

Telangana Biodiversity

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

Editorial

Hi folks! We at the Centre for Biodiversity and Conservation Studies feel that we all need to rejoice that we have left behind the worst part of the 2020. This year was marked by the deadly pandemic which widely affected humankind after nearly 100 years! Yes, there is more to come, but we all are more aware, more precautions, and more focussed about cleanliness, hygiene, and impact of zoonoses. All of a sudden the idea of Swachh Bharat has changed into Swachh Jagat (clean world), as cleanliness and sanitization has become paramount in our lives and is the most important weapon to combat the pandemic. The whole world is, for once, united toward searching for a solution to fight this pandemic and great efforts have been put for bringing out vaccines to control the virus and spread of Covid-19. There is newfound respect to both the scientific community and the medical personnel who have worked very hard being the frontiers while fighting off this virus. The vaccine is now a reality, however, it also does not mean that we let our guard down. The onus is still on us to be wary and careful and educate others about the importance of something as simple as a piece of cloth covering our nose and mouth for our own and other's wellbeing and survival.

Let's take this knowledge that we have gathered in this year and step in 2021 with confidence that we can fight any catastrophe with proper care and scientific know-how.

Cheers to 2021!



Photo: K. Krishna Prasad

Briefly

Telangana celebrates discovery of new species

The 'Year of the COVID-19' has ushered good news for the biodiversity of the Telangana State. The discovery of three new species of vertebrates from Telangana State brings smiles to people of the State. Researchers of Wildlife Biology and Taxonomy Lab, Department of Zoology, Osmania University discovered a new fish species, Telangana loach *Indoreonectes telanganaensis*, from a hill stream in Kawal Tiger Reserve, Mancheriyal district. It is distinguished by pectoral fins as long as its head, has large eyes, and nasal barbel reaching the middle of the eye. Additionally, researchers from Indian Institute of Science, Bengaluru and their colleagues have discovered two new species of lizards - Mahabubnagar yellow-tailed brookish gecko *Hemidactylus flavicaudus* and Nalgonda yellow-tailed brookish gecko *H. xericolus* from the drier regions of the State. The former species characterized in having bright yellow tail was discovered in Mahabubnagar district and the later species characterized in having bright yellow head was discovered in Nalgonda district. Both these species of geckoes live in rocky outcrops dotting the drier regions of these districts.

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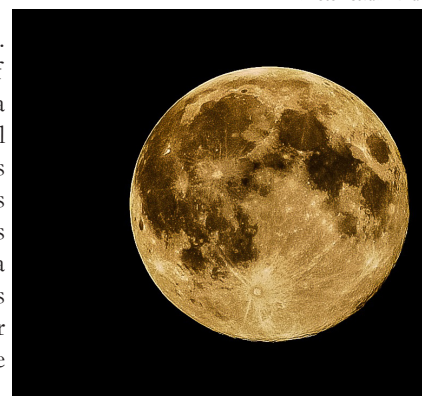
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Photo: István Mihály



Special Feature

Manjeera Wildlife Sanctuary

Manjeera Wildlife Sanctuary (17°57'52" N & 78°02'22" E) is located in the Sangareddy district of Telangana State, India, about 50 km northwest of Hyderabad. It was originally developed as a crocodile sanctuary in 1974 by the erstwhile Andhra Pradesh Government, to protect the vulnerable species, Mugger crocodile, *Crocodylus palustris*. The species had reached the threshold of extinction in the region due to habitat loss and human-wildlife conflict, with only four pairs of mugger crocodile remaining. The Crocodile Breeding Program inducted in the sanctuary facilitated in raising the species' population to hundreds of individuals, after which, it became a popular destination for bird watchers and naturalists. It was later declared a wildlife sanctuary in June 1978. The reservoir

located in the sanctuary is a major water source for the surrounding areas and the twin cities as well. It provides considerable ecological diversity to support a large population of wetland birds and supports both submergent and emergent type of vegetation.

The sanctuary covers an area of 32 sq km between Singoor and Manjeera Dams, following the course of the Manjeera River (an important tributary of the Godavari River) for about 26 km. There are nine small islands within the sanctuary which have extensive marshy fringes, thus they act as efficient nesting sites for aquatic birds, both resident and migratory, and resting place for crocodiles. Additionally, a thick cover of trees provides nesting spots for more than 70 species of birds as well as breeding place for crocodiles.

