

ANNUAL REPORT 2018-19



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Central Zoo Authority
अनुमति प्राप्त प्राणी संरक्षण

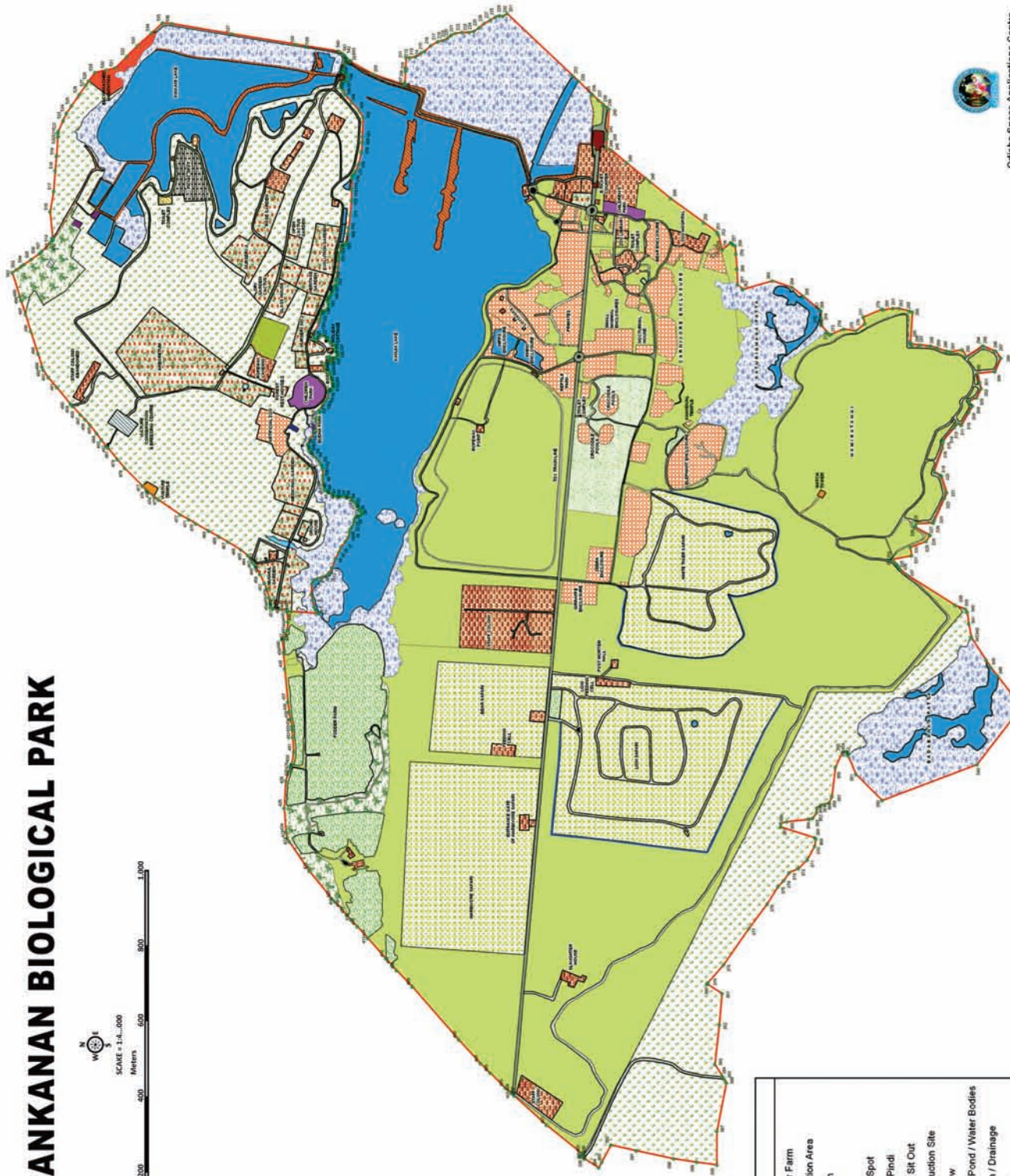
Member of



World Association of Zoos and Aquariums - WAZA

NANDANKANAN

MAP OF NANDANKANAN BIOLOGICAL PARK



LEGEND	
Built Up Area	Folder Farm
Encroached Habitation	Plantation Area
Delapidated House	Garden
Pump House	Park
Water Tank	Picnic Spot
Toilet Complex	Picnic Pindl
Major Road	Tourist Sit Out
Other Road	Construction Site
Round About	Meadow
Toy Train Line	Lake / Pond / Water Bodies
Gate	Stream / Drainage
Enclosure (Animal / Bird)	Bridge
Safari Area	Marshy / Swampy Area
Safari Boundary	Embankment
Zoo Area	Temple
Sanctuary Area	



Odisha Space Applications Centre
Bhubaneswar



ANNUAL REPORT 2018-19



NANDANKANAN BIOLOGICAL PARK
BHUBANESWAR



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FROM DIRECTOR'S DESK



Sri Shashi Paul, IFS
Director, Nandankanan Biological Park

Nandankanan Biological Park enjoys a special place in our country for its inimitable amalgamation of in-situ and ex-situ conservation initiatives. The Zoological Park was established on 29th December 1960 as the first Zoological Park of the State. It has spearheaded many significant improvements to provide highest standards of housing, husbandry and health care to the captive wild animals and contributed towards enriching our knowledge on the biology of endangered species. The sprawling zoo houses 157 species of amphibians, reptiles, birds and mammals. The natural forest areas of Nandankanan is home to a rich assemblage of free-living wild animals including 13 species of mammals, 15 species of reptiles, 179 species of birds, 20 species of amphibians, 96 species of butterflies and 51 species of spiders. Besides, 750 species of plants have been documented in the sanctuary.

The State Botanical Garden which spreads over an area of 75 ha adjoining the Zoological Park was handed over to Nandankanan Management in August, 2006. This is one of the most important plant conservation facilities in the State.

There are two important wetlands present in Nandankanan namely Kanjia lake (66 ha) and Kiakani lake (25 ha). The former is the main water source for Nandankanan Zoological Park and State Botanical Garden. It supports rich diversity of flora and fauna & is a veritable lab for wetland education. Therefore, it has been listed as a Wetlands of National importance by the Ministry of Environment, Forests and Climate Change, Government of India in the year 2006. The Zoological Park together with the Kanjia lake and the Botanical Garden has been declared as Nandankanan Wildlife Sanctuary over an area of 4.37 sq.km on 3rd August, 1979.

We have completed another outstanding year of biodiversity conservation, zoo management, research & education. Nandankanan has been very popular, as always,

among the tourist & local habitants and attracted about 3.3 million visitors during the year 2018-19. Significant improvements were achieved in the infrastructure development, animal collection, care of rescued and infant animals, health care, fodder production and conservation research. Many zoo education and awareness programmes including Celebration of World Wetlands Day, World Pangolin Day, World Wildlife Day, Wildlife Week, World Elephant Day, International Tiger Day, Foundation Day, World Veterinary Day etc. were organized during the year 2018-19. Many species of wild and exotic animals including Indian tiger, Sloth bear, Assamese macaque, Black tufted marmoset, Mouse deer, Four-horned antelope, Barking deer, Hog deer, Blackbuck, Jungle cat, Gaur, Brow antlered deer, Spotted deer, Hippopotamus, Long billed vulture, Violet Turaco, Swainson's lorikeet, Indian peafowl, White peafowl, Jandaya conure, Sun conure, Reeves's pheasant, Silver pheasant, Lady Amherst's pheasant, Grey pelican, Night Heron, Alexandrine parakeet, White Ibis, Emu, Budgerigar and Muggar etc. have bred successfully in the Park during the year.

