ex-situ UPDATES

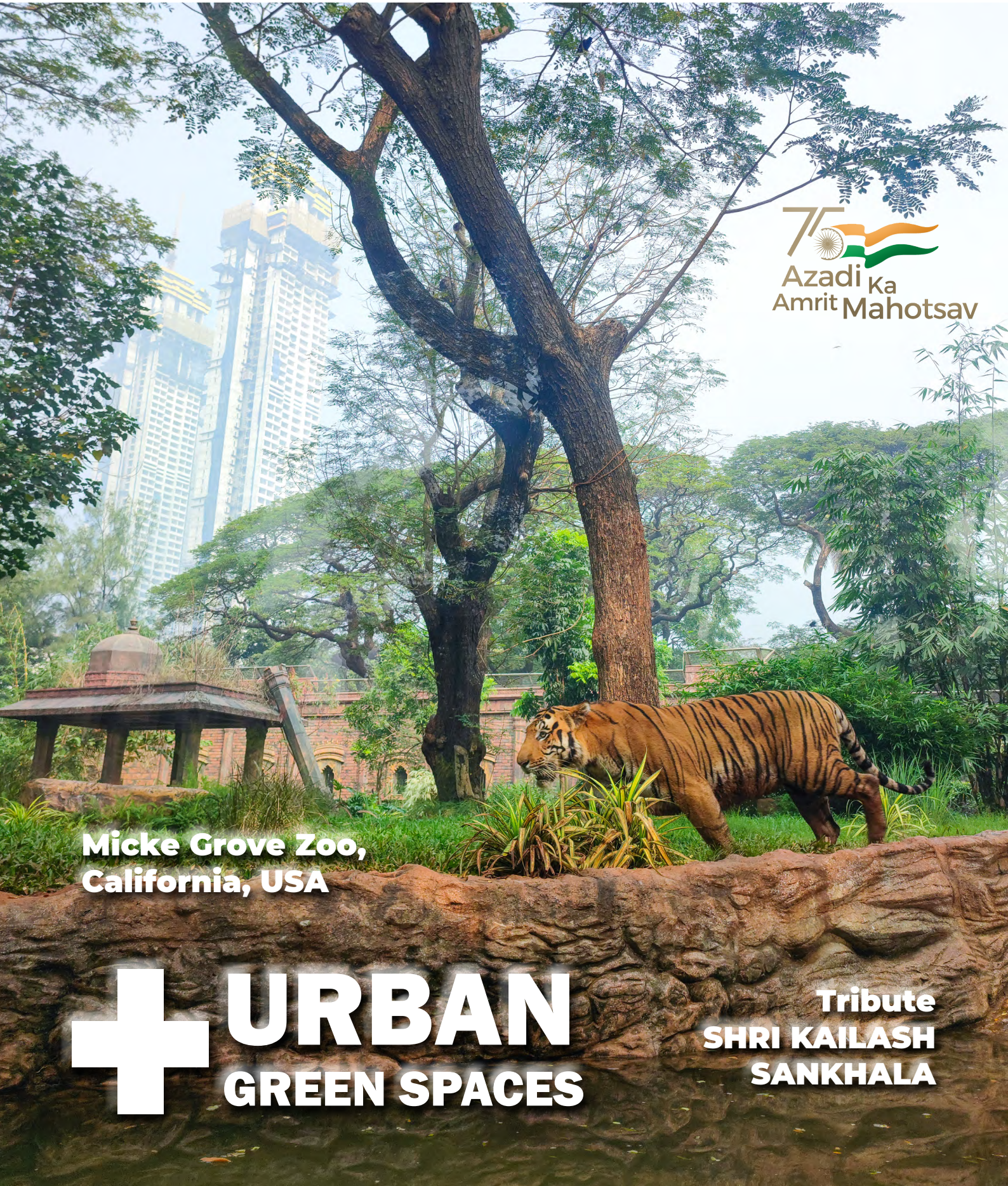
Central Zoo Authority
केन्द्रीय चिड़ियाघर प्राधिकरण

Ministry of Environment, Forest and Climate Change

The quarterly newsletter of
the Central Zoo Authority, New Delhi

Vol 2 | Issue 4

(October - December 2021)



Micke Grove Zoo, California, USA

URBAN GREEN SPACES

Tribute SHRI KAILASH SANKHALA

CONTENTS

Previous Editions

Cover Credit:

Bengal Tiger enclosure with an urban backdrop.

© Abhishek Satam, Veermata Jijabai Bhosale Udyan and Zoo, Mumbai

Dignitaries at the National Conference for Zoo Directors and Veterinarians held at Kevadia, October 10 and 11, 2021

From the desk of the MEMBER SECRETARY

Urban green spaces play a key role in maintaining sustainable development and the liveability of an area. They act as a haven for flora and fauna in an otherwise unnatural urban environment thus attracting people's attention. Urban areas face the pressure from expanding population, limited availability of resources and growing impacts of climate change and emerging disease outbreaks.

There are nearly 150 recognised zoos in the country, of which more than 50% are in the urban areas or its vicinity. In their role as urban green spaces, they improve the quality of urban settings, enhance local resilience and promote sustainable lifestyles, improving both the health and the well-being of urban residents and further work as "Green Lungs".

The policies of the Central Zoo Authority have actively promoted the preservation of existing natural features, vegetation during the development and operation of zoos. There is also a mandatory check on retaining 30% of the zoo area as natural belt or green vegetation. Several large and medium category zoos have sprawling campuses with natural vegetation.

Zoo in metros form an integral part of the green space network and support biodiversity conservation. Ecosystem services provided by the zoos and urban green space not only support the ecological integrity of cities, provide "refuge and corridors" for urban wildlife and also protect the public health of urban populations.

The importance of zoological parks in providing ecosystem services such as carbon sequestration and storage, biodiversity preservation along with recreation, education and research is an important consideration in the urban planning paradigm. Zoos today are geared to work towards promoting a sustainable human existence and aim to create a composite repository of ecosystem based social, cultural and environmental knowledge and experiences.

S P YADAV
Member Secretary
Central Zoo Authority

NEWS & Events

October 10-11, 2021

National Conference for Zoo Directors and Veterinarians, Kevadia.

The National Conference for Zoo Directors and Veterinarians was jointly hosted by the Central Zoo Authority, and the Sardar Patel Zoological Park, Kevadia, Gujarat on October 10 and 11, 2021.

The conference was presided over by Shri Bhupender Yadav, Hon'ble Minister, Environment, Forest & Climate Change, Government of India; Shri Ashwini Kumar Choubey, Hon'ble Minister for State, Environment, Forest & Climate Change, Government of India; Shri Kiritsinh Rana, Hon'ble Minister (Forest and Environment), Government of Gujarat; and Shri Jagdish Vishwakarma (Panchal), Hon'ble Minister for State (Forest and Environment), Government of Gujarat.

Over 100 participants including officials from the Wildlife Division (MoEF&CC), Central Zoo Authority, zoo directors and veterinarians from recognized zoos attended the conference.

The conference provided a platform to discuss challenges in managing zoos in India and strengthen capacity building across various disciplines.

During the conference, zoos showcased their achievements in various disciplines while deliberating on potential avenues for advancing zoo management in India. The suggestions received during the conference are being used to develop an action plan to streamline the functioning of zoos in the country.

Participants and dignitaries at the National Conference for Zoo Directors and Veterinarians, Gujarat, October 10 and 11, 2021

CZA Prani Mitra Awards 2021

The awards are aimed at encouraging zoo professionals in India to continue their selfless service to captive animals and to motivate them to maintain best practices and reach exemplary standards of animal care and welfare.

The winners of the CZA-Prani Mitra Award 2021 were:

Animal Keeper- Smt Lakhi Devi, Bhagwan Birsa Biological Park, Ranchi

Biologist/Educationist- Shri Harpal Singh, M. C. Zoological Park, Chhatbir

Veterinarian- Dr S Ilayaraja, Agra Bear Rescue Facility, Agra

Director/Curator- Dr Vibhu Prakash, Vulture Conservation and Breeding Centre, Pinjore

CZA Prani Mitra Award winners 2021

38th Meeting of the Central Zoo Authority

November 16, 2021

38th Meeting of the Central Zoo Authority

Shri Bhupender Yadav, Hon'ble Minister MoEF&CC, chaired the 38th annual meeting of the Central Zoo Authority, at Indira Prayavaran Bhawan.

November 24-26, 2021

Regional Zookeeper training programme on captive management of animals at Nandankanan Zoological Park, Odisha

The regional workshop for zookeepers was attended by 25 zookeepers from 16 zoos in Jharkhand, Bihar, West Bengal, Odisha and Chhattisgarh. The workshop, through a series of expert sessions and hands-on training, provided the participants with both theoretical and practical know-how on captive animal management. The sessions covered aspects pertaining to the basic biology of species, identification and marking of species, environmental enrichment, best practices for handling animals, and animal record keeping.

Regional zookeeper training workshop at Nanadankan Biological park, Odisha.

December 1-3, 2021

Regional zookeeper training programme on captive management of reptiles at Assam State Zoo, Guwahati.

The workshop focussed exclusively to build the capacity of zookeepers on reptile husbandry and management in zoos. The sessions included an introduction to various species of reptiles, care and management in captivity, environmental enrichment, special considerations for winter management, environmental enrichment and best practices for handling.

Regional zookeeper training workshop at Assam State Zoo, Guwahati, Assam.

