

Telangana Biodiversity

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

Editorial

Dear friends, a very happy new year - 2021 to one and all. The year 2021 started off on a positive note with widespread vaccinations happening throughout the world inoculating as many as possible and providing them protection from the COVID-19 virus. The important vaccine was only recently, on 3rd January 2021, been given the clearance for vaccinating the masses and millions of doses were disbursed to numerous nations. It all started as a small vial of viable material arriving from Oxford University-AstraZeneca to Serum Institute of India (SII), Pune, the world's largest vaccine manufacturer in May 2020 and since then, procuring licenses, testing, trials, production of the vaccine were underway. When we were in our lockdown throughout most of last year, the SII worked relentlessly to be able to today produce 5000 doses of Covishield vaccine per minute of the much required vaccine. Alongside SII, Bharat Biotech, Hyderabad is producing Covaxin, that is also available to the masses. Its wonderful to note that vaccination once a 'thought' is now available, not one but two and many more in pipeline.

Vaccination is a necessity. As is touted by some it does not cause Covid-19. It helps us fight the disease. Everyone of us have a responsibility to get ourselves vaccinated. It does cause mild discomfort to some but temporary discomfort is better than long term suffering or death. A word of caution though, even after vaccination, we still need to use the mask and the sanitizer for extra protection.



Photo: Shaaz Jung

Briefly

PA Management Effectiveness Evaluation Report released

On January 11, 2021, Union Minister for Environment, Forest and Climate Change (MoEFCC), Shri Prakash Javadekar released the 'Management Effectiveness Evaluation (MEE) of 146 National Parks & Wildlife Sanctuaries in India, 2018-19' report. Protected Area (PA) Management Effectiveness Evaluation (MEE) is defined as the assessment of how well NP & WLS are being managed - primarily, whether they are protecting their values and achieving the goals and objectives agreed upon. The term 'management effectiveness' reflects three main themes of PA management: i) Design issues relating to both individual sites and PA systems, ii) The adequacy and appropriateness of management systems and processes, and iii) Delivery of the objectives of NP & WLS, including conservation of values. There are 30 "Headline Indicators" developed under six elements of MEE framework suitable in Indian context for evaluation. The ratings are assigned in four categories, as Poor – upto 40%; Fair – 41 to 59%; Good – 60 to 74%; Very Good – 75% and above. The three PAs of Telangana State were rated as Good (two PAs) and Fair (one PA).

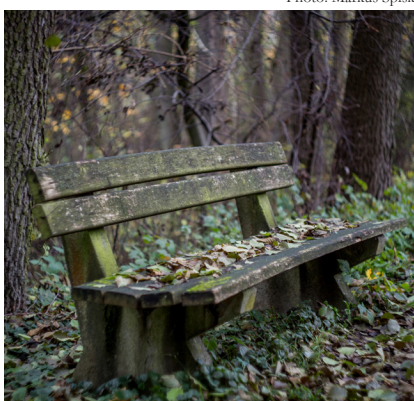


Photo: Markus Spiske

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Article Editor

Dr. Harpreet Kaur

(PDF, Centre for Biodiversity and Conservation Studies, Osmania University)

Email

biodiversityclub@osmania.ac.in

Special Feature

Pocharam Wildlife Sanctuary

Pocharam Wildlife Sanctuary (18°13' 58.8" N, 78°14' 31.2" E) is located in Medak and Kamareddy districts of Telangana State. It is about 115 km from the city of Hyderabad and has a land area of about 130 sq km. The sanctuary was established in 1952 and is named after the Pocharam Lake, which was built between 1916 and 1922 near Pocharam village by constructing a dam over the Allair river, a tributary of the Manjeera river. It was famously used by the Nizam of Hyderabad as a hunting ground until it was declared as a protected area.

Due to the construction of the dam and a water outflow section, the forests in the vicinity of these structures support rich biodiversity. The dominant vegetation type of the sanctuary is dry deciduous type and the protected area is divided

into two Reserve Forest blocks, namely Boothpur (1076.89 ha) and Lingampet (11907.67 ha). The former has a protected forested tract that has been converted into Pochammaralu Deer Breeding Centre. The Pocharam lake catchment area has a gently undulating topography surrounded by an array of habitat types, such as lake bed agriculture fields, scrub jungles, rocky out crops, and tropical dry deciduous mixed forests. Most of the sanctuary's geology is of peninsular granite complex from the Archean formations with soil type varying from red to sandy loam. The area is fed majorly by the southwest monsoon (June to September) and the annual average rainfall in the sanctuary is 700mm. Temperature rises up to 47°C during summers, while during winters, it may drop down to 10°C.