During the year, many enclosures and visitor amenities were renovated and supplemented with enclosure enrichments, standoff barrier, signage and landscaping where ever necessary. Out of which Vulture Conservation Breeding Centre at State Botanical Garden, addition of back kraals to quarantine, centre for rearing of animal babies & additional kraal of enclosure 18, construction of snake enclosures, workshop, animal keeper sheds, provision of CCTV cameras at different animal enclosures, extension of live feed rearing centre, addition of RO water kiosk at three different places of the zoo, renovation of toilets and sit out spots, are worth mentioning.

During the financial year 2018-19 we have welcomed 21 new animals of 6 species to the Zoo with objective of infusion of new blood line to the existing stock and also addition of new species to the zoo collection. However, we said final adieu to some precious animals of our Zoo, notably the tiger Manish- sire of melanistic tigers, Himalayan black bear Sambhu and the two African lions who were very popular among visitors. These animals are now a part of Nandankanan's history.

There has been a substantial improvement in the field of health care as reflected in reduced annual death rate during the year 2018-19. This was possible due to sincere efforts by our staff in order to maintain highest standards of health care and animal husbandry practices and close cooperation with College of Veterinary Sciences and Animal Husbandry, Odisha University of Agriculture & Technology, Bhubaneswar and also with the valuable advice and guidance of the Health Committee and Technical Committee on important health care issues.

The Zoological Park has always been an outstanding centre for education and research. Twelve publications on different aspects came out during the year in different national and international journals and periodicals on various aspects of ex-situ conservation, health care and management of captive wild animals.

Information on various aspects of management and development of Nandankanan during the year 2018-19 has been provided in the present Annual Report. I would like to thank all my staff and officers for their dedication and hard work for one more successful year in the journey of Nandankanan. I am grateful to all who have helped and contributed in this journey from 1960 till date. I have confidence to believe that Nandankanan will continue to grow as a world class zoo contributing significantly in the field of wildlife conservation, education and research in coming years.



A full-page photograph of a leopard walking through a forest. The leopard is in the center, moving towards the viewer. Its body is covered in a dense pattern of black rosettes on a golden-brown background. The background is a blurred forest floor with green grass and brown leaves. The lighting is natural, suggesting daylight.

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HISTORY OF THE ZOO



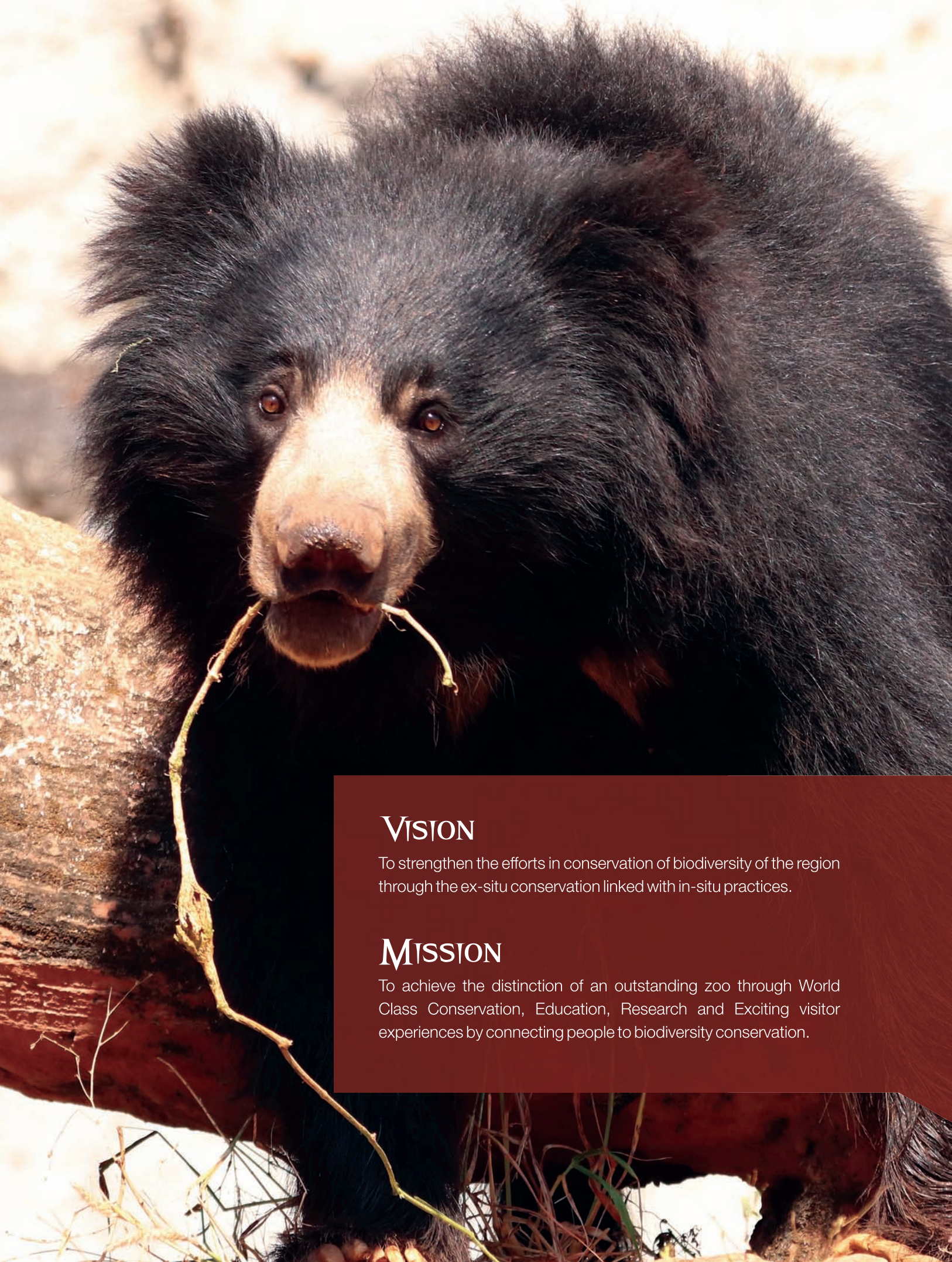
Nandankanan Biological Park has a very interesting beginning. A number of wild animals i.e. two spotted deer, two barking deer, two blackbuck, one mouse deer, one leopard cat, one flying squirrel, one r-tailed drongo, one hornbill, two parrots, two hill mynahs, one peacock, one mongoose, one pangolin, two porcupines, a pair of wild boars and a python were collected from different parts of the state for the World Agricultural Fair organized in New Delhi in Jan-Feb, 1960. After the end of the Agricultural fair, the animals were brought to Orissa in May, 1960 and housed near Khandagiri hills and exhibited to the people. Water scarcity was the main problem in that location and it was difficult to decide where to house these animals. Then it was thought of establishing a Zoo as there was no zoo in the state by that time.