Publications

AZADI Ka Amrit Mahotsav

Conservation to co-existence: The People Connect

September 27th - December 31st 2021

Zoos in focus for the Weeks 30 to 42 ©Google Earth

The outreach campaign, Conservation to Co-existence: the people connect was initiated by the Central Zoo Authority as part of the Azadi ka Amrit Mahotsav celebrations of Government of India. The aim is to create awareness about the natural history of 75 conservation priority species and 75 zoos across India. The campaign has completed 42 weeks as of December 2021, with over 1600 hours of outreach activities. Public engagement was taken up by the zoos-in-focus every week with guided tours, rallies, expert talks, awareness drives, and different competitions.

The 'Know your species, Know your zoo' weekly talk organized by the CZA Secretariat till now, has covered 42 species of conservation priority across 6 biogeographic zones. Experts and zoo directors have delivered talks on species biology and the zoos. The previous issue of the newsletter [Volume 2, Issue 3] includes information on the talks held from week 1 to 29. Following a summary of the talks on the species-in- focus and the zoo- in- focus from Week 30 to 42.

Compiled by:

Arundhati Mohanty

Senior Research Fellow, CZA.

Photos: Credit to the rightful owners for pictures used.

Indian Fox (*Vulpes bengalensis*) and Ambardi Safari Park, Amreli, Gujarat

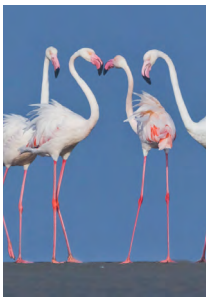
Week 30

Dr. Sumit Dookia,
Assistant Professor,
GGS Indraprastha University, Delhi

Dr. Anshuman Sharma IFS,
DCF, Ambardi Safari Park

The talk provided an overview of species biology and threats to Indian Fox (*Vulpes bengalensis*) and highlighted the infrastructure and facilities of Ambardi Safari Park.

Greater Flamingo (*Phenicopterus roseus*) & Sri Sayajibaug Zoo, Vadodra, Gujarat



Week 31

Dr. Goldin Quadros,
Principal Scientist, Salim Ali Centre for Ornithology and Natural Science

Dr. Pratyush Patankar,
Curator, Sri Sayajibaug Zoo

The talk provided an overview of habitat specificity, distribution, behavioural biology and threats to Greater Flamingo (*Phenicopterus roseus*) and highlighted history, objectives, and future plans of Sri Sayajibaug Zoo.

Lesser Florican (*Sypheotides indicus*) & Indroda Nature Park, Gandhinagar, Gujarat

Week 32

Dr. Sujit Narwade,
Scientist, Bombay Natural History Society

Ms. Vibha Goswami,
Deputy Director, Indroda Nature Park

The talk provided an overview of ecosystem services provided by the species and threats to Lesser Florican (*Sypheotides indicus*) and overview of the zoo and its facilities of Indroda Nature Park.

Indian Peafowl (*Pavo cristatus*) & Mini Zoo, Pipli, Haryana

Week 33

Dr. Dhanashree Paranjpe,
Department of Biodiversity,
Abasaheb Garware College

Mr. Rajiv Garg,
Inspector and Officer-in-charge,
Mini Zoo, Pipli

The talk provided an overview of the close association of the species with human habitation, co-existence and threats to the Indian Peafowl (*Pavo cristatus*) and highlighted infrastructure and facilities of Mini Zoo, Pipli.

House Sparrow (*Passer domesticus*) & Rohtak Zoo, Rohtak, Haryana

Week 34

Dr. Anukul Nath,
Assistant Technical Officer,
WII-UNESCO C2C Centre
Mr. Shiv Singh,
DFO, Officer-in-charge, Rohtak Zoo

The talk provided an overview of species biology and global status of the House Sparrow (*Passer domesticus*) and highlighted infrastructure and facilities and future plans of Rohtak Zoo, Rohtak

Nilgai (*Boselaphus tragocamelus*) & Patiala Zoo, Sular, Punjab

Week 35

Dr. K. Sankar,
Former Director, Salim Ali Centre for Ornithology and Natural History
Mr. Arun Kumar,
DFO, Patiala Zoo

The talk provided an overview of species biology and behaviour of the Nilgai (*Boselaphus tragocamelus*) and highlighted infrastructure and facilities at Patiala Zoo.

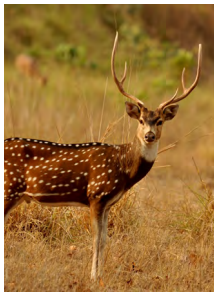
Barn Owl (*Tyto alba*) and Indian Eagle-Owl (*Bubo bengalensis*) and Mahendra Chaudhary Zoological Park, Chhatbir, Punjab

Week 36

Dr. Girish Jathar,
Deputy Director, Srushti Conservation Foundation
Ms. Kalpana K IFS,
Director, Mahendra Chaudhary Zoological Park

The talk provided an overview of species biology and life history of Barn Owl (*Tyto alba*) and Indian Eagle-Owl (*Bubo bengalensis*) and highlighted infrastructure and facilities at Mahendra Chaudhary Zoological Park.

Spotted Deer (*Axis axis*) & Mini Zoo cum Deer Park, Bir Talab, Bhatinda, Punjab



Week 37

Dr. Chittaranjan Dave,
Assistant Professor (Zoology), Government Science College, Gujarat
Mr. Swarn Singh,
DGO (Territorial) & Officer in charge,
Mini Zoo cum Deer Park, Bhatinda

The talk provided an overview of species biology and ecology of Spotted Deer (*Axis axis*) and highlighted infrastructure and facilities at Mini Zoo cum Deer Park, Bhatinda.

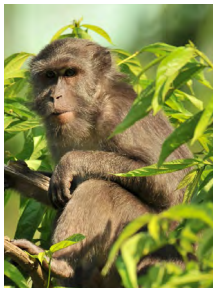
Northern Goshawk (*Accipiter gentilis*) & Ludhiana Zoo, Ludhiana, Punjab

Week 38

Mr. Shashank Dalvi,
Wildlife Biologist, Thackeray Wildlife Foundation
Mr. Neeraj Kumar,
DFO (Wildlife) and Officer-in-charge,
Ludhiana Zoo

The talk provided an overview of species biology and ecology of Northern Goshawk (*Accipiter gentilis*) and highlighted infrastructure and facilities at Ludhiana Zoo.

Nicobar Long-tailed Macaque (*Macaca fascicularis*) and Biological Park, Chidiyatapu, Port Blair, Andaman and Nicobar.

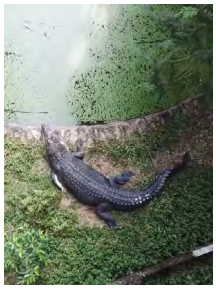


Week 39

Dr. H.N Kumara,
Principal Scientist, Salim Ali Centre for Ornithology and Natural Science
Mr. A.C. Tilak
ACF and Deputy Director,
Biological Park, Chidiyatapu

The talk provided an overview on species biology and & the impact the 2004 tsunami on the population of Nicobar Long-tailed Macaque (*Macaca fascicularis*)

Saltwater Crocodile (*Crocodylus porosus*) and Madras Crocodile Bank Trust/Centre for Herpetology, Mamallapuram, Tamil Nadu



Week 40

Dr. Gopi G.V.,
Scientist-E, Wildlife Institute of India
Mr. Nikhil Whitaker
Curator, Madras Crocodile Bank Trust/Centre for Herpetology

The talk provided an overview of species biology, research gaps and ecology of Saltwater Crocodile (*Crocodylus porosus*) and highlighted history, infrastructure and activities at Madras Crocodile Bank Trust/Centre for Herpetology.

Indian Softshell Turtle (*Nilssonia gangetica*) & Kurumbapatti Zoological Park, Salem, Tamil Nadu

Week 41

Dr. Shailendra Singh,
Director-India Program, Turtle Survival Alliance
Mr. R. Gowtham, IFS
DFO(Salem), and Officer in charge,
Kurumbapatti Zoological Park.

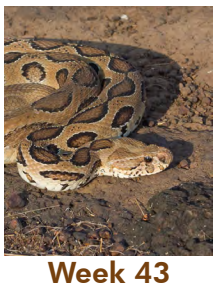
The talk provided an overview of species biology and threats of Indian Softshell Turtle (*Nilssonia gangetica*) and highlighted infrastructure and facilities at Kurumbapatti Zoological Park.

Common Water Monitor (*Varanus salvator*) & Zoological Garden, Alipore, Kolkata

Week 42

Dr. Varad Giri,
Head Scientist, Reliance Foundation
Mr. Asis Kumar Samanta IFS
CCF & Director, Zoological Garden, Alipore

The talk provided an overview of species ecology and the need for further research and scientific studies on the Common Water Monitor (*Varanus salvator*) and highlighted infrastructure and facilities at Zoological Garden, Alipore.