Manjeera Wildlife Sanctuary has a freshwater ecosystem. The forest tracts are a typical tropical scrub forest type with many plant species like *Acacia* sp., *Prosopis juliflora*, *Pithecellobium dulce*, *Tamarindus indicus*, *Butea monosperma*, and *Azadirachta indica*. The plant species belonging to the genera of *Typha*, *Ipomoea*, and *Acacia* cover the periphery of the waterline, while agricultural fields surround the reservoir and river.

The soil type in the surrounding villages is red loamy and sandy, and the river bed is fertile black soil which are used for growing cotton, rice, jowar, maize, and sugarcane. The region receives an average rainfall of 915 mm. It experiences a tropical climate with temperatures ranging between 15° C in the winter to 42° C in summer.



Photo: Kante Krishna Prasad



Photo: Kante Krishna Prasad

Fauna

Manjeera Wildlife Sanctuary is recognized as an important wetland for migratory birds. Around 73 species of birds visit the sanctuary, including Common teal, Cotton pygmy goose, and Ruddy shelduck. A large number of Demoiselle cranes and Barheaded geese can be found upstream of the Manjeera Lake. Fourteen species of birds, including the Asian openbill, Painted stork, Eurasian coot, and Black-crowned night heron, breed in the sanctuary. Other birds found in the sanctuary include the egrets, cormorants, pochards, ibises and spoonbill, ducks, kites, partridges, quails, and peafowl. The vulnerable species like Lesser adjutant and Indian skimmer have also been spotted at the sanctuary, as have the near-threatened species, the Darter and the Oriental white ibis.

This wetland is home to 57 species of fishes including the Blue perch *Badis badis*; 60 species of butterflies; 10 species of amphibians; 26 species of reptiles; and 18 species of mammals.

The State Forest Department is conducting many activities in the area to make the general public aware of the local biodiversity, the need for biodiversity conservation, and mitigating human-wildlife issues. An Environmental Education Centre with a museum, a library, an auditorium, and a Crocodile Breeding Facility facilitate in educating the visitors about nature conservation and maintenance of ecological balance. There is a provision of arranging for an adventurous boat ride within the sanctuary for bird watching.

Historical Significance

In Kalabgur village along the banks of the Manjeera river, there is an old temple that is believed to be about 800 years old, constructed during the Kakatiya period. The temple, which is entirely made of stones, exhibits magnificent architecture with some standing pillars carved out of a single stone. Shiva along with Krishna, Ganapathy and Saraswati are worshipped in this temple.



Photo: Aditya Srinivasulu

Threatened Taxa

Plant - *Habenaria panigrahiana* S.Misra



Photo: L. Shyamal

Taxonomy Order Asparagales; Family Orchidaceae.

Geographic Range Endemic to India; known only from Andhra Pradesh, Odisha, Tamil Nadu, and Telangana State.

State Distribution Very rare; known only from Farahabad, Nagarkurnool district.

Population Nothing is known about its population status or trends.

Habitat & Ecology Tuberous herb, found in moist and shady areas, in dry and moist deciduous forests.

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

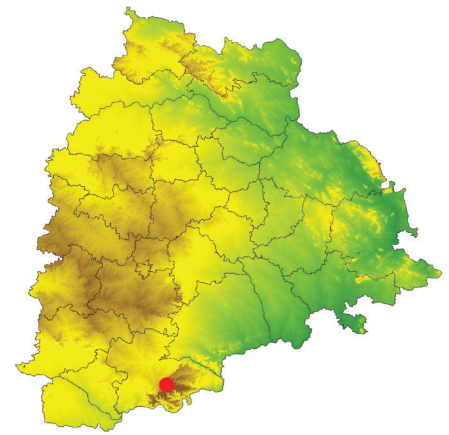
Use & Trade The species is not in the trade.

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

Remarks

This species is found in dry deciduous and moist deciduous forests. It occurs in Amrabad Tiger Reserve. It is threatened by habitat destruction and livestock grazing. 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, it is assessed as Critically Endangered, with the criteria B1ab(iii)+2ab(iii)+D2.

Distribution in Telangana State



Animal - *Cuon alpinus* (Pallas, 1811)



Photo: Vijay Sirdesai

Taxonomy Class Mammalia; Order Carnivora; Family Canidae.

Geographic Range Widely distributed through Central and East Asia, South Asia, South East Asia. In India, it is widely but patchily distributed.