The then Chief Minister, Dr. Hare Krushna Mahatab and the Minister for Development Dr. Radhanath Rath along with senior forest officials tried to locate a suitable site for establishing zoo with a good water source. After search for a suitable area, it was found that a stretch of forest in the then famous Chandaka forest contain a good natural water body called Kanjia lake. This was close to the Barang Railway Station. It was decided to establish the zoo there taking part of Jujhagarh and Krishnanagar Demarcated Protected Forests (DPFs). Pursuant to the decision, construction activities were taken up over a very small area to house these animals.

On 29th December, 1960, Sri S.K. Patil, the then Minister of Food and Agriculture, Govt. of India inaugurated the new Biological Park named “Nandankanan” which means the heavenly Garden of God. Subsequently, in the year 1963 a Botanical Garden came up adjoining to the park on the other side of Kanjia lake. The park along with the adjoining forests has been notified as Nandankanan Wildlife Sanctuary vide erstwhile Forest, Fisheries & Animal Husbandry Department, Government of Orissa Notification No. 8F(WL)-160/78-20672/FFAH dated 3rd August 1979 and published in the Official Gazette vide S R O No.935/79 dated 3rd August 1979. The Nandankanan Biological Park was renamed as Nandankanan Zoological Park during 1980s on the recommendation of the Orissa Legislative Assembly Committee on Estimates, 1981-82. The zoo started growing slowly with addition of new enclosures. The first tiger was brought to the zoo in the year 1964 from the Alipore Zoo in Calcutta along with a pair of African lions, a puma and a pair of muggers during 'All India Congress Committee' session at Bhubaneswar. In 1967, the first open air tiger enclosure was constructed in the zoo and it surprised everybody that the last surviving tigress in Chandaka forest was lured on the 04th January, 1967 into this enclosure, where a male tiger “Pradeep” was already housed. She was named “Kanan” by the zoo officials. Proximity to wilderness has led to another interesting incident in 1964, when a courting wild tusker kidnapped a cow elephant from the zoo. However, the cow elephant returned to its enclosure later.

Nandankanan attained distinction in first ever breeding success of the Gharial in captivity in a naturalistic pool created for the purpose, through a full grown male gharial that was brought from Frankfurt zoo on a breeding loan. This was happened on 7th May, 1980 with 24 hatchlings hatched in the gharial pool. In the same year on the 8th January, 1980 two normal coloured tigers 'Deepak' and 'Ganga' gave birth to 3 white off-springs named 'Debabrata', 'Alaka' & 'Nanda' creating history. With this, Nandankanan created its own family of white tigers and a separate gene pool of tigers. The park forged ahead in its developmental activities under the advice & guidance of Nandankanan Development Board to become a leading zoo in the country with wide variety of animals in near natural environment. On 20th Jan 1984, a Lion safari over 20 ha. was inaugurated inside the zoo premises. Thereafter the first White Tiger safari spread over 12 ha was also established in the year 1991 and subsequently it was converted to Tiger safari in the year 2017. Two more safaris namely Herbivore safari (21 ha) and Bear safari (5 ha) were established in 2011 and 2012 respectively.

The zoo has bred different species of mammals, birds and reptiles. Many of them are endangered as per the Wildlife Protection Act, 1972. Some of them are tigers (normal colored white and melanistic), leopards (black & normal), Asiatic lion, all the 3 Indian crocodiles, Indian tiger, elephant, lion-tailed macaque, nilgiri langur, peafowl, Indian pangolin, manipuri deer, ratel, black kite, water monitor lizard, gaur, himalayan black bear, mouse deer, sloth bear, common palm civet, bonnet macaque and many others. A toy train has been in operation in the Park since 10th August' 1971 donated by the Ministry of railways, Government of India. A ropeway also links zoological park with the botanical garden since 1st October, 1994. An aquarium was dedicated to visitors on 4th February, 2008 by the Honourable Chief Minister, Odisha. Gradually many facilities like electronic entry gate, battery operated vehicles, RO drinking water kiosk, toilet facility, interpretation centre, zoo museum, live feed rearing centre etc. were added or renovated for better management of animals and visitors.



VISION

To strengthen the efforts in conservation of biodiversity of the region through the ex-situ conservation linked with in-situ practices.

MISSION

To achieve the distinction of an outstanding zoo through World Class Conservation, Education, Research and Exciting visitor experiences by connecting people to biodiversity conservation.

OBJECTIVES

Housing of wild animals and birds with special emphasis on research and education on their ecology, behavioural biology, physiology and enrichment in a semi-natural environment.

- Conservation breeding of the endangered species in captivity with least human imprints and to release them in nature to recoup their status in the wild.
- To facilitate research and scientific study on animal behavior, enclosure enrichment, feed, nutrition and reproductive biology.
- To promote education & awareness amongst visitors towards conservation of wildlife.
- To ensure housing of captive animals and birds with special emphasis on health care, animal welfare and excellent animal husbandry.
- To establish a rescue centres for orphaned wild animals in off display areas of the zoo.

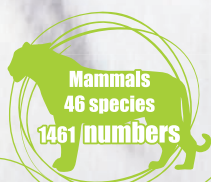
NANDANKANAN ZOOLOGICAL PARK

Nandankanan Zoological Park is one of the premier large zoos located amidst a beautiful natural setting recognized by Central Zoo Authority, Govt. of India. Unlike conventional zoos, it spreads over vast 3.62 sq.km of undulating topography with natural moist deciduous forest, water bodies and enchanting landscape that provides the zoo inhabitants an appropriate ambience to live in harmony with nature. It was dedicated to public on 29th December 1960. More than 3.1 million tourists have visited the Zoological Park during 2018-19. Most of the animals of Nandankanan live in large enclosures with naturalistic surroundings. This gives them a feeling of living close to their natural habitat. The Zoological Park is a part of Nandankanan Wildlife Sanctuary.

SALIENT FEATURES

Nandankanan Zoological Park
No. of animal House

362.1 ha. (3.62 Sq.Km.)
213 nos. (top covered- 119, open top moated- 94)



Zoo holiday

Every Monday except when it falls on Independence Day, Republic Day, Christmas Day, New Years Day, Raja and Dussehra. In these cases of exception the zoo will remain closed on the following Tuesday.

Zoo timing

For visitors 07:30 am to 17:30 pm (April-September)
08:00 am to 17:00 pm (October-March)

Animal feeding time

Carnivores 03:00 pm to 05:00 pm (Except Monday)
Reptiles 11:00 am to 01:00 pm
Birds 11:00 am to 01:00 pm/03:00 pm to 05:00 pm
Herbivores 11:00 am to 01:00 pm/03:00 pm to 05:00 pm

SPECIAL ATTRACTIONS

The sylvan setup of the Park provides many special features which attract the visitors in large numbers.



BOATING

Boating on paddle or row boats in the blue water of Kanjia lake is an exhilarating experience. The multi-storey Boat Ghat is renovated to give new looks providing enough space for the visitors to relax and enjoy the picturesque fresh water spreading over an area of 66.1 ha. lake.