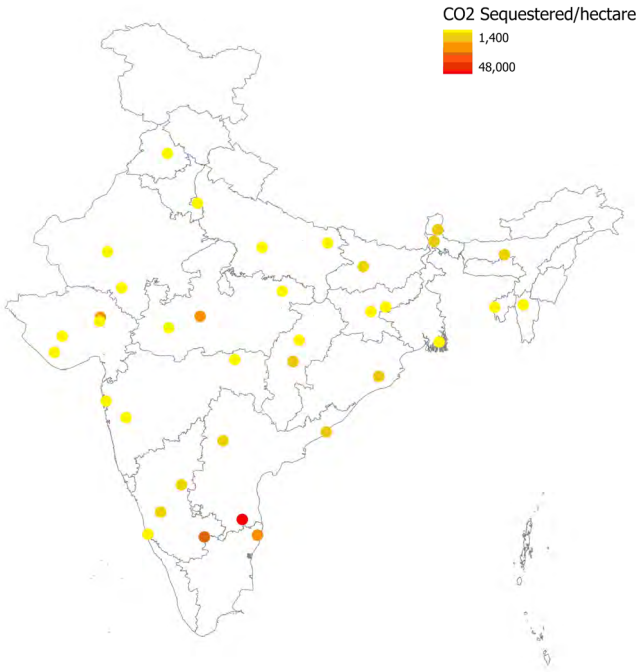
Week 43

Week 44

Week 45

Zoos as URBAN GREEN SPACES

Mr. Lakshminarasimha R,
Scientific Officer, CZA
Ar. Sruthy Boopathy,
Conservation Design Intern, CZA



Carbon sequestration potential of zoos represented in tonnes/hectare

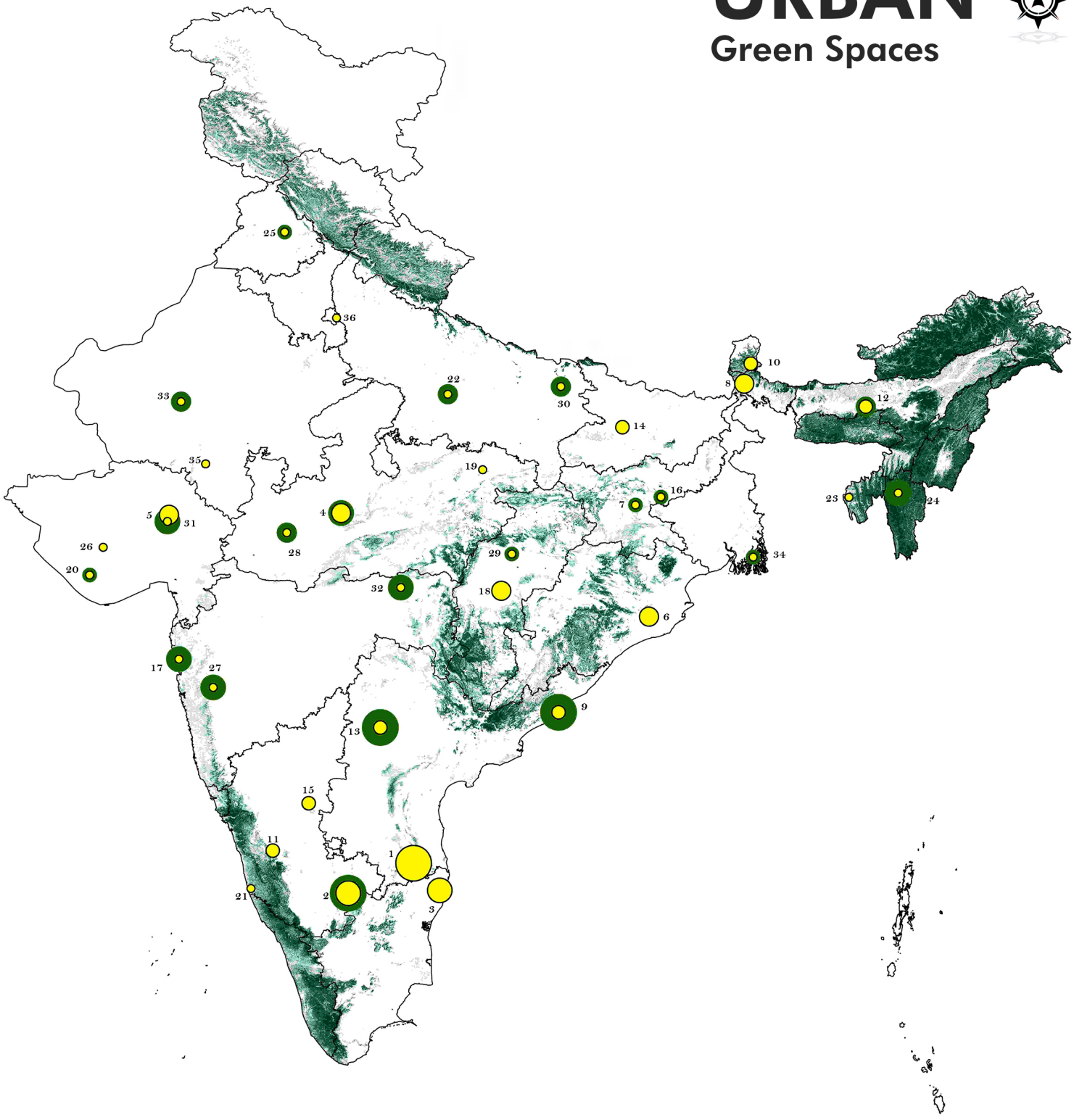
As towns and cities expand to cater the needs of urbanisation, they reduce and modify wildlife habitats and impede their movement. To address this, habitat and species conservation are often integrated into planning and developing urban areas. Recently, there is an increased emphasis on the value of urban green spaces to support species conservation in addition to their role in enriching the wellbeing of residents.

Urban green spaces typically include green patches in human-dominated landscapes (e.g., cities, towns etc) including trees, shrubs, lawns, and pervious soils, where humans are the main drivers of their types, amounts, and distribution. Urban green spaces provide aesthetic enjoyment and create a pleasant environment for various outdoor activities. They offer an experience of nature in the middle of urban life and have immense educational value. Contact with trees, especially for children, promotes learning about nature and natural processes in an otherwise artificial environment. They also act as carbon sinks which is relevant to climate change mitigation.

A majority of zoos across India are located near or in urban areas. These zoo premises are inhabited by native and free-living species (i.e., those that are found within the zoos premises but are not actively kept in the zoo collection). Of the 147 zoos (as of December 2021) recognised by CZA, more than 90 zoos are within Municipal Corporation limits of major cities. The area of these zoos ranges from 0.4 - 1254.71 hectares. As mandated by the Recognition of Zoo Rules, 2009, at least 30% of the zoo area is designated to be maintained as green belt and natural vegetation. Accounting for this, there are 36 zoos in Municipal Corporation limits with a green area of 10 hectares or higher. On an average, zoo area constitutes around 1.27% of the city area (average does not include Sri Venkateshwara Zoological Park which has an exceptionally high (>45%) city area to zoo area ratio). Studies, such as this, indicates that the carbon storage potential of green spaces can be up to 38 tonnes of CO_2 per hectare. Based on this, it can be conservatively estimated that the 36 zoos in municipal corporation cumulatively sequester around 2,70,000 tonnes of CO_2 (range 1360 – 47678 tonnes).

In addition to the active role zoos play in ex situ conservation, the zoo premises provide visitors nature's relief, sequester carbon, and serve as important habitats for flora and fauna in urban areas. By virtue of intensive conservation-oriented management, zoos in India which are situated proximate to cities emphatically emphasise their role as urban green spaces.

Zoos as URBAN Green Spaces



Zoo Name

1 Sri Venkateswara Zoological Park
2 Bannerghatta Biological Park
3 Arignar Anna Zoological Park
4 Van Vihar National Park Zoo
5 Indroda Nature Park
6 Nandankanan Biological Park
7 Nandanvan Jungle Safari
8 North Bengal Wild Animals Park
9 Indira Gandhi Zoological Park
10 Himalayan Zoological Park
11 Tiger & Lion Safari
12 Assam State Zoo Cum Botanical Garden
13 Nehru Zoological Park
14 Sanjay Gandhi Biological Park
15 Atal Bihari Vajpayee Zoological Park
16 Kanan Pandari Zoo
17 Sanjay Gandhi National Park And Zoo
18 Bhagwan Birsa Biological Park
19 Maharaja Martand Singh Jedeo White Tiger Safari and Zoo
20 Sakkarbaug Zoo
21 Pilikula Biological Park
22 Kanpur Zoological Park
23 Sepahijala Zoological Park
24 Aizawl Zoo
25 Ludhiana Zoo
26 Rajkot Municipal Zoo
27 Rajiv Gandhi Zoological Park And Wildlife -Research Center
28 Kamla Nehru Prani Sanghrahalaya Zoo
29 Jawaharlal Nehru Biological Park
30 Shaheed Ashfaq Ullah Khan Prani Udyan
31 Kamla Nehru Zoological Garden
32 Gorewada International Zoo
33 Machia Biological Park
34 Sundarban Wild Animal Park, Jharkali
35 Sajjangarh Biological Park
36 National Zoological Park

City Area (sq.km)

- 19.200000 - 104.860000
- 104.860001 - 205.000000
- 205.000001 - 326.000000
- 326.000001 - 484.610000
- 484.610001 - 741.000000

Zoo Area (sq.km)

- 0.357900 - 1.146230
- 1.146231 - 2.530000
- 2.530001 - 4.452100
- 4.452101 - 7.318800
- 7.318801 - 12.547100

Aerial view of Vadodra city and its surrounding landscape ©Google Earth

URBAN Green Spaces

An Abode of Urban Wildlife

Text: Dr. Pratyush Patankar,
Curator, Sri Sayajibaug Zoo, Vadodara
Photos: Mr Manav Mehta (Education Officer, Sri Sayajibaug Zoo, Vadodara), **Mr Deep Raval** and **Mr Dhaval Devaliya**

Public garden adjoining Sri Sayajibaug Zoo

Sri Sayajibaug Zoo situated in the heart of Vadodara city, is a medium category zoo recognized by CZA. It is governed by the Vadodara Municipal Corporation. The zoo and the adjoining garden is spread over an area of around 100 acres thereby acting as a major green space of the city.

