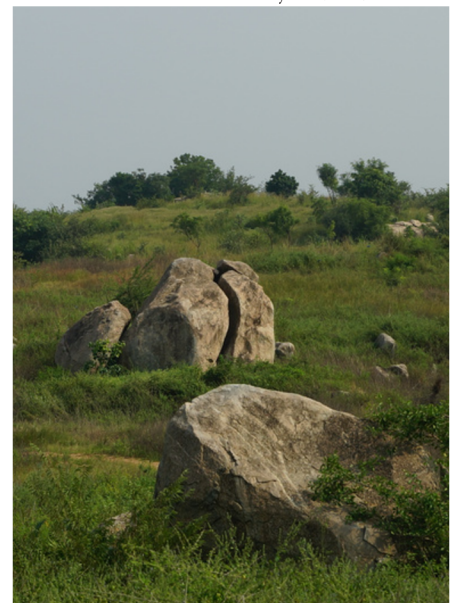
Courtesy: Dharmavana Nature Ark

cultivation of plants that support bees and other insects, ensuring the sustainability of these crucial species.

Beyond flora, the Ark serves as a refuge for small native wildlife, though detailed records of specific animal species remain scarce. Ecosystem restoration has been a cornerstone of DNA's efforts since 2010. More recently, in 2023, the sanctuary launched aquatic biodiversity projects aimed at reviving wetland ecosystems, further enhancing its conservation impact.

Collaboration has been key to DNA's success, with partnerships forged with some of India's most prestigious scientific institutions. A landmark moment came recently when DNA signed memorandum of understanding (MoU) with University of Hyderabad, CSIR-CCMB and ICFRE-IFB. It plans to sign a MoU with CBCS, OU too. Education and community engagement form another vital aspect of DNA's mission. Over 45 workers from nearby villages are employed in various conservation activities, ensuring that local communities benefit from and participate in the sanctuary's growth.

In a world grappling with climate change and biodiversity loss, sanctuaries like Dharmavana Nature Ark offer hope. They remind us that with dedication, innovation, and collaboration, it is possible to restore and protect our planet's fragile ecosystems. For those interested in supporting or visiting this extraordinary sanctuary, more information can be found on its official website, www.dharmavananatureark.org.in.



Courtesy: Dharmavana Nature Ark

Threatened Taxa

Plant - *Cyathocline manilaliana* C.P. Raju & R.R.V. Raju



Photo: Rajendra D Shinde

Taxonomy Order Astrales; Family Asteraceae.

Geographic Range Endemic to Telangana State, India.

State Distribution Very rare; found only at Pochera in Adilabad district.

Population Nothing is known about its population status or trends.

Habitat & Ecology Erect aromatic herb, found near streams and croplands, in secondary forests.

Major Threats Threatened by habitat destruction due to the Kubti Dam catchment area.

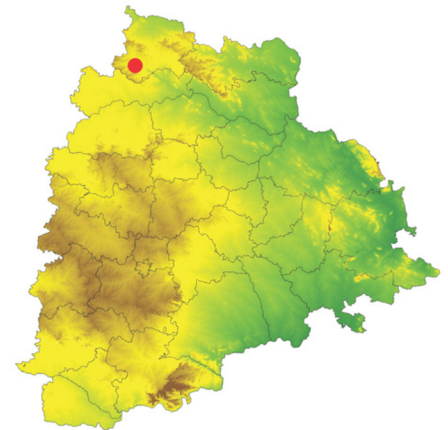
Use & Trade The species is not in trade.

Conservation Measures No species-specific conservation measures are in place. This species is reported from Kawal Tiger Reserve.

Remarks

This species is found near streams and croplands, in secondary forests.. It occurs in Kawal TR. It is threatened by habitat destruction, due to dam construction and submergence of the catchment area. The estimated number of localities is 1; the estimated extent of occurrence (EOO) in Telangana State is <100 km², and the area of occupancy (AOO) is <10 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 Critically Endangered, with the criteria B1ab(iii)+2ab(iii)+D2.

Distribution in Telangana State



Animal - *Thynnichthys sandekhol* (Sykes, 1839)



Courtesy: Internet Resource

Taxonomy Class Actinopterygii; Order Cypriniformes; Family Cyprinidae

Geographic Range Endemic to India; found in the Krishna, Godavari, Tungabhadra, Pravara and Mahanadi river basins in Telangana State, Andhra Pradesh, Karnataka, Odisha and Maharashtra.

State Distribution Found in Krishna river basin in Jogulamba Gadwal, Rangareddy, Kamareddy districts, and in Godavari river basin in Adilabad district.