State Distribution Uncommon; found in Mancherial, Nirmal, Komaram Bheem Asifabad, Bhadradi Kothagudem and Nagarkurnool districts.

Population Nothing is known about the population size. Sightings are on decline. Known only from the protected areas.

Habitat & Ecology Clans of 5-40 individuals are seen in a variety of habitats including dry and moist deciduous forest, dry thorn forests. It gives birth to 4-6 pups. It preys on small to large ungulates, large rodents and primates.

Major Threats Depletion of prey base, habitat loss and degradation caused by encroachment, persecution, disease, pathogens, and competition from other predators.

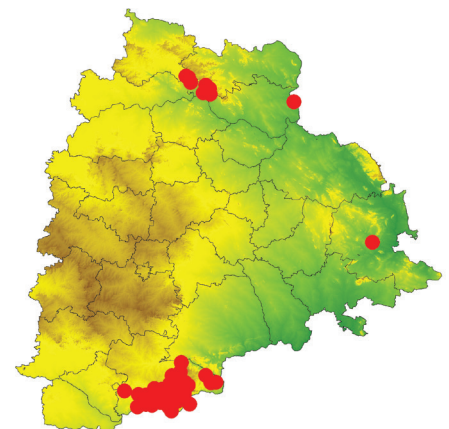
Use & Trade The species is not in the trade.

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

Remarks

This taxon is found in forested areas. It occurs only in protected areas. It is threatened by depletion of prey base, habitat loss and degradation, and competition from co-predators. It is known from 48 localities in five districts; the estimated extent of occurrence (EOO) in Telangana State is <50000 km², and the area of occupancy (AOO) is <5000 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 Endangered. In Telangana State, this species is assessed as Endangered, with the criteria B1ab(iii)+2ab(iii).

Distribution in Telangana State



Pioneers in Conservation

Mittapalli Suresh Gupta

Shri Mittapalli Suresh Gupta belongs to Seshammagudem in Nalgonda district of Telangana State. Formerly a bank employee, he would take up environment education activities alongside his regular employment. Inspired by the knowledge gained by listening to experts on biodiversity and climate change, especially at the International Global Warming Summit held in France in 2015, he took up awareness activities seriously. He has always been aware of the traditional knowledge passed down from generations, about respecting the air we breathe, the water we use, and the Earth that we live upon, and also the effects that we are experiencing due to sheer disrespect to them. Feeling that he was unable to put his full efforts to environmental education that was very close to his heart, he resigned from his job and became a full-time environment activist. He started advocating the ban of the use of plastic in every walk of lives to the people of Nalgonda district. At every



Photo courtesy: M.S. Gupta

event, he would emphasize the importance of planting trees, not using plastic, use of indigenous recyclable materials like plates made with leaves, and cleanliness of the surroundings. He has taken up construction of water pits for retention of groundwater and held plantation drives in many institutions and police stations of the district. He yearns to make Nalgonda district green again which is presently a very dry district by advocating planting trees by every citizen. He uses his own money to procure saplings for the plantation activity that he takes up, and also gifts these plants at any events that he attends. He strongly advocates going back to our roots and adopting eating our traditional foods and traditional practices of growing food for the health of the people and the earth. Shri Mittapalli Suresh Gupta deserves much respect and recognition for his selfless effort toward environment conservation and awareness.

Environment Education

World Wildlife Conservation Day 2020

On 4 December 2020 the Warangal Forest Department and the Orugallu Wildlife Society (OWLS) jointly organized an awareness program on 'Recognising the Social Responsibility for Conserving Wildlife' at the Forest Complex, Hanamkonda, Warangal. Sri M.J. Akbar, Chief Conservator of Forest, was the Chief Guest for the event. Addressing the participants, he applauded the efforts of the Orugallu Wildlife Society for working towards the protection of the wildlife in the area and also emphasised the significance of the responsibility of every citizen towards the same. An online painting competition on the same theme was also organised. Later, the winners of the competition were declared and presented with cash prizes and mementos on behalf of OWLS and the Forest Department. The event was also attended by Shri G. Ramalingam, DFO, Warangal Urban; Shri Pradeep, DFO, Mulugu; staff of the Forest Department along with Shri Nageswara Rao, President; Shri Shyam Sundar, Secretary; and others members of OWLS; and student participants.