The zoo and the garden were established in 1879 on the bank of river Vishwamitri. This site was chosen by the erstwhile ruler of the then Baroda state HH. Shrimant Maharaja Sayajirao Gaekwad III. The Maharaja engaged renowned horticulturists and zoo curators from Europe who brought the Maharaja's dream into reality.

The zoo, garden and the surrounding natural landscape of the river Vishwamitri has a rich assemblage of flora and fauna.

Sri Sayajibaug Zoo spans an area of around 45 acres of the entire complex. More than 70% of the total zoo area is green space with gardens and natural vegetation. Apart from the animals housed in the zoo, the campus is also inhabited by a large number of free-ranging "urban wildlife". With increasing urbanization and change in the land use patterns in the city has resulted in green spaces amidst cities acting as the sole refuge for urban wildlife. The campus of Sri Sayajibaug Zoo is one such green

space in the city and is an abode to the urban wildlife. The Vishwamitri river that flows through the zoo campus has a growing population of Marsh Crocodile. The city as such sets a unique example of the peaceful coexistence of humans and wildlife, wherein an apex carnivore like Marsh Crocodile is thriving in a densely populous city.

While taking a stroll in the zoo, the visitors are welcomed by the free-ranging Indian Peafowl and Hanuman Langur which are resident faunal species of the zoo campus. A watchful visitor can also catch a glimpse of two species of mongoose viz. the Common Grey Mongoose and the Small Indian Mongoose. Watchful of the mongoose, the activity of Bengal Monitor Lizard and Rat Snake can also be spotted, but rarely. The free-ranging fauna of the zoo accounts for 16 species of mammals, over 50 species of birds, 21 species of reptiles, 5 species of amphibians and numerous species of butterflies, insects and land molluscs.

Visitors with a keen interest in bird watching could easily spot the loud and vocal species like Indian Grey Hornbill, Black-rumped Flameback, Kingfishers, Bee Eaters, Rufous Treepie. Occassionally one could also catch a glimpse of a few canopy species like Warblers, Coppersmith Barbet and Yellow-footed Green-Pigeon. A keen visitor with a sharp eyesight could look for Babblers and Bush-Warblers in the bushes. As the day comes to an end, the diurnal species resort to their shelters and as the zoo creeps under the cover of darkness, the nocturnal species emerge from their homes. During a night patrol one can encounter small mammals like the Small Indian Civet, Palm Civet, Porcupines and Shrews. Not to mention rats are the unwelcomed inhabitants of thezoo. The nocturnal bird species includes Owls, Night-Heron and Red-wattled Lapwing. The zoo has a thriving population of Spotted Owlet and Barn Owl. At some locations, even the Eurasian Scops Owl might be sighted or heard. The nights at the zoo

Indian Peafowl and Great Egret in the Sri Sayajibaug Zoo Campus

are an orchestra of crickets, moths, amphibians and geckos. The fruiting trees in the campus are visited by the Indian Flying Fox and other small fruit bats. The light posts care frequented by insectivorous bats.

During winters, a good number of crocodiles can be seen basking along the river banks from points in the zoo area. Often sighted alongside turtle species viz. the Indian Flapshell Turtle and the Ganges Softshell Turtle which inhabit of the river.

Zoos within the city like Sri Sayajibaug Zoo, Vadodara are important green spaces in the city. As they become the city's green lung and carbon sink, they are identified as the 'Abode' of urban wildlife.

Black Crowned Night-Heron, Red-naped Ibis, Gray Langur, Mugger, Barn Owl, Pied Kingfisher

VEERMATA UDYAN ZOO, MUMBAI

Aerial view of Veermata Udyan Zoo and surrounding landscape ©Google Earth

URBAN Green Spaces

HAVEN for nature enthusiasts

Text:
Dr. Dipika Valsarajan (Veterinary Officer)
Photos:
Mr. Abhishek N. Satam (Biologist)
Veermata Udyan Zoo, Mumbai

Veermata Udyan Zoo, familiarly known as Ranichi Baug or Mumbai Zoo is one of the oldest zoos in the country. The zoo will complete 160 years of establishment in November 2022. The zoo area was earlier controlled by the Agri-Horticultural Society of Western India. This was eventually handed over to the Municipal Corporation of Greater Mumbai by the then State Government in 1873. The Veermata Udyan Zoo, spread across an area of 61.287 acres is recognized as a 'medium category zoo'. The area is also declared as a "Heritage Grade II (B)" site.

The zoo campus is home to around 6611 native and non-native trees from six continents. Few iconic and heritage trees include the Baobab, Whitewood Tree, Taman (Pride of India), Urvashi (Tree of Heaven), Banyan, Krishna's Buttercup and White Teak. Situated amidst the bustling Mumbai city, surrounded by flyovers and skyscrapers, the zoo campus serves as a 'Green Lung' for not only Mumbaikars, but also for the city's wildlife inhabitants.

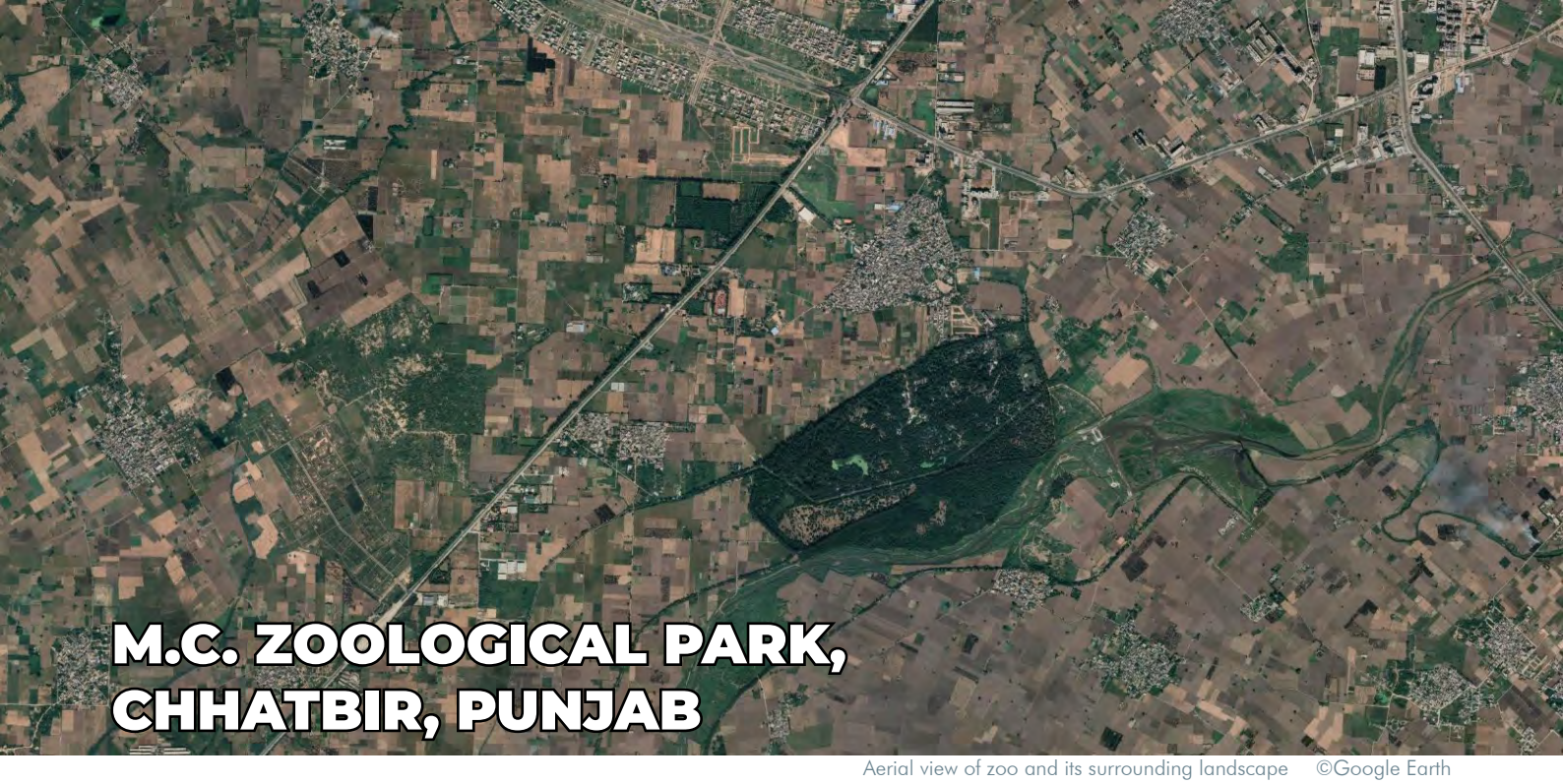
When one visits the zoo, the commonly encountered free-ranging mammals include the Indian Grey Mongoose shyly hiding from the visitors, the frisky Indian Palm Squirrel and the squeaky Indian Flying Foxes roosting on the huge Rain Trees and Buddha's Coconut Trees. The zoo is an important roost and foraging site for bats. The zoo management exercises great care to ensure least disturbance to the roosting sites during regular tree trimming and developmental works at the zoo.

A butterfly garden was inaugurated in 2018, which serves as an open classroom for nature enthusiasts, students and entomologists to observe the lifecycle and activity of the butterflies. Information boards on the lifecycle of butterfly species aid visitors in identifying host plants, food plants, lifecycle stages and species one encounters in the garden. Common Crow, Tawny Coster, Common Sailor, Blue Mormon, Common Mormon are few of the commonly occurring butterflies.