Population No information exists about the population of this species. The population of this species in most part of its range has declined by more than 50%.

Habitat & Ecology Found in large rivers. It is a column-cum-surface feeder and feeds on zoo- and phyto- planktons.

Major Threats Overfishing and introduction of major carps into river systems could be a threat to the species.

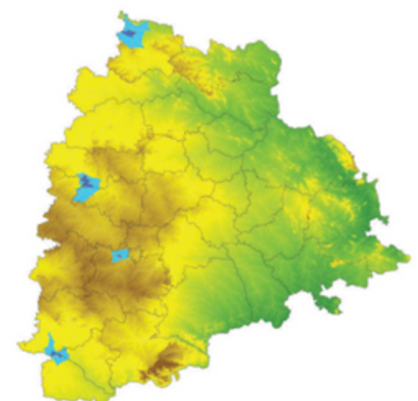
Use & Trade This species is harvested for local consumption.

Conservation Measures No known species specific conservation measures are in place for this species

Remarks

This taxon is found in major rivers. This species is threatened with overfishing and introduction of major carps into river systems. It is known from Krishna and Godavari river basins in Telangana State. At the global level, this taxon has been assessed as Endangered. In Telangana State, this species is assessed as Vulnerable, with the criteria A2d.

Distribution in Telangana State



Pioneers in Conservation

Padma Shri Dr. Ekalabya Sharma

Dr. Ekalabya Sharma is an eminent ecologist with over 40 years of experience in advancing sustainable development in the Himalayan region. Born on 11 May 1958, he holds a Ph.D. in Ecology from Banaras Hindu University and has dedicated his career to mountain ecosystems, science diplomacy, and regional cooperation.

One of his most influential contributions was discovering the nitrogen-fixing role of non-leguminous Himalayan Alder in the Darjeeling hills—an insight that added significantly to our understanding of Himalayan ecology. Dr. Sharma later led the groundbreaking Hindu Kush Himalaya Assessment, uniting over 300 researchers and policy experts to provide evidence-based guidance for mountain sustainability across eight countries.



Photo Courtesy : Internet Resource

Dr. Sharma has consistently brought mountain issues to the global stage, integrating the "mountain agenda" into platforms such as the UN Sustainable Development Goals (SDGs), the Intergovernmental Panel on Climate Change (IPCC), the Convention on Biological Diversity (CBD), and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). Recognizing his efforts for mountain advocacy and policy, the Government of India awarded him the Padma Shri for the year 2024. Through his science, advocacy, and diplomacy, Dr. Sharma has become a leading voice for mountain ecosystems and their people—demonstrating how local ecological research can influence global environmental policy.

Environment Education

Small Wings, Big Impact - Butterflies

Butterflies are among the most cherished and recognizable insects in the natural world. However, butterflies are much more than just visual delights — they play indispensable roles in maintaining healthy ecosystems and provide critical ecosystem services to mankind. These insects contribute significantly to ecosystem services such as pollination, serving as important pollinators for a variety of plant species and cultivated varieties. Their interactions help sustain plant populations and diversity and, by extension, the animals that depend on those plants. As pollinators, butterflies are intricately and mutually linked to the plant species they pollinate, meaning that threats to one inevitably impacts the other. Their presence, abundance, and diversity often reflect the quality of the local environment. Although they are found in a wide range of habitats — from green urban spaces to undisturbed forests and high-altitude meadows, they are highly vulnerable to habitat loss, loss of larval host plants, invasive species and climate change.



Photo: PKG Mohan

Nature for Kids

King Louie

In Rudyard Kipling's book '*The Jungle Book*', one character that makes brief, but exciting cameos is King Louie! Mischievous, amusing and sometimes a little scary, Louie is originally depicted as an orangutan in Rudyard Kipling's book.

Orangutans belong to the family of great apes and are known for their distinctive orange-red fur. However, according to evolution, orangutans do not occur in India. They are found only in the rainforests of Malaysia and Indonesia. And so, to make King Louie more accurate for the remake movie of *The Jungle Book* released in 2016, the filmmakers chose to depict him as the massive ancient ape *Gigantopithecus*!

Gigantopithecus – known for its gigantic size – lived in parts of Northern India and China around 2 million years ago. It is believed that it could stand up to 10 feet tall and weighed about 300 kg, making it one of the largest primates to have ever lived on Earth! It mostly fed on leaves, stems and fruits with the help of powerful grinding and chewing teeth. *Gigantopithecus* walked on the ground and did not swing through trees. Scientists believe that it might have looked like a huge hairy ape, just like King Louie in the movie.