TIGER SAFARI

A unique tiger safari established on 1st October, 1991 over an area of 12 ha in natural surroundings. It provides exposes you to unique situation where the visitors are confined in a vehicle and the animals roam in the open jungle. Nandankanan is the first zoo in India with melanestic tigers in the safari.



LION SAFARI

A twenty-minute drive through the meandering roads crisscrossing the natural forest in a specially protected vehicle takes the visitors straight into pride of lions in the lion safari over an area of 20 ha established in the year 1984.

HERBIVORE SAFARI

Herbivore safari was established in the year 2011-12 extending over an area of 21 ha. with a road network of 2 Km. length. The safari houses Barking Deer, Spotted Deer, Sambars, Four-horned antelope, jungle fowls, peafowls etc.





BEAR SAFARI

A Bear safari covering an area over 4.1 ha. has been established in the zoo during the year 2012-13. Visitors can avail opportunity to sight sloth bears in their natural habitat through safari bus service.



NOCTURNAL ANIMAL HOUSE

Many animals that only move freely at night but are almost immobile and hide in the thicket or in their burrows during the day are housed here. The twilight condition is created in these enclosures to provide an opportunity to the visitors to know what these animals secretly do in the darkness of the night. It is one of the best nocturnal house in the country.

REPTILE PARK

A reptile park, with a life size Tyrannosaurus at its entrance with an interpretation centre houses 26 species of reptiles including crocodiles, lizards, turtles and snakes. One would encounter crocodiles, king cobras, iguanas and reticulated python inside the reptile park.



REPTILE INTERPRETATION CENTRE

An Interpretation Centre depicting the evolution and biology of reptiles has been established in 2012 at the entrance of Reptile Park displaying models of prehistoric animals.



TOY TRAIN

The toy train has been a great attraction for the children. It starts from the toy train station which goes round a circular track of 1.58 Km. along the lake and thickly vegetated hillock area with free ranging herbivores. The entire facility is now under renovation. It is expected to operate shortly.



AQUARIUM

Aquarium is an integral component of a modern zoo. Adequate steps were taken to include well researched education materials on the various aquatic ecosystems both marine and fresh water indicating their uniqueness and conservation needs. The aquarium was dedicated to the visitors on 4th February, 2008 by the Honourable Chief Minister, Odisha.

LIBRARY

If one has got time and an aptitude for learning then the centrally located library, with a wonderful collection of more than 3000 books and journals on wildlife, veterinary and other matters can serve one's satisfaction.



INTERPRETATION CENTRE

The Interpretation Centre has been established near the entrance gate. The Centre has display boards, models and audiovisual aids depicting the importance of Zoological Park and other important wildlife areas of Odisha. It also displays the activities behind the scenes for creating awareness amongst the visitors. A film on Nandankanan is also screened in the mini-auditorium inside the Centre.



ZOO MUSEUM

The zoo museum established in Nandankanan to preserve, display and interpret the animal specimens of zoological importance for public viewing and nature education. The museum displays taxidermy specimens, formalin preserved specimens of early developmental stages of animals and eggs of flightless birds. This facility will be of great interest to the visitors in general and school children in particular.

BATTERY OPERATED VEHICLE

To facilitate elderly and physically challenged visitors in particular and tourists in general, Battery Operated Vehicles (BOVs) are available for tourists for an hourly trip around the zoo on payment of Rs.50/- per head and Rs 750/- and Rs 500/- per trip of large and small BOVs respectively.



ELECTRONIC GATE ENTRANCE SYSTEM

An automated electronic entry gate system has been installed in the Zoological Park on 30th March, 2012. Each visitor is issued with a bar-coded ticket for entering through any of the six electronic gates into the park. This gives an exact figure of adult, children and foreigner visitor entry statistics at any point of time. This facility is the first of its kind for entry into any tourist place in Odisha. On-line ticket booking system is also facilitated for the visitors. LED display screen installed for information to the visitors.



AMPHIBIAN ENCLOSURE

An amphibian enclosure has been established with viewers gallery over a plinth area of 56 m². Necessary behavioural enrichments like flowing water, saw dust, live plants, water pool etc. have been provided within the enclosure. The enclosure is designed to house and display amphibian species. Nandankanan is the first premier large zoo to exhibit amphibians. At present there are 21 numbers of amphibians belonging to six species.



WALKTHROUGH AVIARY

The walkthrough aviary for exotic birds is a unique exhibit of its kind in the country. The walkthrough aviary has a cascading waterfall and a meandering water channel of 58 m length connecting two pools having two arched cross over bridge along the 216 m laterite stone paved walking path with separate entry and exit points. In addition to the existing large and small trees, hundreds of selective plants have been planted to provide perches and hiding places for the birds housed. There are enough feeding points and nest boxes for use of the birds selectively. The inmates of the aviary are mixture of arboreal, terrestrial and aquatic birds. It is a visitor's delight to view the free flying birds over head.



OPEN TOP LEOPARD ENCLOSURE

The new open top Leopard enclosure in Nandankanan is one among the very few in the country which attempts to exhibit this species in a large naturalistic enclosure which is open to the sky. This enclosure has been designed aesthetically to maximise visitor satisfaction without compromising the safety and security of the animal as well as visitors. The enclosure which has an exhibit area with a deep dry moat, also has four feeding chambers and two back kraals. The entire enclosure has existing natural vegetation including two large Ficus bengalensis trees together with other trees and bushes. In addition, environmental enrichment by way of machan platforms, stone cave, wooden logs, water trough etc. has been provided to encourage them to indulge in natural activities.

OTHER SERVICES

- Interactive education & Zoo outreach programme
- Conducted tour for school children.
- Availability of trained guides.





VISITORS' AMENITIES

- RO water kiosks
- Toilets at convenient locations
- Special toilets, wheelchairs & ramps for differently abled persons
- Rest areas / sit-outs / visitors' shed at various locations.
- Tourist cottages
- Restaurant & Snacks bar (run by OTDC)
- Cloak room near the entrance gate
- Perambulator for children
- First-aid (at zoo hospital, observatory room & administrative office)
- Library
- Baby Care House
- Emission free battery operated vehicles
- Guide maps
- Nature shop
- Children Park
- Souvenir shop
- Polythene exchange counter

ENTRY FEES AND OTHER CHARGES

NANDANKANAN ZOOLOGICAL PARK

ENTRY FEE:

Indians (Above 12 years)	:	Rs. 50/-
Children age group of 3-12	:	Rs. 10/-
Foreign visitor	:	Rs. 100/-
Tourist cottage	:	Rs. 200 & 300/-
Handy cam camera	:	Rs.1 00/-
High end video Camera (amateur photographer)	:	Rs. 500/-
Movie camera (professional photographers)	:	Rs. 4,000/-

SAFARI

Lion safari	:	Rs. 15/-
Tiger safari	:	Rs. 15/-
Herbivore safari	:	Rs.15/-
Bear safari	:	Rs. 15/-
Toy Train	:	Under construction
Boating (for 30 minutes)		
Paddle Boat (2 seater)	:	Rs. 50/-
(4 seater)	:	Rs. 100/-
Family boat	:	Rs. 150/-
Battery Operated Vehicle	:	Rs. 80/- per person