Flora

The rich flora of the forested area of the sanctuary comprises about 110 species of hydrophytes, 62 species of dicotyledons, and about 42 species of monocotyledons. The forest cover is majorly constituted by herbs (about 472 species), followed by trees (about 136 species), along with under-shrubs, shrubs, and climbers. The dominant genera present are *Tectona*, *Anogeissus*, *Cyperus*, *Crotalaria*, *Indigofera*, *Fimbristylis*, and *Ipomoea*.

Fauna

Common mammalian species of the sanctuary include Wild Dog, Leopard, Wolf, Wild Boar, Jackal, Jungle Cat, Sloth Bear, Sambar, Nilgai, Chinkara, Chital, and Four-horned Antelope (Chowsingha). Pocharam Lake attracts many migratory



Photo: Chelmala Srinivasulu



Photo: B. Ramakrishna

and resident birds including Brahminy duck, Bar-headed goose, Cotton pygmy goose, Knob-billed duck, Open-billed stork, Black ibis, White ibis, Coot, Greater flamingo, several species of Teals, Painted stork, Common pochard, Red-crested pochard, Spoon-bill, etc. Very occasionally, there have also been sightings of Indian skimmer on the lake. The lake and its surrounding also supports a great diversity of reptiles including python, Indian cobra, Russell's viper, Common krait; amphibians, and fishes.

Tribes

There are about 53 villages in the fringe areas of the sanctuary. These villagers mainly depend on the forests of the sanctuary for procuring timber, fibre, fuel, fodder, and other non-timber forest

produce (NTFPs). The people inhabiting these areas belong largely to the Yerukala and the Lambadi tribes, besides Gonds and Koyas. Yerukalas are chiefly engaged in rearing pigs, besides depending on other small sources of income, like making baskets and brooms. The small huts they reside in are built with bamboo poles and grass roofs. On the other hand, the Lambadi, a non-endemic tribe, are economically better-developed and politically alert compared to the local indigenous ethnic people such as Gonds and Koyas.

Threats

Pocharam Wildlife Sanctuary supports the local communities by providing irrigation for their farmlands and livelihood in many ways. The overexploitation of the

Protected Area's resources (like collection of tendu leaves, NTFPs, etc.), land encroachment around the lake boundary, and use of chemical pollutants in the surrounding fields etc. are few of the many threats that are directly or indirectly impacting the wildlife of the sanctuary through habitat loss, habitat disturbance, and contamination of the major food and water resources. Heavy biotic pressure, indiscriminate tree-felling, uncontrolled grazing, and annual forest fires also contribute to soil erosion, further leading to depletion of soil nutrients. Necessary steps need to be taken by the authorities to restore and maintain the natural habitat of the sanctuary, which may also become an ideal eco-tourism spot.

Threatened Taxa

Plant - *Hybanthus vatsavayae* C.S.Reddy

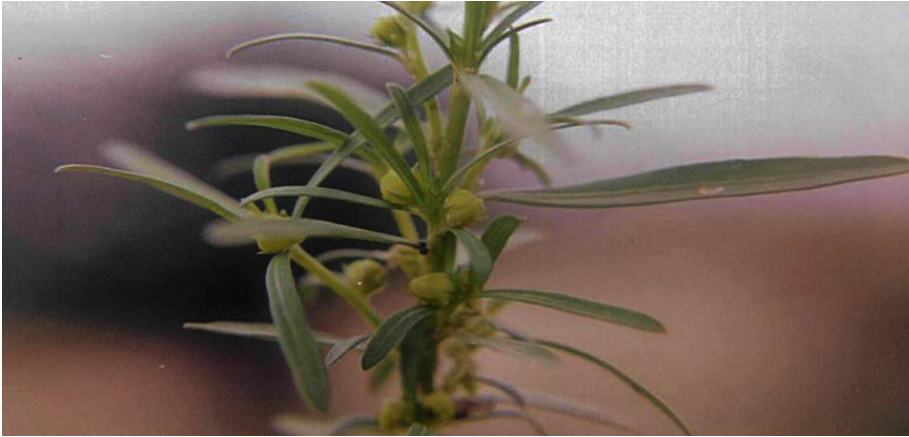


Photo: C. Sudhakar Reddy

Taxonomy Order Malpighiales; Family Violaceae.

Geographic Range Endemic to India; known only from Telangana State.