Sadly, the species was unable to find food and adapt to a changing climate and hence went extinct. But that is how nature and evolution work! The next time you watch King Louie on screen, remember that he is a fun character with a cool piece of evolutionary history. Whether singing through the forest or leading his ape-army, King Louie makes the historical *Gigantopithecus* unforgettable.

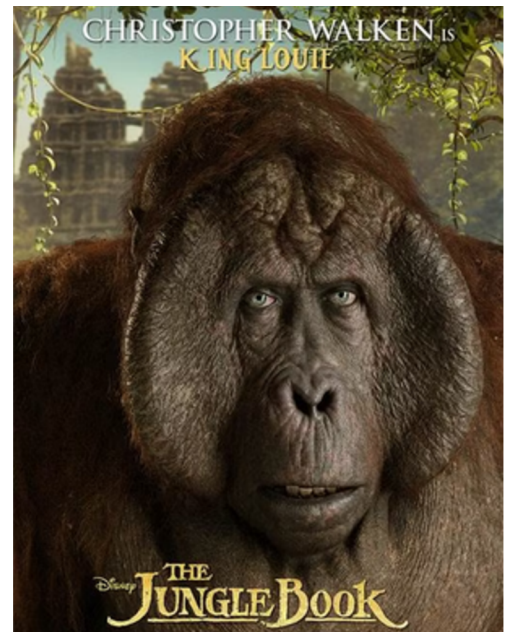


Photo: Disney Productions

Our Biodiversity

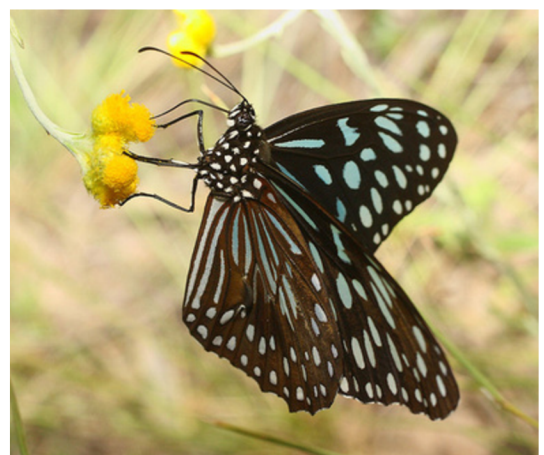
Butterflies of Telangana State

Butterflies are one among the most diverse group of insects. A total of 28,000 species are distributed throughout the globe. India is home to 1504 species, of which 74 are endemic to the country. Researchers believe that it will never be possible to determine the accurate number of butterfly species, given their vulnerability to climate change and the species that possibly go extinct before being discovered. Butterflies are cosmopolitan insects and are found in a wide range of habitats, from tropical forests to high-altitude meadows. In India, the Western Ghats and the Eastern Himalayas host a high diversity of butterfly species.

There are over 160 species of butterflies that are known to be present in Telangana. These delicate creatures play a crucial role in the delicate balance of Telangana's ecosystems. As primary pollinators, they are vital for the reproduction of numerous plant species, including agricultural crops and wild flora. Their constant movement between flowers ensures the transfer of pollen, contributing significantly to seed production and maintaining plant diversity. Butterflies also serve as an important food source for various birds, reptiles, and other insects, forming a crucial link in the food web. Beyond their ecological significance, butterflies hold immense aesthetic and cultural value. Their vibrant colours and graceful flight patterns captivate our imagination and inspire art and literature. They serve as indicators of environmental health; their presence and abundance often reflect the quality and stability of their habitats.

However, like many insect populations globally, Telangana's butterflies face increasing threats. Habitat loss due to urbanization, agricultural expansion, and deforestation poses a significant challenge. Pesticide use in agriculture further impacts their populations. Conservation efforts, including the creation of butterfly gardens, promoting native plant species, and raising awareness about their importance, are crucial to protect these fluttering jewels and the vital ecological services they provide for Telangana's natural heritage. Recognizing and safeguarding their habitats will ensure that future generations can witness the enchanting dance of butterflies across the Telangana landscape.

Courtesy: Tamaghna Sengupta



Courtesy: Internet Resource

Feature - Flora

Sonpatta - *Bauhinia racemosa* Lam.

Classification

Kingdom: Plantae
Division: Tracheophyta
Class: Magnoliopsida
Order: Fabales
Family: Fabaceae
Genus: *Bauhinia*
Species: *racemosa*
Authority: Lam.