FREE FACILITIES

Aquarium
Cloak room
Entry of differently abled persons
Entry of children below 3 years
Digital still camera
Perambulator for children
Walk through aviary
RO water and use of toilets
Wheel chair for differently abled persons

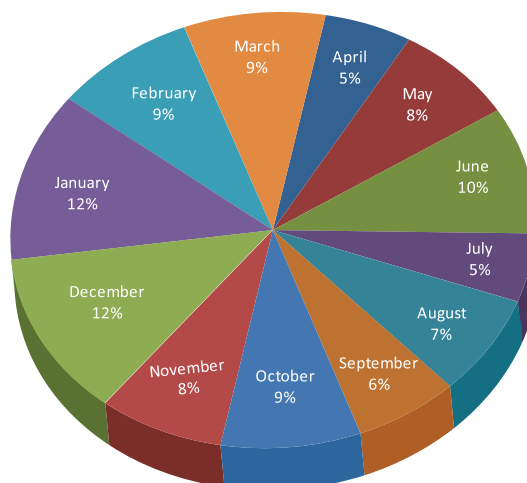


Month wise number of visitors during 2018-19

Month	No. of visitors	Month	No. of visitors
April	1,73,580	October	2,75,221
May	2,44,200	November	2,49,230
June	3,02,789	December	3,95,108
July	1,62,189	January	3,97,717
August	2,34,508	February	2,77,488
September	2,02,942	March	2,78,334
Free entry of school children during Wildlife Week & Childrens' Day			
			632
Free entry of differently abled persons			
			42
TOTAL		31,94,380	



Month wise % of number of visitors during 2018-19



HUMAN RESOURCES

(A) Director's Office in Mayur Bhawan, Bhubaneswar

Sl. No.	Designation	Number of Sanctioned Posts	Number of Strength	No of vacancy in position
1	Director	1	0	1
2	D.C.F.	1	0	1
3	Senior Steno	1	0	1
4	Senior Assistant	4	4	0
5	Junior Assistant	4	3	1
6	Driver	1	1	0
7	Chowkidar	1	0	1
8	Sweeper	1	0	1
9	Office Peon	1	1	0
10.	Watchman	1	1	0
TOTAL		16	10	06

(B) Deputy Director Office, Nandankanan Zoological Park

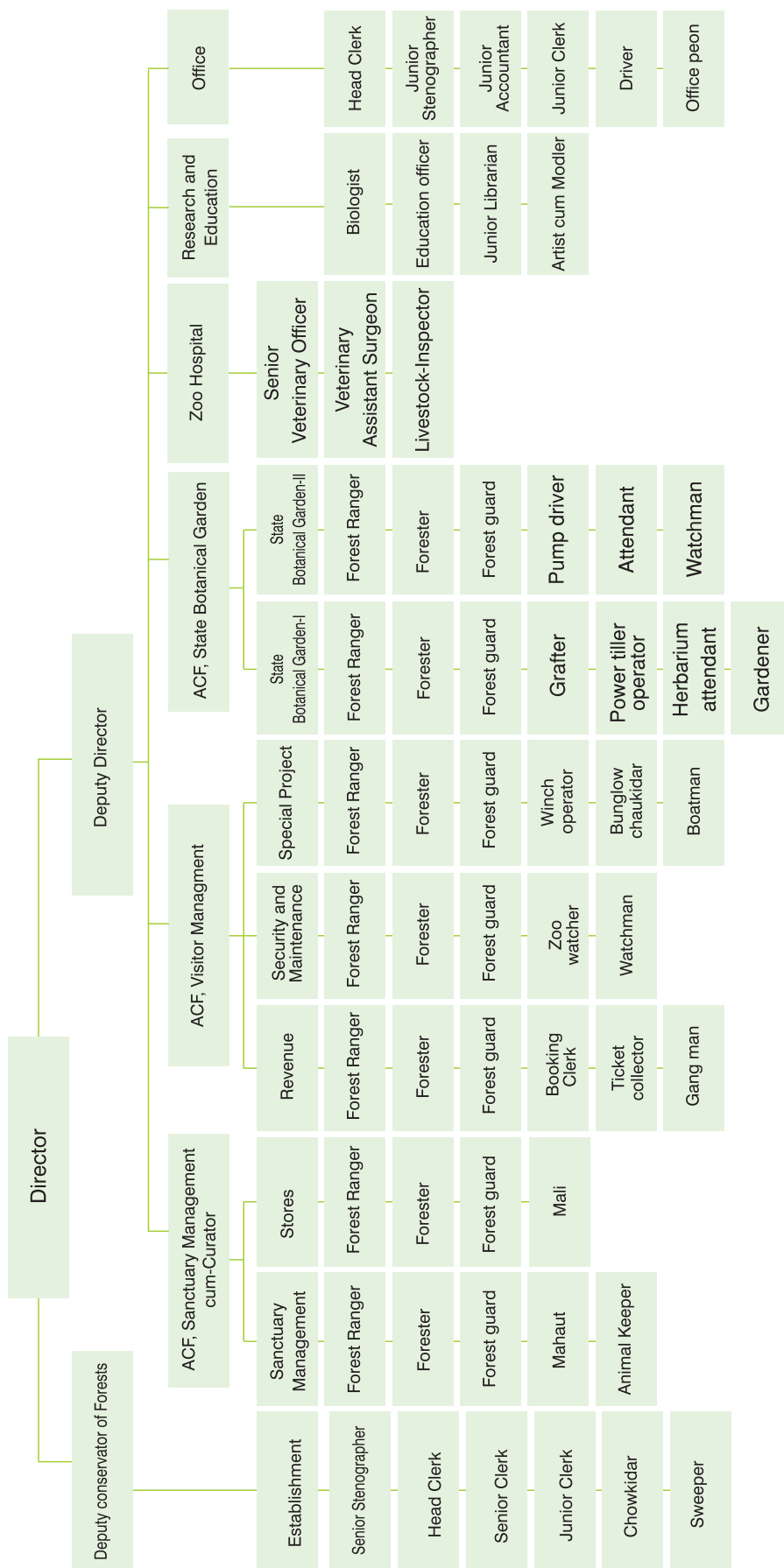
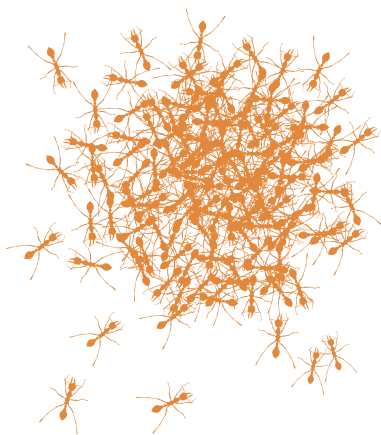
Sl.No.	Designation	Number of Sanctioned Posts	Number of Strength	No of vacancy in position
1	Deputy Director	1	1	0
2	Senior Veterinary Officer	1	1	0
3	ACF	3	5	2
4	Veterinary Assistant Surgeon	1	1	0
5	Forest Ranger	8	4	4
6	F.E.S.	0	0	0
8	Head Clerk	1	1	0
9	Biologist	1	1	0
10	Education Officer	1	1	0
7	Dy. Ranger	0	1	0
11	Fitter-cum-Mechanic	1	0	1
12	Junior Accountant	5	4	1
13	Junior Stenographer.	1	1	0
14	Forester	9	7	2
15	Driver (H.V.)	3	2	1
16	Driver (L.V.)	4	2	2
17	Livestock-Inspector	3	2	1
18	Projector Operator	1	0	1