Courtesy: OWLS, Warangal



Nature for Kids

Spiders - Important bugs

Spiders are arachnids, a class of arthropods that also includes scorpions, mites, and ticks. There are more than 45,000 known species of spiders in 109 families, found in a variety of habitats all over the world. Most of this diversity is found in the tropics. However, it is believed that many spider species are yet to be described. Several hundred spider taxonomists work around the globe to collect, discover, and describe new spider species. This is a very exciting time to be a spider taxonomist as the new tools have recently been developed that use the information in spider DNA to understand the spider diversity.

Spiders have two main body parts - the frontal part, known as the carapace that carries its head, eyes and four pairs of legs; and the hind part known as the abdomen that carries most internal organs, as well as spinnerets (spider's glands that produce silk). Most spiders have eight eyes, but some have fewer—a few are even eyeless! The hard carapace also covers the spider's muscles, digestive system (like its mouth and stomach), and venom glands.



Photo: Arian Suresh

We have different kinds of spiders, like the jumping spiders, crab spiders, wolf spiders, ogre-faced spiders, bird-eating spiders (which are also known as tarantulas), and many more. Some spiders are very good at camouflage, for example, some spiders mimic ants and it is difficult to tell them apart from ants, and that disguise makes them safe from predators. Spiders could be very small (only a few millimetres long) to as large as a plate. Spiders produce silk using silk glands, that they use to build web to capture food. Spider webs range from very small (a few centimetres) to extremely large (a meter or wider). Most spiders eat insects, a lot of insects! If spiders were eliminated from the planet, their prey, the insects, would take over in huge numbers. They are important biocontrol of insect pests in an ecosystem. They also eat small lizards, snakes, birds and bats. Almost all spiders have venom glands, most spider venoms are harmless to humans, but in some cases, the venom is powerful enough to paralyze, even occasionally kill, a human being. Have you heard of the black widow? That is one such spider. Luckily, spider bites are not that common, and serious injuries or deaths from spider bites are very rare. Spiders are facing a severe threat in the form of habitat destruction and loss.

Our Biodiversity

Fruit bats of Telangana State

Bats are the only mammals capable of true, powered and sustained flight. They belong to the mammalian Order Chiroptera members of which are characterized by the highly modified forelimbs with elongated fingers that support a strong leathery skin in the form of a wing. This structure is highly vascularized and helps the bats to fly and also regulate their body temperature. There are more than 1400 species of bats distributed in majority of habitats of the world. India has 131 species belonging to nine families, out of which 21 species have been reported from Telangana State.

Bats are divided in to two major categories based on their feeding habits - Fruit bats (those that consume fruits, leaves, nectar and pollen), and Insectivorous bats (those that chiefly consume insects, but also feed on other animals). The Fruit bats are also characterized by the presence of large eyes and are known to have keen sense of vision and smell. It is proven that some of the fruit bats can detect ripened fruits from miles away. The largest living bats are the fruit bats known as the Giant golden-crowned flying fox (*Acerodon jubatus*) which occurs in the Philippines. In India the largest bat too is a fruit bat, commonly known as the Indian Flying Fox.

Fruit bats belong to a single-family Pteropodidae and generally are large-bodied, with dog-like face, large eyes, and lack a long tail. They also lack echolocation, a mechanism of navigation and detection employed by most insectivorous bats. They are ecologically very significant as they help in pollination of night-blooming flowers and seed dispersal of many fruiting trees. They help significantly in forest regeneration and dispersion.

Three species of fruit bats, namely - Indian flying fox *Pteropus medius*, Leschenault's rousette *Rousettus leschenaultii*, and Greater short-nosed fruit bat *Cynopterus sphinx*, occur in Telangana State. The Indian flying fox and Greater short-nosed fruit bat roosts on trees, while the Leschenault's rousette roost in dilapidated buildings, forts, and caves and between large boulders in rocky hills. Golconda Fort in Hyderabad has one of the largest colonies of Leschenault's rousette in Telangana. The former two species are distributed throughout the state, while latter is known from few locations. Fruit bats are under unprecedented threat from widespread habitat destruction, accelerated climate change, culling due to myths about them, and other threats.



Photo: Chelmala Srinivasulu, Aditya Srinivasulu

Feature - Flora

Mahua - *Madhuca longifolia*



Classification

Kingdom: Plantae
Division: Magnoliophyta
Class: Magnoliopsida
Order: Ericales
Family: Sapotaceae
Genus: *Madhuca*
Species: *longifolia*
Authority: (J. Konig) J.F. Macbr.