Free ranging species in the Veermata Udyan Zoo campus

The tree cover in the campus provides a constant source of food and shelter attracts several species of free-ranging birds. There are over 60 species of birds occurring in the campus, which includes resident species like Red-whiskered Bulbul, Purple-rumped Sunbird, Oriental Magpie-Robin and migratory species like Indian Pitta, Greenish Warbler, White-spotted Fantail and Green Sandpiper. It is a delight to the visitors to encounter common colourful birds like White-browed Fantails, Indian Golden Oriole, Coppersmith Barbet, White-throated Kingfisher and Parakeets; and the lucky ones could get a glimpse of a Spotted Owlet peeking from a tree hole or an Indian Paradise Flycatcher gracefully flying with its long white tail or the elusive resident Indian Grey Hornbill. The zoo management maintains a checklist of birds by conducting surveys with the help of volunteers.

Apart from birds, mammals and butterflies, this 'Green Lung' of the city is also home to several species of insects and small reptiles. With its sprawling green campus harbouring a range of flora and fauna, Veermata Udyan Zoo is a haven for nature enthusiasts to observe both captive wildlife and free-ranging urban wildlife.



M.C. ZOOLOGICAL PARK, CHHATBIR, PUNJAB

Aerial view of zoo and its surrounding landscape ©Google Earth

URBAN Green Spaces

An Urban Wildlife Refuge

Text: Mr. Harpal Singh,
Education Officer,
M.C. Zoological Park, Chhatbir, Punjab.

Amaltas/ Indian Laburnum (*Cassia fistula*) ©Chhatbir Zoo

M.C.Zoological Park, Chhatbir situated amidst the urban ambience of Chandigarh is a large-category zoo. Operational since 1977, it is situated in the Protected Forest area of Chhatbir, which was once a hunting reserve of Maharaja of Patiala. Spreading over an area of 202 hectares, it is among the largest zoos in India. The zoo was primarily established to display and propagate endangered fauna, create conservation awareness and carry out research on wildlife behaviour and disease management.

There are around 125 species of common and threatened species housed at the zoo. The zoo receives an annual footfall exceeding 8 lakh visitors. Tailored conservation awareness programs for different age groups of visitors are regularly conducted to sensitize the visitors on indigenous and free-ranging wildlife.

The zoo campus is densely wooded and also has two small lakes making it an important wildlife refuge in an otherwise human-dominated landscape. Given its relative proximity to the Himalayan foothills, the zoo area is inhabited by both residents, and also serves as a stop-over site for several migratory bird species. The zoo is also flanked by the Ghaggar river on the southern side.

Given the unique mosaic of habitats created as a result of this, more than 150 species of birds are found here, an unusually high diversity in an urban space. Some common resident species occurring

here include Common Tailorbird, Indian Peafowl, Little Grebe, Little Cormorant, Shikra, Grey Francolin, Yellow-footed Green Pigeon, Greater Coucal, Common Myna, Red-vented Bulbul, Purple Sunbird, Barn Owl among others. Some migratory species wintering in the zoo campus include Pied Avocet, Northern Shoveller, Common Cuckoo, Grey-headed Canary Flycatcher, Red-breasted Flycatchers, Wooly-necked Stork and Common Pochard. The campus also harbors several mammalian species such as Sambar, Indian-crested Porcupine, Asiatic Golden Jackal, Grey Mongoose and Indian Palm Squirrel. Several reptilian and amphibian species are also found such as Indian Python, Rat Snake, Indian Flapshell Turtle, Bengal Monitor, Asian Common Toad among others.

The habitat management of the zoo campus emphasizes on the preservation of natural landscape features. Regular plantation activities are taken up to ensure optimal maintenance of the green cover. The green spaces and plantation areas are protected vegetative hedges to prevent grazing by free-ranging herbivores. Additionally, tree species such as Moringa, Napier, *Ficus sp., Syzygium sp.* are also planted to provide forage to free-ranging ungulate species. Additional habitat management practice also includes creation of artificial water ponds.

For managing (e.g. abandoned animals or those straying into urban areas) free-ranging herbivores, a quick-response team (with Veterinary Officer, Range Officer - Animal Management and Zoo Biologists) has been constituted to aid rescue operations.

M.C.Zoological Park, Chhatbir is an urban zoo and an important green space in the tri-city area. In addition to the active role of ex situ conservation, the zoo, by the virtue of its sprawling campus, acts as a sanctuary to several native species with a range of habitats, food sources and shelter.

Sambar ©Harvinder Chandigarh

Indian Softshell Turtle and White-browed Wagtail
©Tribune photo: Ravi Kumar

Pied Avocet ©Harvinder Chandigarh

Indian Peafowl & Spotted Owlet ©Chhatbir Zoo

TALKING **Heads**

Urban Ecology and Role of Zoos

Dr Harini Nagendra

Director, Research Center, Azim Premji University & leads the University's Center for Climate Change and Sustainability.

Q1. What motivated you to pursue the field of urban ecology?

Since 1994, I have been working on questions of forest ecology. My urban ecology research started only in 2006. It began with a very practical question. Living in Bangalore, I had seen the impacts of tree felling and lake degradation on the city. I looked for research on both of these aspects and could not find the answers I was looking for. That is when I began to work on urban ecological issues.

Q2. How do you think urbanisation influences perceptions of people towards nature?

For many people, urbanisation brings about a disconnect from nature. They gradually begin to distance themselves from ecosystems around them. Children born in urban environments may not know where their food or water comes from, or where their waste goes. But equally, for many who live in the city, nature is also their refuge, the place they go to for spiritual relief, to maintain a connection with friends, and to protect their mental and physical health. For these people, nature in the city is an integral part of urban life, which they are very keen to protect.

Q3. How important are urban green spaces in context of changing landscape use in urbanised areas?

Urban green spaces are the final refuge for many forms of biodiversity, especially for insect, bird and animal life. Even though the tree assemblages and horticultural flora in cities are often dominated by exotic species, many of the insect and bird assemblages are largely native. Apart from certain species like the crow and pigeon, which do well in areas of high human disturbance, most species seek refuge in urban green spaces. While large urban green spaces – like Bannerghatta National Park in Bangalore, for instance – are refuges for biodiversity, research has shown that even pocket green spaces like tiny parks can be very important for urban biodiversity conservation, even for rare species like the urban slender loris – and they can also serve as important conduits for species movements across the city, helping to mitigate against habitat fragmentation.

Q4. There are nearly 100 zoos situated within or in the vicinity of metros. How can zoos situated close to cities contribute to promoting urban biodiversity?

Zoos are generally well wooded, green spaces, with large areas that are left relatively undisturbed, i.e. not as manicured or kept as horticultural habitats in the way that parks are. They are often therefore areas of high biodiversity, even when you consider areas outside the formal enclosed spaces. In addition, zoos, if well maintained with local species and local habitats, and proper signage, can help educate people about the variety of habitats and species found locally, and provide urban nature education as well as foster a connect with nature for young people and adults.

Q5. Nature interpretation in zoos generally tends to focus on forest landscapes and habitats. Urban landscapes and urban wildlife is just as pertinent. How can zoos create awareness towards preserving urban green spaces?

Zoos can think outside the box. For instance, they could create pop-up green habitats – such as a collection of butterfly host plants in pots on a truck bed which could be moved to an apartment or a corporate campus, left for a week to attract butterflies, and then used to teach people about local biodiversity. Or they could work with local schools and colleges to create small bird corners and butterfly nectar plant patches which are more long term. Given the wealth of zoological and botanical knowledge that the staff at zoos possess, as well as their extensive familiarity with how to communicate this knowledge to the public and to children, they can play a major role. Further, zoos can also build on their educational experience to create reading material like books on local ecology and species, games, podcasts and videos, to disseminate knowledge in attractive ways to diverse audiences. Museum exhibits in zoos can also be interactive places where visitors can press a button to hear local bird songs, look at local fossil records, or press a screen to see animations of landscape change in their surroundings over the past centuries.

Q6. What is the best mechanism to monitor and evaluate urban green space interventions in zoo premises including citizen science approaches?

A combination of aerial approaches such as using drone photos, high resolution satellite remote sensing, or visual analysis of Google Earth images - which can show changes in vegetation cover following urban green space interventions by zoos – along with systematic repeated surveys of plant and animal taxa, by trained naturalists along with regular citizen science efforts which zoos can help coordinate, can provide an ideal mechanism for monitoring, educating, and creating best practices – as well as helping to create a next generation of urban naturalists, which is sorely needed.

Q7. As urban areas expand, how can zoos help in the understanding of ecological processes in cities and showcase the importance for conserving biodiversity?