19	Junior Librarian	1	1	0
20	Artist-cum-Modeler	1	1	0
21	Guide	0	1	
22	Junior Clerk	4	3	1
23	Booking Clerk	3	1	2
24	Engine Driver	1	0	1
25	Welder-cum-Blacksmith	1	0	1
26	Forest Guard	25	19	6
27	Mahout	8	0	8
28	Mali	5	3	2
29	Khansama	1	1	0
30	Mahout	3	2	1
31	Asst. Mahout	8	0	8
32	Animal Keeper	101	72	29
33	Office Peon/Attendant	6	5	1
34	Sweeper	11	8	3
35	Bungalow Chowkidar	3	1	2
36	Winch Operator	1	1	0
37	Gangman	2	0	2
38	Ticket Collector	10	5	5
39	Mate	2	1	1
40	Boat Man	2	0	2
41	Zoo watcher	22	17	5
42	Watchman	27	21	6
43	Cook-Cum-Animal feed Distributor	2	1	1
GRAND TOTAL:		295	197	101

(C) State Botanical Garden, Nandankanan

Sl.No	Name of category of post.	Sanctioned strength.	No. of staff in position.	No. of vacancy
1	Curator	1	0	1
2	Horticulture Overseer	1	0	1
3	Artist	1	0	1
4	Junior typist	1	0	1
5	Grafter	2	0	2
6	Pump driver	1	0	1
7	Power tiller operator	1	0	1
8	Herbarium attendant	1	0	1
9	Gardener	6	0	6
10	Attendant	6	0	6
11	Peon	3	1	2
12	Watchman	1	0	1
GRAND TOTAL		25	1	24

Its all about team work...





CAPACITY BUILDING OF ZOO PERSONNEL

- Capacity Building programme of 25 Group-C & 85 Group-D staff was organised in the month of August 2018.
- Dr Sidharth Mohapatra, RA , CWH has participated in a 15 days capsule course on “Wildlife Health Management & Conservation” conducted at IVRI, Izatnagar, Bareilly, Uttar Pradesh during 12th November, 2018 to 26th November, 2018.
- Zoo Keeper training was held at Bhagwan Birsa Biological Park, Ranchi, Jharkhand from 17th to 21st December, 2018. Two Animal Keeper Sri Arjun Khamari and Sri Dilip Moharana had participated from Nandankanan Zoological Park.
- Dr Sarat Kumar Sahu, VAS participated in workshop on “Recent trends in captive wild animal management” conducted at Mysore Zoo from 7th to 9th January, 2019.
- Dr Alok Kumar Das, SVO attended a field course on “Interventions in Wild Animal Health” from 27th January, 2019 to 15th February 2019 at Sariska tiger reserve, Rajasthan conducted by WII, Dehradun.
- Capacity Building programme of 70 Group-D staff was organized in the month of February 2019.
- Sri Jayant Kumar Das, Deputy Director, Nandankanan Zoological Park participated in workshop on Vulture Conservation & Reintroduction Programme held at Chalsa, Jalpaiguri, West Bengal from 22nd February 2019 to 24th February 2019.

EXPOSURE VISIT

- Dr H. S. Upadhyay, IFS, Director, Nandankanan Biological Park and Sri A.K. Parida, ACF-VM Nanda nkanan Zoological Park have been sent for exposure visit from 12th October 2018 to 21st October 2018 to Assam State Zoo, Guwahati, Lady Haidari Park & Animal land, Shillong and Itanagar Zoological Park, Arunachal Pradesh.
- Mr Ashok Kumar Das, ACF I/c RO Sanctuary Management and Dr Rajesh Kumar Mohapatra, Biologist have been sent for exposure visit to six major zoos of south India namely Bannerghatta Biological Park, Bangalore, Sri Chamarajendra Zoological Garden, Mysore and Arignar Anna Zoological Park, Chennai, Museums & Zoo, Thiruvananthapuram and VOC Park and Zoo, Coimbatore, and Madras Crocodile Bank Trust & Centre for Herpetology, Chennai between 21st to 27th February 2019.
- Sri Kumar Behera, Range Officer, Sri Milan Kumar Panda, Education Officer, Sri Sibaram Sahoo, Animal Keeper, Sri Indramani Mania, Animal Keeper, Sri Bhaskar Samal, Animal Keeper, Sri Rama Chandra Naik, Animal Keeper, Sk. Jabar, Animal Keeper, and Sri Mantu Samal, Sweeper have been sent for exposure visit to Arignar Anna Zoological Park, Chennai and Madras Crocodile Bank Trust & Centre for Herpetology, Chennai from 04th March 2019 to 11th March 2019.



FINANCE

Revenue collected

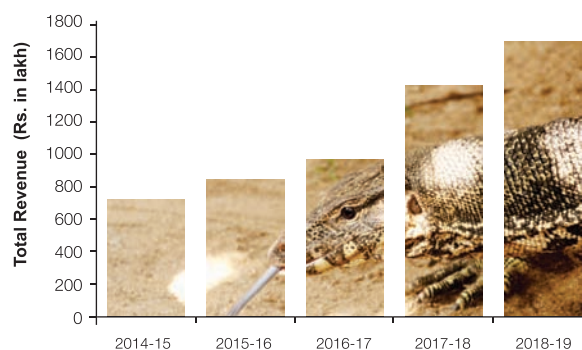
An amount of Rs. 1685.27 lakhs was generated towards revenue from all sources during 2018-19.

Visitor flow and revenue generated during the year 2018-19

Item	Visitors number	Revenue(in rupees)
Entry fees		
Common visitors (Above 12 years)	2734876	136743800
Children (3 to12 years)	409201	4092010
School children	36874	368740
Foreign visitors	1135	113500
Online booking- Adult	8863	0
Online booking- Children	2341	0
Online booking- Foreign Visitor	16	0
Free entry during Wildlife Week and Childrens' Day	632	0
Free entry of differently abled persons	442	0
Handycam	580	58000
Video camera	0	0
Outsourced facilities		
Boating facility		1807498
Safari facility		5417981
Rent of Parking Place		4916685
O.T.D.C. Restaurant		127200
O.T.D.C. Snacks bar		67100
O.T.D.C. Snacks bar (SBG)		144000
Rent of Weighing machine		24192
Rent of BOV facility		3937417
Rent of Souvenir shop		1984456
Rent of ATM counter (SBI)		120000
Rent of ATM counter (PNB)		77000
Sale of waste cattle bones		213115
State Botanical Garden (SBG)		
Revenue collected at SBG		7226020
Online ticketing		
Online entry/facility reservation charges (zoo and SBG)		1722436
Others		
Tourist cottage		1200
Fine collected		3550
Forfeited EMD amount		280000
Cost of tender paper		145000
Adoption of animals		604736
Total revenue collected		Rs. 16,85,27,636