State Distribution Rare; known from Jayashankar Bhupalapalli, Jangaon, and Yadadri Bhuvanagiri districts.

Population Nothing is known about its population status or trends.

Habitat & Ecology Erect herb found in rock crevices in hills.

Major Threats Threatened due to habitat loss and destruction, and livestock grazing.

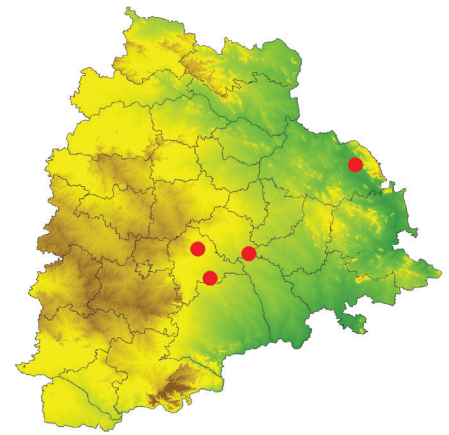
Use & Trade The species is not in the trade.

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

Remarks

This species is found on rocky hillocks. It does not occur in any protected areas. It is threatened by habitat destruction and livestock grazing. The estimated number of localities is 4; the estimated extent of occurrence (EOO) in Telangana State is <5,000 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 Endangered, with the criteria B1a b(iii,iv)+2ab(iii,iv).

Distribution in Telangana State



Animal - *Trimeresurus gramineus* (Shaw, 1802)



Photo: U. Ajith

Taxonomy Class Reptilia; Order Squamata; Family Viperidae.

Geographic Range Endemic to peninsular India.

State Distribution Very rare; known from Mancherla and Nagarkurnool districts.

Population Nothing is known about its population status and trends. Known from two localities in Telangana State.

Habitat & Ecology Nocturnal, arboreal snake. Found in dense forests, hilly forested tracts and dry scrub jungles. It feeds on small rodents, birds, frogs, lizards, and other small snakes.

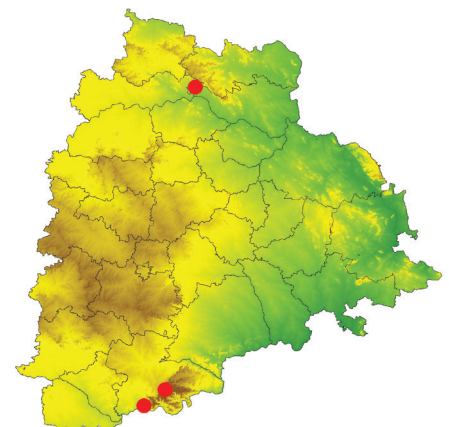
Major Threats Threats to the species are not known.

Conservation Measures No species-specific conservation measures are in place for this species. It is included under Schedule IV of the Wildlife (Protection) Act, 1972. It is known from Amrabad Tiger Reserve and Kawal Tiger Reserve.

Remarks

This taxon is found in dense jungles, hilly forests, dry scrub and dry deciduous forests. It is known from Amrabad TR and Kawal TR. Threats to the species are not known. It is very rare in occurrence. It is known from two localities. The estimated extent of occurrence (EOO) in Telangana State is <5000 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 been assessed as Least Concern. In Telangana State, this species is assessed as Endangered, with the criteria B1b(iii).

Distribution in Telangana State



Pioneers in Conservation

Padma Shri Tulsi Gowda

Better known by the name 'Encyclopedia of the Forest', Tulsi Gowda, the 72-year-old environmentalist and social worker received the prestigious Padma Shri Award in 2020 as a befitting reward to her six decade-long service to nature and conservation of forests. She hails from Honnali village, Uttara Kanara, Karnataka and belongs to the Halakki Vokkaliga tribe. To the people of her tribe, she is 'a tree goddess'. After experiencing many hurdles early in her life, she started working as a day-labourer for the Karnataka Forest Department at a very young age. She was assigned work where she took care of seedbeds. Owing to her cultural heritage, knowledge, and hard work, she had extraordinary results and consequently was given a permanent position from which she retired after 14 years of service. Tulsi Gowda has never received a formal education, yet she has been working tirelessly for the conservation of forests through various plantation drives and reaching out to people to spread awareness regarding the significance of forests.