Even when people acknowledge biodiversity in cities, they think of species, and not of species assemblages, habitats or ecosystems. Zoos can play a very important role in this regard, by helping to showcase local habitats and ecosystems. Through well designed working models, for instance, they could demonstrate the importance of grasslands and wetlands in carbon sequestration, groundwater recharge and flood control, and of trees in air pollution and microclimate control. Such approaches can help urban visitors understand and appreciate that ecosystems are composed of multiple working parts, and that maintaining ecosystem integrity and

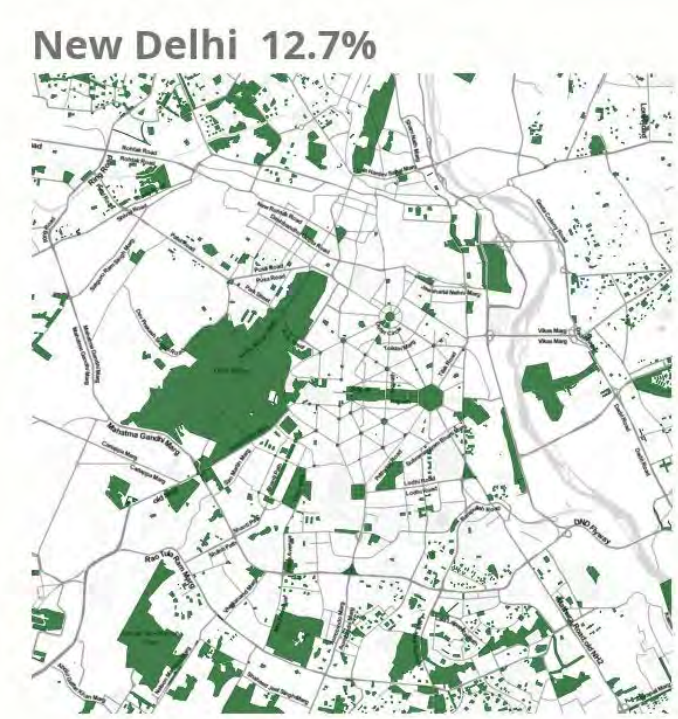
ecosystem processes is critical. Otherwise, visits to forests, urban naturalist and bird watching events can become all about an obsession with checklists, which leaves people without any understanding of ecology and conservation.

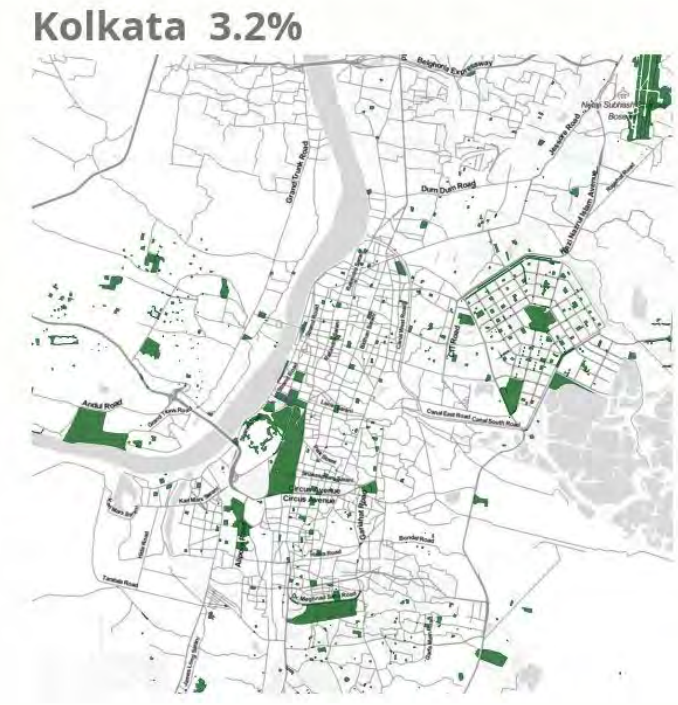
Q8. How can zoos effectively complement the ongoing Nagar Van (urban forest) scheme?

Zoos are spread over large areas. Apart from the enclosures themselves, there is significant opportunity for greening, habitat restoration and afforestation in ecologically appropriate areas that can complement urban forest or Nagar Van schemes. This will also help create outdoor or non-enclosed spaces of native biodiversity which can be great outdoor education areas for people to learn about local ecology, for e.g. via trails with signages about birds, an insect park or a canopy walk.

Q9. Popularity of zoos results from a deep, innate affective bond that humans have with animals—what E.O. Wilson called it "Biophilia." Can this be used to promote the importance of preservation of urban ecology, urban landscapes and urban wildlife?

Absolutely. Psychology research indicates that children who grow up in cities are more likely to have 'nature deficit disorder', a term coined by US author Richard Louw in his famous book Last Child in the Woods, which states that children who grow up in nature-deficient environments, and lack exposure to the slow rhythms of nature, tend to get hooked to electronic devices that provide instant gratification, and are consequently more prone to obesity, depression, attention deficit disorders and an overall dampening of their creativity. If we consider that one third of India's population already lives in cities, and that this proportion will grow to 50% in a couple of decades, a very large fraction of India's children could grow up in cities, in the absence of places of nature, without a chance to discover and experience biophilia. Such children can also be fearful of nature, and of biodiversity. On the positive side, when children (and adults) are exposed to nature, it takes very little to get them interested – biophilia and the innate affinity of humans for nature can take over quickly. Zoos can play a very important role, given their prominence and presence across most major Indian cities, and many smaller towns as well.





Urban Green Spaces in India

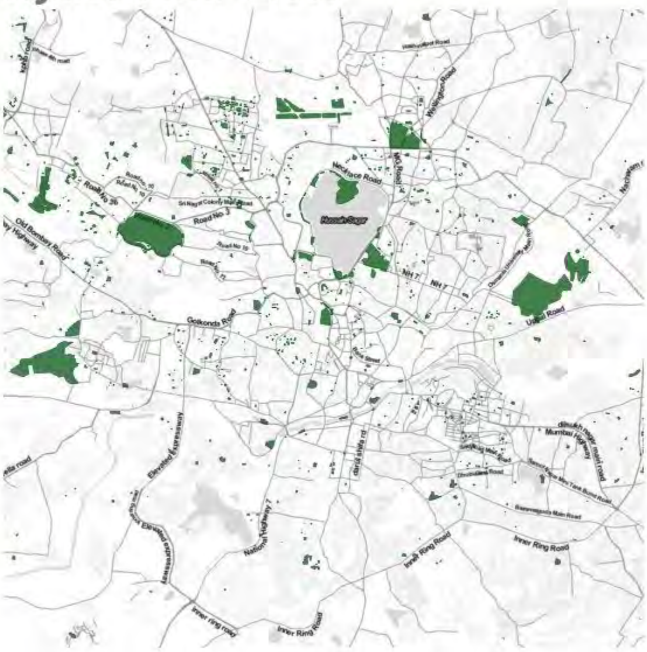
How green are Indian cities? Spaces include parks, forests, recreation grounds, reserves, etc.

by @PratapVardhan
source: OpenStreetMap

Mumbai 9.3%

Bangalore 6.6%

Hyderabad 2.6%



Chennai 2.0%

Basemap from Stamen. Each grid is 20 x 20 KM

Environmental enrichment such as this aerial pathway motivates Golden Lion Tamarins to exhibit climbing and exploratory behavior ©Julie Bovett

ZOO IN **Focus**
INTERNATIONAL

Micke Grove Zoo, California, USA

Avanti Mallapur, PhD
Zoo Curator
Micke Grove Zoo.

Raising Conservation Awareness in Communities and Families

Micke Grove Zoo is a small facility nestled within Micke Grove Park in Lodi, a rural town in located in San Joaquin County, in the orchard/ vineyard rich central valley of Northern California, USA. Both the zoo and the park are well wooded with many rare valley oak trees that have been categorized as Near Threatened (NT) by IUCN's (International Union for the Conservation of Nature) red list of threatened species. Micke Grove Park was gifted to San Joaquin County by a local vineyard owner and his wife, William and Julia Harrison Micke in 1938. Micke Grove Zoo was commissioned in 1957 and is located on 5 acres, close to Pixley Slough which runs through the park. The zoo houses a diversity of species of invertebrates, amphibians, reptiles, birds, and mammals.

Micke Grove Zoo is very popular with local communities and is especially attractive to families with young children. Recently, a small play area was installed in the zoo to provide young visitors a moment to stop and play during their visit.

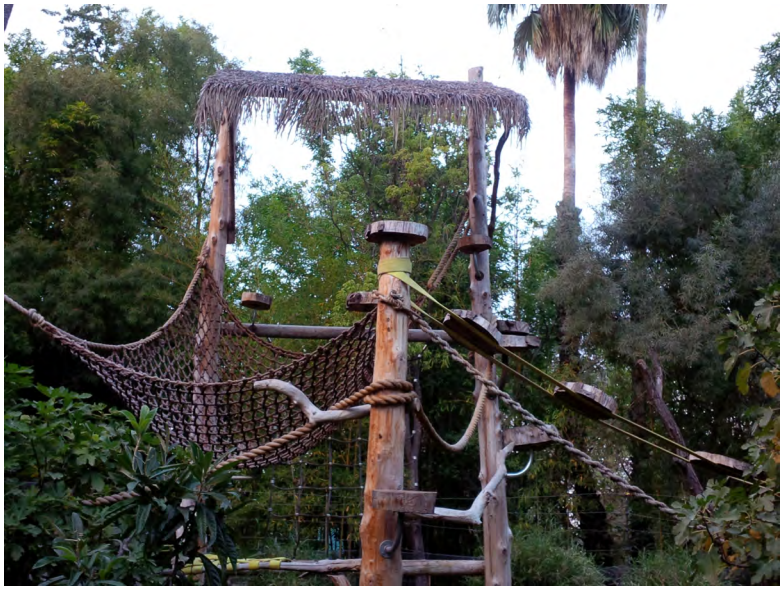
Like other zoos, Micke Grove Zoo is committed to promoting the stewardship of nature through understanding and involvement. The zoo uses modern scientific principles to promote animal health and welfare, while conducting community education

programmes aimed at nature awareness, and the conservation of wildlife and their habitats. Animal exhibits and dens are built to be species-specific providing vertical access to arboreal species through the presence of live trees, elevated sleeping and roosting platforms, elevated lianas, and branches. Environmental enrichment is administered regularly to help motivate animal residents to display natural and species-specific behaviour.