Revenue generated during last five years

Visitor flow during last five years		
Year	No. of visitors (in lakh)	Total Revenue collected (Rs. In lakh)
2014-2015	29.047	716.86
2015-2016	33.193	856.90
2016-2017	31.813	969.53
2017-2018	32.993	1410.60
2018-2019	31.943	1685.27



Allotment and Expenditure of Nandankanan Zoological Park during the last five years: (Amount in Lakhs of Rupees)

Year	Expenditure & Allotment	Non-Plan	State-Plan	Central Plan	Centrally sponsored plan	CZA grant	CAMPA	Society Fund	Total
2013-14	Allotment	693.84	16.00	-	6.51	38.42	63.28	1157.03	1965.08
	Expenditure	689.55	16.00	-	6.51	9.723	63.24	893.03	1678.05
2014-15	Allotment	778.34	7.00	-	6.29	40.12	60.00	1063.50	1955.25
	Expenditure	760.64	7.00	-	6.29	27.09	31.44	881.30	1713.76
2015-16	Allotment	707.93	65.70	-	6.65	15.00	119.75	944.00	1859.03
	Expenditure	698.84	65.70	-	6.65	15.00	118.78	767.91	1667.87
2016-17	Allotment	859.84	12.10	-	8.886	-	587.08	1113.12	2581.046
	Expenditure	859.83	12.10	-	8.886	-	533.26	867.381	2281.457
2017-18	Allotment	1067.6	511.70	-	8.25	3.70	204.76	1221.60	3017.61
	Expenditure	1025.3	511.70	-	8.25	2.90	147.18	1129.00	2824.33
2018-19	Allotment	111.184	615.74	-	12.208	-	507.90	1820.19	3067.222
	Expenditure	110.327	615.74	-	12.208	-	504.60	1309.29	2555.165



ANIMAL EXCHANGE AND PROCUREMENT

S.N.	Species	Sex(M:F:U)	Zoo name	Date of arrival
1.	Himalayan black bear	0:1:0	Aizwal Zoological Park, Mizoram	21.06.2018
	Wild dog	1:1:0		
	Assamese macaque	1:1:0		
2.	Indian Grey wolf	1:1:0	Chamarajendra Zoological Garden, Mysore	29.09.2018
3.	Long billed vulture	0:0:12	Gandhi Zoological Park, Gwalior	27.11.2018
4.	Black tufted marmoset	0:2:0	Purchased from AFAZ Farm, Madurai	15.02.2019

GLIMPSES OF THE EVENTS OF 2018-19

Vulture Conservation Breeding Centre, Nandankanan

Vulture Conservation Breeding Centre has been constructed in an off-exhibit area of Nandankanan Biological Park, Bhubaneswar during the year 2011-12 in an area of 0.3 acres surrounded by seven acres of undisturbed forested land with financial assistance from Central Zoo Authority, New Delhi. The centre was established with objectives to develop a protocol for captive management and breeding of long-billed vultures for reintroduction and release in to wild. The founder populations were twelve numbers of long-billed vultures procured from Gandhi Zoological Park, Gwalior on 26.11.2018. All the vultures were marked with leg bands for individual identity. The centre presently has one colony aviary (100'X40'X20'), two nursery aviaries (10'X12'X8'). A laboratory complex with observatory room for CCTV monitoring, laboratory for analysis of biological samples, incubation room and biologist chamber is available. The activity patterns of vultures are being monitored through two fixed angle and one PTZ camera with infrared facility. Mating of two vulture pairs was recorded though CCTV in the centre during December 2018 from which one pair laid an egg on 3rd Jan 2019 that hatched after incubation of 57 days on 1st March 2019.



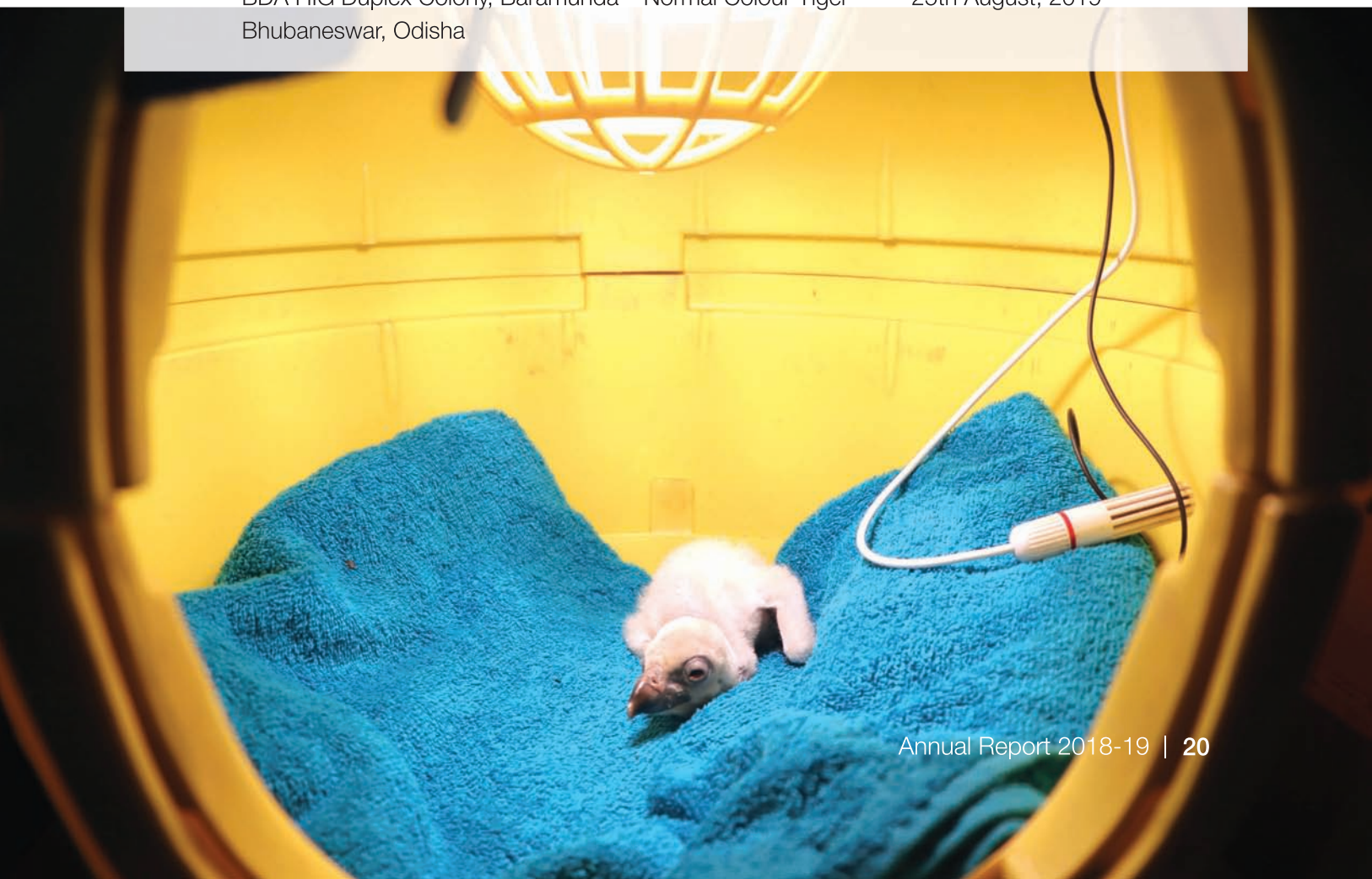
Become a Care Giver : Our Animal Adoption Scheme

A people's movement towards Conservation and Preservation of flora and fauna brings in higher dividends. Zoos across the world have evolved Adoption Scheme with a primary intention of involving the general public in the conservation of endangered animals, birds and reptiles. Herein lies the fact that, individual, philanthropists, organizations, corporate can adopt an animal by way of contributing the feed cost of individual animal including its maintenance and veterinary health care.