Photo courtesy: Ramaiah 360 Plus 1

She holds a vast and unparalleled knowledge of diversity of plant species, their growth period, life cycle, nutritional and water requirements, and medicinal properties. She has been effectively helping the Forest Department by contributing in regeneration of the forests, including native plant species by extracting seeds from the mother tree, which she can easily identify. She has planted, nurtured and protected thousands of plants so far. Clad in a traditional attire, walking barefoot, she actively participates in the afforestation programs conducted by the forest department and has left no stone unturned to spread awareness among people about conservation of forests. Besides the Government of India, she has received accolades, awards and citations from environmentalists and organizations.

Environment Education

World Sparrow Day 2021

The Telangana Forest Department and the Orugallu Wildlife Society (OWLS) jointly organized a program to mark the World Sparrow Day at Kasu Brahmananda Reddy National Park, Hyderabad on March 20th, 2021. This programme was attended by Shri Vinay Bhaskar, Govt. Chief Whip; Smt R. Shobha IFS, PCCF; and Shri M.J. Akbar, Chief Conservator of Forest, along with many bird enthusiasts and sparrow lovers. Speaking on this occasion, Shri Vinay Bhaskar opined that due to urbanization and increasing radiation from mobile towers there is a huge decline in the sparrow populations in Telangana. He expressed the view that the small sparrow has a larger role in ecosystem. The OWL Society has initiated the "Gift-A-Nest" programme on this occasion and presented the nests made personally by Shri Shyam Sundar to the dignitaries and also the participants in general with a hope that the nests are going to be adopted by sparrows and their populations will flourish. The programme also involved informal discussions surrounding disappearance of small animal life from urban ecosystems and the importance of creating awareness to curb such loss.

Courtesy: OWLS, Warangal



Nature for Kids

Moths – more than mere drab brown insects!

Moths are insects belonging to the order Lepidoptera, which also consists of butterflies, and are highly diverse - about 10,000 species have been reported from India alone. Most species of moths are nocturnal (active during the night) but they can also be crepuscular (appearing in twilight) and diurnal (active during the day). Most moth species are covered in scales and exhibit colors and patterns that are either dazzling or so cryptic that they are ideal for camouflage. They range from the size of a pinhead to as large as an adult human hand. The Atlas moth is the largest in the world with a wingspan of about 30cm. Most moths eat various types of food, but many adult moths do not feed at all as they have a very short life span. Moths play many crucial roles in the ecosystem - their caterpillars may be infamous for being pests of many plant species but also offer a huge array of ecological benefits. They prove to be very important by playing a pivotal role in the functioning of the ecosystem.

Besides bees and butterflies, moths are one of the largest groups of pollinators. By doing



Photo: Harpreet Kaur

so, they help in seed and crop production. Additionally, because of their abundance, both adult moths and caterpillars are a rich food source for a wide variety of animal groups including spiders, frogs, lizards, birds, and bats, thus acting as a significant part of the food chain. About 95% of nesting birds depend on insects for rearing their young, and caterpillars make up a significant part of that. Some species of 'silk moths' are also economically important, as they are farmed for the silk with which they build their cocoons.

It is interesting to note that the timings of moth life-cycles are also linked to food plants. The spring season, when new leaves are succulent and soft enough to feed on, coincides with the caterpillar stage in several moth species. This in turn is connected to the ecology of breeding birds in spring, as the caterpillars make for protein-rich food. As a means of protection from predators, caterpillars camouflage themselves through their colors and patterns. Some even store chemicals from the plants they feed on to give a bitter taste, and are hence avoided by predators. Some have evolved eye-like markings, unique postures, or spikes to scare off predators.

Moths are very different from butterflies, but only if you look closer!

Our Biodiversity

Snakes of Telangana State

Snakes are carnivorous, ectothermic, and amniote reptiles belonging to the Order Squamata. Along with lizards, crocodiles and turtles they belong to Class Reptilia. Body of snakes is elongated and limbless. They lack eyelids. Their body is covered with overlapping and waterproof scales. They can very efficiently swallow a prey much larger than their heads as they have highly flexible and mobile jaws. There are more than 3,900 different species of snakes reported from throughout the world except Antarctica and some major islands. Some snake species are non-venomous, which kill their prey by constriction or swallow their prey whole, while others are mildly to highly venomous species that use the venom to kill their prey and occasionally for self-defense. Venom of some species is lethal enough to cause human death. They vary extensively in size, ranging from about 10 cm (Thread Snake; in India, worm snakes are the smallest) to about 7 m long (Reticulated Python). More than 300 species of snakes have been reported from India, while in Telangana State 39 species are known. The rare Indian Egg-eater (*Elachistodon westermanni*) is also reported to be present in Telangana.