Madhuca longifolia (Sapotaceae) is a medium-sized (16-20m tall) tropical tree found in the mixed deciduous forests of peninsular India, Sri Lanka, Nepal, and Myanmar. It is commonly known as 'Mahua' and called 'Ippa Chettu' in Telugu. A fast-growing tree with a thick, grey, vertically cracked bark on a short, stout trunk; semi-evergreen foliage; medium-sized, alternate leaves (pinkish or reddish-brown when young) exuding a milky sap when broken, cultivated for its oleaginous seeds, flowers, and wood. Leaves are lopped to feed goats and sheep. Most of the leaves fall from February to April, after which, the musky-scented flowers appear. The tree blooms only once at night and at dawn, the flowers fall to the ground. The flowers are edible, delicious, and nutritive; used by the tribals to produce an alcoholic drink (called 'Ippa Sara' locally) through fermentation for local consumption. Mahua flowers produce a nectar that is very valuable to honey bees. Pollinated flowers develop into a large, fleshy, greenish ovoid fruit containing 1-4 shiny, oily brown seeds. Its seed yields between 35% and 47% oil that is used to make soaps, candles, detergents and potential biodiesel. The oil cake resulting from oil extraction is used as a fertilizer. The tree has several uses both medicinal and timber, besides helping as soil improver and food plant to tussar silk moth.

Photo: Bishnu Sarangi

Feature - Fauna

Indian Cobra - *Naja naja*

Classification

Kingdom: Animalia

Phylum: Chordata

Class: Reptilia

Order: Squamata

Family: Elapidae

Genus: *Naja*

Species: *naja*

Authority: (Linnaeus, 1758)



Commonly known as the Indian cobra or the spectacled cobra, *Naja naja*, is a widely distributed species in South Asia and is one of the four common inland venomous snakes in India. It is a moderately sized (about 220cm long), with a stout body. The neck is capable of dilating into a hood, which has a spectacle-like mark conspicuously visible on the back of the neck. The dorsal body surface colour ranges from greyish-brown to jet black while the ventrum can be greyish to pale yellow to black. It possesses medium-sized eyes with round pupils. It can be found in dense or open dry forests, plains, agricultural fields, wetlands, rocky terrain, plantations, and amongst human habitations (both urban and rural). It is relatively absent in the desert. It feeds on rodents, frogs, small birds, bird eggs, and lizards. It is an oviparous species, which lays between 10 to 30 eggs that hatch in about 60 days. Its venom is neurotoxic and cardiotoxic. The Indian cobra is greatly respected and feared in Hindu mythology. Lord Shiva is always depicted with a cobra (called *Vasuki*) around its neck while, Lord Vishnu is portrayed as reclining on the coiled body of a giant snake deity with multiple cobra heads (called *Adishesha*). Cobras are worshipped during the Hindu festival of Nag Panchami. This species is protected and is under threat due to killing, habitat change and collection for illegal trade or use.

Photo: G. Chethan Kumar

Events

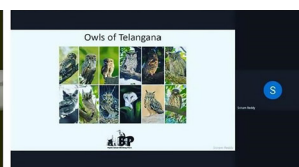
National Wildlife Week - 2020



Snake conservation efforts in Telangana
Mr Avinash Vishwanath, Gen. Sec.,
Friends of Snakes Society



Is biodiversity at the tipping point?
Ms Farida Tampil, State Director,
WWF-India, Hyderabad Office



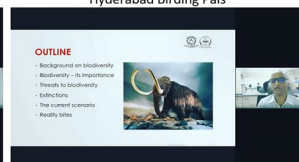
Owls of Telangana
Mr Sriram Reddy, Core Member,
Hyderabad Birding Pals



Conservation of Indian Long-billed Vulture (*Gyps indicus*) at Palarapu cliff
Mr Ravikanth Mancheriyala, Wildlife Biologist,
Telangana State Forest Department



From Bee to Tiger - Why Conservation Matters?
Mr Imran Siddiqui, Co-founder,
Hyderabad Tiger Conservation Society



Reality Bites - where do we stand in terms of biodiversity conservation?
Dr Chelmala Srinivasulu, Director, Centre for
Biodiversity and Conservation Studies, OU

Courtesy: CBCS, OU

Centre for Biodiversity and Conservation Studies, Osmania University conducted a series of online talks by wildlife experts on the occasion of National Wildlife Week (2 October – 8 October 2020). A series of six online talks was conducted which was attended by students, researchers, and wildlife enthusiasts of various colleges and organizations. Very interactive and thought provoking sessions on several topics, like Snake Conservation, Biodiversity, Owls of Telangana, Vulture Conservation and Tigers by subject experts lead to exchange of ideas amongst experts and the participants to address the issue of biodiversity decline due to many unprecedented threats.