Wildlife Health and Welfare

The health and welfare of all animal residents is of significant importance to the staff of Micke Grove Zoo. Veterinary care for the Micke Grove Zoo's animal collection is provided under contract by the University of California, Davis, Veterinary Medical Teaching Hospital. Zoo animal health and welfare is closely monitored by the animal management staff and information is documented on a daily basis. All data that is documented is then uploaded on to a web-based animal data storage system called the Zoological Information Management System (ZIMS). The medical records for all animals at Micke Grove Zoo are also entered into ZIMS Medical. The program, ZIMS is managed by Species360, a non-profit organization that helps aquariums, zoos, universities, research and governmental institutions network in order to interact and learn from each other.

The veterinary team conduct preventive health care examinations on most animal residents annually to promote and maintain optimum health care. Surgeries are conducted at the Veterinary Medical Teaching Hospital, University of California, Davis, USA. Apart from surgeries, animal residents are provided with exceptional specialized medical care at this Hospital through the use of modern laboratories, well equipped clinics, and surgical rooms. The veterinarians here are well experienced and are leading professionals in the field of wild animal health.



Lemur exhibit: Ring-tailed and Red-ruffed lemurs live in an open-moated exhibit in Micke Grove Zoo that includes elevated hammocks, elevated resting sites, and sleeping platforms with shade.

Golden Mantella exhibit: Golden Mantella frogs are endemic to the tropical rainforest habitat in Madagascar. Their exhibit is closely monitored in order to maintain optimal temperature and humidity for these frogs to thrive. ©Julie Bovett

Sharing Nature with the Local Community

Sharing knowledge about resident wildlife with the local community, especially schools and young adults has been one of the zoo's primary roles and passions. Over the years, education staff have worked closely with local communities and institutions, offering a variety of programs for children and families that highlight the diversity of animal species in zoo settings. Micke Grove Zoo's education department has a unique collection of animals or "animal ambassadors" that are used in these outreach programmers. Animal ambassadors are acquired from other zoos when they are young and then trained by education staff through the use of positive reinforcement techniques for animal handling and participating in educational presentations for human audiences. Since sharing knowledge with the local

community is considered a priority, all animal exhibits have interpretive signs sharing information on distribution ranges, diets, breeding biology, major threats, and conservation impacts.

Micke Grove Zoo also shares zoo information and updates through its website (www.mgzoo.com), social media such as Facebook (https://www.facebook.com/mgzoo), and monthly newsletters. Zoo staff also often walk through the zoo sharing information and stories about animal residents with visitors.

Conserving Wildlife

Over the last two decades, with the support of AZA's (Association of Zoos and Aquariums) SSP (Species Survival Plan) programs, Micke Grove Zoo has been a part of a consortium of zoos in North America that have been working together to conserve threatened wildlife. Species include the western pond turtle (*Actinemys marmorata*), Waldrapp Ibis (*Geronticus eremita*), Marbled Teal, (*Marmaronetta angustirostris*), Golden Lion Tamarin (*Leontopithecus rosalia*), Cotton Top Tamarin (*Saguinus oedipus*), Red-ruffed Lemur (*Varecia rubra*), Black-and-white Ruffed Lemur (*Varecia variegata*), Southern Pudu (*Pudu puda*), and Snow Leopard (*Panthera uncia*). On recommendations from the SSP, young animals from Micke Grove Zoo are sent to other zoos. The facility also supports the breeding programs by volunteering to house specific individuals of threatened species which, are considered as a breeding surplus by SSPs for a specific period of time.

Camouflaging well in their living space, zoo visitors have to closely watch the pond's water surface to search for turtles that often dart out

©Julie Bovett

Some of the breeding programmes that Micke Grove Zoo is involved in are as follows:

Western Pond Turtles

Western Pond Turtles are native to the west coast of North America with a distributional range spreading from British Columbia in Canada, through the western states of the USA, down to Baja California in Mexico. The IUCN's red list of threatened species categorizes them as VULNERABLE or VU. Due to habitat loss from urbanization and predatory pressure from invasive species* such as American bullfrogs and red-eared slider turtles, their wild population numbers have rapidly declined. As a part of the SSP programme for this species, Micke Grove Zoo has successfully bred them and has been placing young turtles at other zoos, aquariums, nature centres, and natural history museums. At Micke Grove Zoo, the western pond turtles are housed in an outdoor pond. They are implanted with transponder chips for identification and their health is closely monitored. Hatchlings are taken indoors to a nursery to protect them from predatory pressure and are fed on a diet that includes supplements and vitamins.

Western Pond Turtles are often seen sitting on tree logs and basking in the sunlight.

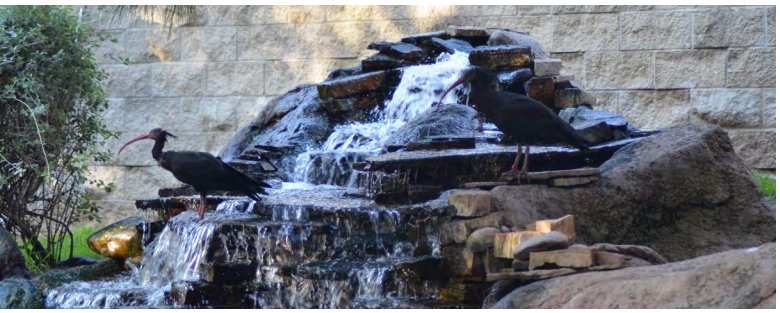
©Julie Bovett

Waldrapp Ibis

Waldrapp Ibis are categorized as Endangered [E] by the IUCN's red list of threatened species. There has been a dramatic decline in wild population numbers over the last 25 years with only 250 birds living in the wild in two sub-populations. The major threats to their survival include loss of habitat due to urbanization and farming, poisoning in areas where pesticides as

used, and hunting. Since they are communal nesters, Micke Grove Zoo houses four pairs in the Gardner Mediterranean Aviary - a large mixed species aviary that also houses Speckled Pigeons (*Columba guinea*), Cape Thick-knees (*Burhinus capensis*), Marbled Teal and European Rollers (*Coracias garrulous*). The Waldrapp Ibis use elevated nest boxes during the breeding season and zoo staff provide them with nesting material that motivates them to build nests. When the males build nests, the females select males with the best courtship display and nests. Females usually lay 4 eggs per clutch during the breeding season. Waldrapp Ibis have bred successfully in Micke Grove Zoo over the last 10 years and young birds have been sent to other zoos following SSP recommendations.

Waldrapp Ibis or the Northern Bald Ibis have shiny black feathers with an iridescent blue-purplish tinge. They have protruding beaks and bald red heads that are quite distinctive ©Julie Bovett



The waterfall in the Gardner Mediterranean Aviary attract these Waldrapps and they are seen drinking water from the waterfall ©Julie Bovett

Golden Lion Tamarin

Golden lion tamarins are categorized as Endangered [E] by the IUCN's red list of threatened species. They are native to tropical rainforests along the Atlantic coast of Brazil near Rio de Janeiro and are found in small fragmented stretches. Their wild population

Golden Lion Tamarins are golden-brown in colour and the intensity of their fur colour is influenced by sunlight ©Julie Bovett

numbers have depleted due to habitat loss, logging, livestock grazing, and by pet trade. Golden lion tamarins are popularly known for the ex-situ conservation efforts in the 1990s that helped increase their population in the wild.

The golden lion tamarins live in a mixed species exhibit sharing their living space with southern pudus. Their exhibit is connected to indoor dens that are heated during the winter months and ventilated during the summer months. Tamarins live in unique social groups that only include one adult female, one adult male, and their offspring. Females normally give birth to twins. In Micke Grove Zoo, golden lion tamarins have bred so successfully, leading to them being housed in two exhibits until SSP recommendations help find homes for all the young animals. Environmental enrichment is administered regularly to these tamarins to motive them to display natural behaviour. Food puzzles are often used to stimulate them to display foraging and exploratory behaviour.

Micke Grove Zoo is committed to promoting the stewardship of nature and the conservation of wildlife species and habitats. It also plays an important role in raising nature awareness and conservation understanding in local communities in the region.

Aerial view of zoo and its surrounding land ©Google Earth

ZOO IN **Focus**

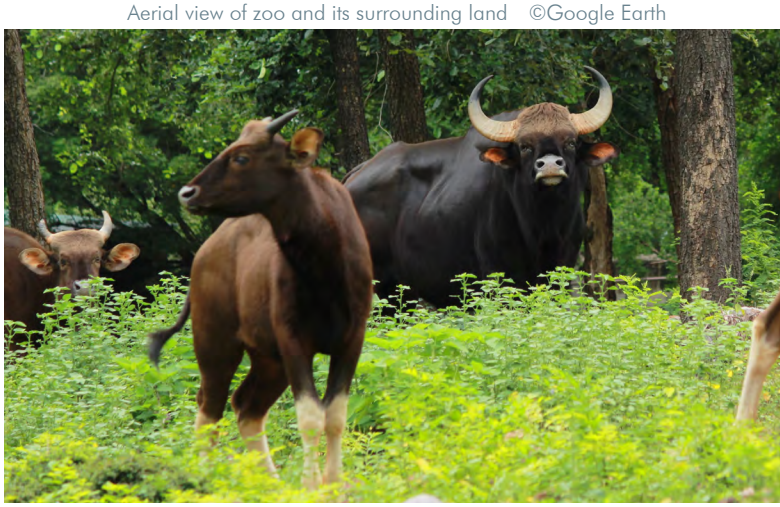
INDIA

Sri Venkateshwara Zoological Park, Tirupati

M. Hima Sailaja,
Dy.CF., Curator, S. V. Zoological Park, Tirupati, Andhra Pradesh.

The Zoological Park, named after the "Lord of seven hills" Sri Venkateswara, is a zoo located in Tirupati. An area of 1254.71 ha in Tirupati Extension Reserve Forest was identified for the formation of the Zoological Park. The foundation stone for the zoo was laid on 29.09.1987 by Late Sri N.T. Rama Rao, the then Hon'ble Chief Minister of Andhra Pradesh, it was opened to the public on 30.04.1993.