Lack of limbs in snakes has been

compensated by many other means to detect, capture prey and also to avoid predation. This includes presence of unique modes of locomotion which are highly adapted for foraging in various types of habitats, forked tongue covered with chemoreceptors to detect surroundings, heat sensitive pits near eyes in some species, venom in some species, capability of unhinging lower jaw from upper jaw to swallow prey much larger than their heads, etc. They shed their skin, which is a treasure for herpetologists as it may prove to be a very good non-invasive source of genetic material of snakes. Most species are oviparous, but some (like sea snakes) give birth to young ones. Diet of snakes also varies – small burrowing snakes feed on insect larvae, eggs, and termites, while the larger species feed on fish, frogs, lizards, birds and their eggs, rats, bats, young ones of other mammals, and other small mammals. Some snakes, like the King cobra, also feed on other snakes.

Many snakes worldwide are categorized as 'Threatened' by the IUCN. They face threats to their population due to human-snake conflict, habitat destruction, and decline of prey species. Snakes are natural pest control agents and hold a very significant place in Indian mythology.

Photos: M. Seetharamaraju, Chelmal Srinivasulu, G. Chethan Kumar



Feature - Flora

Arjuna - *Terminalia arjuna*



Classification

Kingdom: Plantae
Division: Magnoliophyta
Class: Magnoliopsida
Order: Myrtales
Family: Combretaceae
Genus: *Terminalia*
Species: *arjuna*
Authority: (Roxb.) Wight & Arn.

Arjuna, *Terminalia arjuna* (Combretaceae), is a medium-sized deciduous tree, 20-30m in height. It is native to the Indian Subcontinent, but has been introduced worldwide. Distributed throughout the Indo-sub-Himalayan areas, it is seen along rivers, streams, and dry water bodies. It prefers humid, fertile loam and red lateritic soil but may grow in all types of soils. It has been reported to tolerate semi-submergence for a few weeks. The tree has a buttressed trunk with grey or pinkish-green thick, smooth bark. The crown is wide with drooping branches. Leaves are simple, alternate to opposite, oblong, hard, and inequilateral with two glands on either side of a short petiole. Flowering occurs from April to July, flowers are small, cup-shaped, polygamous, white or greenish-white, and honey-scented. Fruit is oblong, dark-brown to reddish brown, with 5 to 7 equal, narrow, thick wings. This tree has been given importance due to its association with the Indian mythology and its many uses. In ancient Indian literature, including Ayurveda and Charaka Samhita, *T. arjuna* has been mentioned to be useful for cardiac disease. According to Ayurveda, different parts of the tree hold medicinal uses by acting as alexiteric, styptic, anthelmintic, and is also useful in treating fractures, ulcers, heart diseases, biliousness, asthma, leucoderma, anaemia, excessive perspiration etc. It is called '*Tella Maddi*' in Telugu.

Photo: Bishnu Sarangi

Feature - Fauna

Sloth Bear - *Melursus ursinus*

Classification

Kingdom: Animalia

Phylum: Chordata

Class: Mammalia

Order: Carnivora

Family: Ursidae

Genus: *Melursus*

Species: *ursinus*

Authority: (Shaw, 1791)



The Sloth Bear, *Melursus ursinus* (Ursidae), is endemic to the Indian subcontinent and occurs in India, Nepal, Sri Lanka, and Bhutan, and has been categorised as 'Vulnerable' by the IUCN. Sloth bears typically have a shaggy black coat, with a V- or U-shaped whitish breast patch. Its snout is long and pale; the tongue is extremely large; and it is capable of voluntarily opening and closing its nostrils. Its huge feet have enormous claws. It occupies a wide range of habitats in Indian mainland, including low-altitude wet/dry forested areas, rocky outcrops, scrublands, and grasslands. It thrives primarily on termites, ants, and fruits but also feeds on leaves, honey, and flowers. The species typically breeds in June and July, and females give birth usually to one or two cubs from November to January. To avoid risk of predation, cubs ride on the mother's back for a few months after birth, and remain with their mothers for about 1.5 to 2.5 years; males do not participate in parental care. Sloth bears are mainly nocturnal and sleep in caves during the day. Their sense of smell is well-developed but their sight and hearing are poor. Sloth bears are generally not aggressive, but when threatened they may attack defensively. Sloth bears only risk predation from animals like tigers and leopards, but face threats due to population decline, human-wildlife conflict, habitat loss and poaching for their gall-bladder and fat, which are used in traditional medicine.