Bauhinia racemosa is a deciduous small tree/shrub, distributed throughout India and China. It is commonly known as “*Thella aarechettu*” in Telugu. It is well known as the “Beedi leaf tree” - its leaves are typically used to make *beedi*. The leaves are broad and round. The flowers are white in colour and bloom between March and June. The pods are long, curved and bear 12-20 seeds. The immature seeds are fed upon by the Grizzled Giant Squirrel. In some parts of the country, the leaves of *Bauhinia racemosa* are exchanged as symbolic gold, on the festive day of Dusshera. The bark and leaves are used as astringent, to treat inflammation, headache, fever and dysentery. A decoction of the bark is also used to treat ulcers.

Courtesy: Internet

Feature - Fauna

Indian Grey Wolf - *Canis lupus pallipes* Sykes, 1831

Classification

Kingdom: Animalia
Phylum: Chordata
Class: Mammalia
Order: Carnivora
Family: Canidae
Genus: *Canis*
Species: *lupus*
Sub-species: *C.l. pallipes*
Authority: Sykes



Canis lupus pallipes - a subspecies of the Grey wolf (*Canis lupus*), commonly known as the Indian Grey wolf to differentiate from the Himalayan subspecies – *Canis lupus chanco*. It is recognized by its greyish-red fur and whitish underparts. It lives in packs of 6-8 individuals and is a nocturnal hunter. It is a key grassland species and is of great conservation concern to the country. With continued expansion of human settlements, incidents of human-wolf negative interactions have increased. Loss of prey species also drives these animals to hunt livestock. Majority of its populations are found outside protected areas, with the Mahuadanr Wolf Sanctuary, Jharkhand being the only wolf sanctuary in the country.

Photo Courtesy: Rushikesh Deshmukh

Events

Telangana State Biodiversity Strategy & Action Plan released



Courtesy: Internet Resource

Telangana has become the first state in India to release its State Biodiversity Strategy and Action Plan (TSBAP) for 2023–2030, aimed at conserving its rich biodiversity. The plan incorporates key elements of the Kunming-Montreal Global Biodiversity Framework adopted in December 2022. Developed by the Telangana State Biodiversity Board (TSDB) and the Administrative Staff College of India's (ASCI) Center for Innovations in Public Systems (CIPS), the TSBAP addresses biodiversity challenges linked to increasing human demands. During the launch, Dr. Rajat Kumar, Special Chief Secretary and TSDB Chairman, highlighted the urgent need for sustainable biodiversity management. NBA Chairperson C. Achalender Reddy emphasized that this is the first structured effort focused on benefit sharing, sustainable use, and biodiversity protection. The plan also encourages public and private sectors to contribute through corporate social responsibility (CSR) efforts, reinforcing Telangana's leadership in environmental stewardship.

News

King Cobra Reclassified into Four Distinct Species



Photo Courtesy: Kalinga Foundation

A groundbreaking study has redefined the king cobra (*Ophiophagus hannah*), the world's longest venomous snake, by recognizing it as four distinct species. This reclassification, led by herpetologist Dr. P. Gowri Shankar, highlights significant genetic and morphological differences among populations across Asia. The newly identified species include the Northern king cobra, Sunda king cobra, Luzon king cobra, and notably, the Western Ghats king cobra (*Ophiophagus kaalinga*), endemic to India's Western Ghats.

The Western Ghats king cobra is distinguished by its unique dark colouration and inhabits mid-elevation rainforests across states like Kerala, Karnataka, and Tamil Nadu. This species is now officially recognized, with the name "Kaalinga" reflecting its cultural significance in Kannada heritage. The reclassification underscores the need for targeted conservation efforts, as these snakes face threats from habitat loss and human-wildlife conflict.

Signing Off

Powering Biodiversity Through Citizen Science

Citizen science—the active participation of non-professional volunteers in scientific research—has emerged as a powerful tool in biodiversity documentation. Across India and the world, nature enthusiasts, birdwatchers, amateur photographers, and students are increasingly contributing to environmental research by recording species sightings, documenting habitat changes, and monitoring seasonal variations in flora and fauna. In a country as ecologically diverse as India, where professional researchers are often limited by time, access, and resources, citizen scientists play a crucial role in expanding the scope of biodiversity monitoring. Platforms like iNaturalist, eBird, and India Biodiversity Portal empower individuals to share observations, which are then verified and added to global databases. These crowd-sourced records not only provide critical real-time data but also support long-term ecological studies, influence conservation policies, and help track climate change impacts on species distribution.

Moreover, citizen science fosters environmental awareness and a personal connection to nature, turning casual observers into conservation advocates. By involving local communities, it enhances inclusivity and builds stewardship, particularly in remote or under-studied regions. As biodiversity faces mounting threats from habitat loss and climate change, the collaborative energy of citizen science offers hope.



Image Courtesy: Enlight

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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