Of the total area of 1254.71 ha., 289 ha. has been developed and the remaining area of 965.71 Ha. is proposed for development as drive-through safaris and for the construction of new enclosures and a night safari. A large area of the zoo (382 ha) will continue to have natural vegetation.



Gaur at Sri Venkateshwara Zoological Park, Tirupati

Mission & Vision of the Zoo is to develop amongst visitors empathy for wild animals and support the conservation of wildlife.

Theme of the Zoo:-

Tirupati is a pilgrimage town and on average 60,000 to 70,000 pilgrims visit the temple per day. Considering this, the zoo has adopted a "mythological theme" to spread the message of conservation, highlighting the role and importance of wild animals in our culture. Many animals exhibited are mentioned in epics such as Ramayana, Mahabharata. The gardens & enclosures in the zoo have been named after popular locations & personalities mentioned in Indian mythology eg: the

Asiatic Golden Jackal at Sri Venkateshwara Zoological Park, Tirupati

Elephant enclosure is named Airavata –Van, the Sloth Bear enclosure is called Jambavantha- Van, Maricha-van for the Spotted Deer enclosure.

Key highlights:-

Thematic development:-

Sri Venkateswara Zoological Park is a unique zoo based on a mythological theme. The primary focus of the zoo is to emphasise the importance of man-wildlife co-existence. The theme is also portrayed through information panels at all the enclosures. There are depictions of the incarnations of Lord Vishnu as Matsya, Kurma,Varaha and Narasimha avatars at the zoo entrance.

Animal collection theme:-

Sri Venkateswara Zoological Park mainly houses endemic & endangered faunal species found in Eastern Ghats. The zoo intends to house and highlight species endemic to Seshachalam hill Forests & Nallamalai Forests. Along with the native species, some non-native animals are also displayed to impart conservation education.

Environmental enrichment:-

In the wild, animals exhibit a wide range of species-specific behaviours. This includes foraging (searching for food), courtship and nesting behaviours, comotive behaviours like climbing, running, play, to list a few.

Thus the zoo staff are constantly striving to create naturalistic enclosures for the animals to express their natural behaviours through state-of-the-art enclosure designing and environmental enrichment. Climbing structures have been provided for the primates to emulate the arboreal activity of the primates. Large area has been provided for the elephants for free access with wallowing areas. Showers have been incorporated into the kraal and night shelters to provide relief for the animals in summer months. Resting platforms and food foraging devices have been included in the enclosures for bears and leopards to encourage activity.

Visitor amenities:-

E-cycles and battery operated vehicles are provided for the movement of the visitors across the vast expanse of the zoo. Wheelchairs and potable water is provided as part of visitor amenities. Adequate dustbins and public convenience are available along the visitor path. QR code plaques are placed at every animal enclosure for additional information. The zoo has a help desk and a zoo souvenir shop. Children play area and parking facilities are also provided.

Conservation breeding programme:-

Sri Venkateswara Zoological Park, Tirupati is identified as a coordinating zoo for conservation breeding of Grey Junglefowl. The Central Zoo Authority provides regular technical & financial assistance to the State Government for undertaking this Conservation Breeding Programme. Indigenous to Southern & Central India, the Grey Junglefowl, also known as Sonnerat's Jungle Fowl, is a ground-dwelling pheasant. Grey Junglefowl is sexually dimorphic (male and female and can be visually distinguished), with the male having a brighlty coloured plumage and female with mostly brownish plumage. It is listed in Schedule-II of the Wild Life (Protection) Act 1972. There are natural populations of the species found in the forest surrounding the zoo like the Seshachalam Hill forest and Nallamalai Hills.

The conservation breeding programme of Grey Junglefowl started in the year 2014-15 with an initial population of 33 birds. Genetic diversity of the birds was studied by LaCoNES, Hyderabad. Off-display facility was constructed with funding from the Central Zoo Authority, where 32 enclosures were constructed. Presently, the zoo houses a population of 63 individuals (31 males and 32 females). The reintroduction plan for the species is being developed.

Grey Junglefowl, part of the conservation breeding program

Achievements over the year :

• Successful captive breeding of endangered species in the zoo. Four-horned Antelope (*Tetracerus quadricornis*), 3 fawns were born in the year 2021 and Dhole (*Cuon alpinus*) 9 pups were born in 2020.

• Infosys Foundation, Bangalore as part of Corporate Social Responsibility initiative sponsored a boundary wall (8 km.) costing around Rs.17.00 crores.

• Strengthening of veterinary facility in the zoo by addition of state-of-the-art veterinary equipment, such as ultrasound machine with doppler facility.

• Installed an Intelligent Disinfectant Tunnel at the entrance of the zoo to tackle COVID-19 situation.

• Successful conservation breeding of Grey Junglefowl.

Education & Awareness:-

The Zoo Park is equipped with an education centre called "Bio-Scope" in which photo exhibits of flora & fauna of Seshachalam wildlife exhibits are displayed for educating the visitors. Additionally awareness programmes like rally, group meetings are also conducted within the zoo premises to educate the visitors.

Animal Adoption:-

The zoo encourages public and private sector organisations and individuals to take part in conservation of endangered species by adopting mammals, birds and reptiles of their choice. The period of adoption may be quarterly, half-yearly or for a year. The donation made to the zoo is exempted under 80G of the Income Tax Act,1961.

Bengal Tiger

Kailash Sankhala (Source: www.thebetterindia.com)

Kailash Sankhala (Source: www.thebetterindia.com)

TRIBUTE

Shri Kailash Sankhala

(30 January 1925 – 15 August 1994)

Biologist and Conservationist

Central Zoo Authority
Editorial Team

Kailash Sankhala, better known as the Tiger Man of India wrote "There seems to be something about India's soil that inspires conservation and humbles man". His life has been a testament to these very words.

He was born in Jodhpur. He studied biology despite his father's wish for him to pursue engineering. Being a son of a forester, Sankhala joined the Indian Forest Service in 1953. Besides being a biologist and a dedicated conservation practitioner, he was also an author, photographer and zoo director. In his career as a forest officer, he faced several challenges, and his perspectives, such as, his views on hunting as a sport by the Maharajas, were ahead of its time. Eventually, he went on to shape the modern conservation practice in India.

Shri Kailash Sankhla was appointed as the Director of the National Zoological Park in 1965. During this stint, breeding of Bengal Tigers and development of three waterbodies in the zoo to attract migratory waterfowl, were his significant contributions to wildlife conservation. He was also instrumental in planning the animal enclosures with due consideration to species habitats and their region of origin.

Shri Kailash Sankhala was the first Director of the Project Tiger, a conservation program set up in India in 1973. He played a pivotal role in the creation of tiger reserves in India.

He was awarded the Padma Shri in 1992 and Rajasthan Ratan in 2013. Shri Kailash Sankhala's tiger conservation legacy lives on with the Tiger Trust he established in 1989.

In his memory the Ministry of Environment Forest and Climate Change, Government of India has instated "The Kailash Sankhala Fellowship", awarded every two years. This fellowship aims to inspire the wildlife managers and scientists to engage with research aimed at conservation of the rich wildlife heritage of this country.

ZOO IN History

National Zoological Park, New Delhi

Central Zoo Authority

Editorial Team

Photos: National Zoological Park, New Delhi

At the time of India's independence, there was no zoo in Delhi. The then, Indian Board of Wildlife (now National Board for Wildlife) constituted in 1951 laid emphasis on the establishment of zoos in large cities of the country. The growing population of the national capital and its tourism potential called for the establishment of a modern zoo.

The intent was to provide a nature-immersing and economical recreational area in the capital. It was also envisioned to impart conservation education by showcasing native and threatened Indian wildlife.

An ad-hoc committee comprising of prominent nature lovers in Delhi was constituted. The committee was tasked to formulate a project proposal for the establishment of Zoological Park in Delhi. Mr E.F. Bowring Welsh, Secretary of the Society for Prevention of Cruelty to Animals was appointed as its Secretary. The committee met on September 9, 1953, and selected the site between Purana Qila and Humayun's Tomb for the Park.

The first implementing official was deputed from Forest Service. Shri N.D. Bachkheti, Forest Officer of Uttar Pradesh was appointed as the superintendent on October 1, 1955.

Mr Carl Hagenbeck, of Hamburg Zoo (West Germany) fame, was commissioned to design enclosures and a preliminary report including a layout plan was presented in March 1956. The plan was eventually tailored to suit the local conditions and topography of the site. The Government of India approved this project plan on December 31, 1956.

The establishment initially named 'Delhi Zoo' was formally inaugurated on November 1, 1959, by Mr Punjab Rao Deshmukh, Hon'ble Minister, Government of India. In 1982, it was given the status of the National Zoological Park envisioning it as a model zoo of the country.

Central Zoo Authority

B-1 Wing, 6th Floor, Pt. Deendayal Antyodaya Bhawan, C.G.O. Complex, Lodhi Road, New Delhi – 110003.

(Tel): 011-24367846, 24367851, 24367852

(Email): cza@nic.in,

(Website): http://www.cza.nic.in