Photo: Kevin Bidwell

Events

Bird Walk in Osmania University Campus (#HBP330)



Courtesy: N. Mohini Sastry

Hyderabad Birding Pals (HBP), in collaboration with Centre for Biodiversity and Conservation Studies (CBCS), OU, conducted a bird walk in Osmania University Campus on 14th March, 2021. Around 60 participants from both the organizations commenced the bird walk at 5:45 AM, surveying various tracts of the University campus. A total of 78 bird species were sighted, including Yellow-eyed Babbler, Little Green Bee-eater, Greater Coucal, Oriental Honey Buzzard, Paradise Flycatcher, Ashy Drongo, Rufous Treepie, Red-naped Ibis, River Tern, Blue-faced Malkoha, Black-crowned Night Heron, Lesser Flameback Woodpecker, Eurasian Hoopoe, Indian Peafowl, etc.

News

New Record of *Ipomoea mombassana* from Telangana State

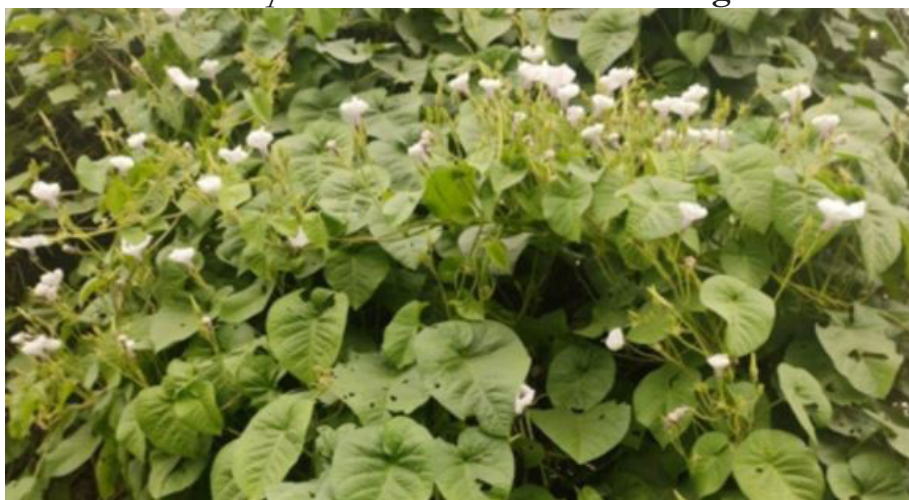


Photo: L. Paramesh & A.V.B. Reddy

Researchers from the Department of Botany, Nizam College, Osmania University, Hyderabad have reported *Ipomoea mombassana* (Convolvulaceae) from Palamakula village of Rangareddy district, Telangana State. This is the first record of this species from the Telangana State, and the second record from India. This species is a native of Kenya and was reported for the first time in India from deciduous forests of Chinnar, Kerala in 1998. Telangana State has about 18 species belonging to genus *Ipomoea*, and this new record adds to the diversity of the species of this genus. *I. mombassana* is an annual herbaceous twine that grows up to 3m long. The flowers are trumpet-shaped and purplish-white. They also have an ornamental value.

Signing Off

Some interesting news on Covid-19

A double mutant variant of the coronavirus has been discovered in India. “Double mutation in key areas of the virus’s spike protein may increase the risks and allow the virus to escape the immune system” says Virologist Dr Shahid Jameel. Mutations in the spike gene of the virus means if the virus mutates in the “right way”, it can reinfect someone who has already recovered from Covid-19. He says unlike some other variants, India’s new double variant is not likely to be more deadly or more inherently transmissible, but more data is needed to be sure. But scientists say reinfections will be very mild compared to primary infections in people who are vaccinated or who recovered already from an earlier case of Covid-19. Presently India’s daily caseload is on the increase, and we can only combat this by maintaining social distancing, wearing a mask, and using a sanitizer.

The global leadership - 25 heads of government and international agencies - have issued a new “international treaty for pandemic preparedness and response” would be to foster a comprehensive, multi-sectoral approach to strengthen national, regional and global capacities and resilience to future pandemics. The international community should work together “towards a new international treaty for pandemic preparedness and response” to build a more robust global health architecture that will protect future generations opined the world leaders.



Photo: Anna Shvets

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

A Centre of Excellence under MHRD-RUSA 2.0 at Osmania University

#F5, First Floor, CFRD Building, Osmania University, Hyderabad- 500007, TS

Visit us at: www.osmania.ac.in/rusa2/cbcs

Email: biodiversityclub@osmania.ac.in