News

No uranium mining in Amrabad TR: Telangana Wildlife Board

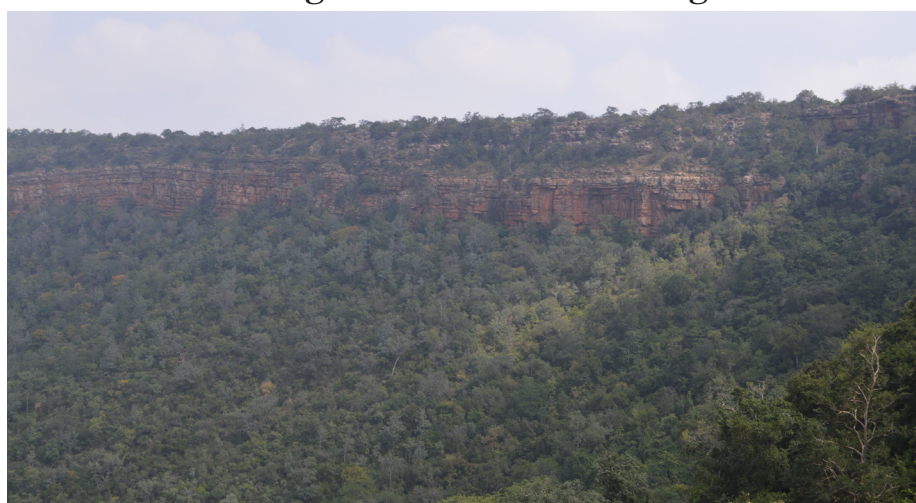


Photo: Bhargavi Srinivasulu

Taking a very positive and bold step to protect the biodiversity of the state, Telangana Wildlife Board rejected the fresh proposal of Atomic Mineral Directorate for research and exploration of Uranium in Amrabad Tiger Reserve. The meeting was held over a web conference in the beginning of October, 2020. The PCCF, Telangana State Forest Department confirmed that after rejecting the proposal for forest clearance, a proposal for wildlife clearance has also been rejected. If allowed, this activity will not only cause habitat destruction in the core area of one of the important protected areas of the Telangana State, but will lead to cutting of many trees alongside roads, littering of trace elements all over the forest, and pollution of catchment area of the Krishna River.

Signing Off

New strain, new threat...

On December 14, 2020, UK Health Secretary, Matt Hancock, revealed that the new COVID-19 variant had been found amongst people in south-east England. A preliminary analysis reveals that the new variant were found from September and has spread exponentially in many parts of Britain. Unlike other strains this new strain, dubbed SARS-CoV-2 VOC-202012/01, had 'quite a few more mutations' containing 23 different changes mostly in 'areas of the virus that are known to be associated with how the virus binds to cells and enter cells'. This mutation enables the new variant not only to spread fast, but has also increased its ability to transmit, thus making it the dominant variant in the recently infected. 'Similar variants' had been found in other European countries in recent months with reports of some cases of the variant in Denmark, Australia, and South Africa. However research by Nextstrain, which has been monitoring development of the virus around the globe, has suggested that the virus in South Africa, while having similar properties to the UK variant, has developed independently. Although the flights from or to UK has been banned, a few travellers who arrived to India from UK before the ban have been tested positive. It is imperative that these carriers be kept under watch to curb the spread of this new strain in India. Social distancing, sanitization, use of masks and washing of hands continue to be the only solution.

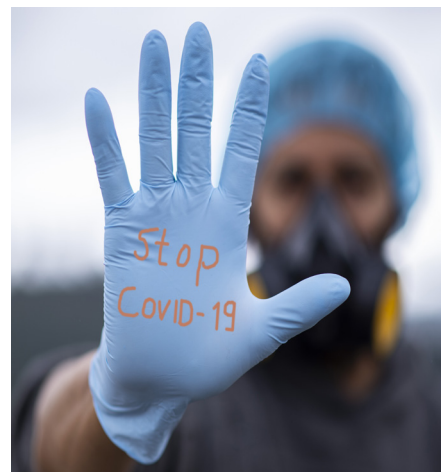


Photo: Fernando Zhimainicela

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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