List of Donors for 2018-19



Sl. No.	Name of the persons/Institution	Animals/Birds/ Reptiles adopted	Period of adoption
1.	Sri Smarak Parida, C/78, Koel Nagar, Rourkela, Odisha	One Softshell Turtle	15th September, 2018 to 14th September, 2019
2.	Smt. Anita Kujur, Plot No-32/1848 Jagda, Rourkela, Odisha	One Black Buck	4th September, 2018 to 3rd September, 2019
3.	Sri Shanti Swarup, Flat No-302, Akruti Arcade, Patia Station Road, Bhubaneswar, Odisha	One Indian Rock Python	26th August, 2018 to 25th August, 2019
4.	Sri Chandan Kar, Plot No. 88-B, BDA HIG Duplex Colony, Baramunda Bhubaneswar, Odisha	One Normal Colour Tiger	26th August, 2018 to 25th August, 2019



IMPRESSION OF OUR ESTEEMED GUESTS

It gives me immense pleasure to write few words on "NANDANKANAN"- it was nicely maintained, glad to know that 156 types of animals are taking care in the zoo. (Wildlife Sanctuary). It is very neat, clean, and sound in all aspects, well maintained water bodies, lush green environment. "Keep Clean Keep Green".

Govind S. Gaude
Ministry for Art, Culture
& Tribal Welfare
Govt. of Goa-12.04.2018

I found Nandankanan zoo an amazing experience. It is the best zoo that I have seen in India. Neat, clean and so well maintained. It shows that a lot of care and pride is taken in its upkeep. The staffs were polite and courteous and very helpful. Thanks for all the care taken during our visit.

Anuradha Singh
IRPS
Director, MOEFCC
15.04.2018

Nandankanan zoo is very well managed regarding ticketing, monitoring the visitors, very neat and clean. Newly constructed Himalayan bear enclosure is awesome and best in the country. Here the staffs are very sincere and committed towards wildlife conservation. All the best wishes. We learned a lot.

S.K.Singh
APCCF (WL), Chattisgarh
15.05.2018

Our first visit to the zoo. Highly impressive. One of the best zoos that we have visited. The natural settings, variety of animals, cleanliness and staffs are very good. All of us enjoyed.

S.Suresh Kumar
Joint Secretary, GOI
Dept. of
Commerce
26.05.2018

Nice experience after a gap of 16 years. The efforts of all staffs in maintaining the park is praiseworthy. The cleanliness and the attitude and above all the sense of belongingness are remarkable.

Akshaya Kumar Parida
Special Secretary
Forest & Environment Dept. Govt. of Odisha
01.06.2018

Very much appreciated with the arrangement of the Nandankanan in view of animals like tigers, lion, bears, reptiles etc. the wild species are preserved and protected for future living species in the present extinct world. Wishing prosperity of the Nandankanan and its all stakeholders. Hearing the visitor's number to be 33 lakhs in last year is really encouraging.

Dhananjay Hembram
Secretary to RDC (CD) Cuttack
03.06.2018

A very satisfying & fulfilling trip. The battery van has added facilitation. All keeps are fascinating. The maintenance level is superb. The family is quite happy here.

Rajeshwar G
Senior Principal Secretary
Election Commission of India
17.06.2018

"Bliss It Is To Be Here
To Be Young Is Heaven"
MY HUMBLE SALUTATIONS TO THE STAFF
OF NANDANKANAN.

Prof. Ganeshi Lal
Governor, Odisha
24.06.2018

This is a wonderful visit. I visited almost all enclosures except few. The landscaping is an excellent touch to the eye. The visitors regulation is encouraging. Best wishes for the staff.

Subrat Mohapatra, IFS
APCCF (WP), Chennai
30.06.2018

It was a wonderful experience to visit the Nandankanan zoo, absolute a pleasure to go around with Mr. Purohit. One of the best zoos in India. My compliments to the officers and staff. What an experience. Mawellous!

Jacob Freeman
Commanding Officer
120 Infantry Battalion
Territorial Army, Bihar
03.07.2018

A brief visit this morning. Grateful to Amulya and Milan for taking us around the enclosures. Happy to see the maintenance and cleanliness

Dibyasingha Deb
08.07.2018

Great visit. Visiting after 35 years. Last visit this great place in 1984. Since then a lot of changes in the zoo. Very well maintained. Honor to be here, feeling very happy and glad. Wish you all the best. Keep up the good work. God bless you all.

Jai Hind!!
IG Kuldip Singh Sheoran
COMEG (NE)
Indian Coast Guard.
12.07.2018

Milan Panda, Education Officer gave a very informative insight of the Nandankanan zoo. The park is unique as it has some rare varieties breeding in most natural setup. It must become a must visit place for tourist. Visitor amenities have also been provided in an aesthetic manner. Impressed!!

Aashima Mehrotra
Director/ MO
Tourism Dept
25.08.2018

We have to over 10 wildlife sanctuaries and zoological park in India. Undoubtedly Nandankanan proved to be the most outstanding. It is a pleasure to observe the small acts of Milan Panda, even as he guided us around in a memorable manner that replied high standards of excellence he brings to his work and his exemplify vivacious dedication to duty. God bless you

Rajesh Khullar
PS to CM, Haryana
01.09.2018

Got a chance to visit Nandankanan zoo after the scheduled meeting. Mr Milan Panda, zoo education officer who accompanied us on the tour provided valuable information about the zoo, animals and also the conservation breeding programme undertaken. He impressed us with his knowledge and enthusiasm for the job. Zoo has excellent facilities for the inmates which have been arranged from different countries as well as the visitors. Safety aspects are one thing which impressed one along with the upkeep which was very neat and clean in spite of heavy rains. One of the best in the country and hope and expect that good work undertaken will be carried forward.

Arakkal Ashraf
PCCF & MS
Maharashtra State
Biodiversity Board, Nagpur
20.09.2018

I am fascinated by the tigers and have not seen in real life. Nandankanan has a vast selection of species both indigenous and exotic. The guide was very knowledgeable and helped us to identify species and their habitat & feeding pattern. Thanks for an excellent tour.

Lesley Fisher
Shanti Niketan, New Delhi
Public Financial Management, Advisor
SARTTAC, New Delhi
21.09.2018

I was quite impressed by the varieties of animals in the zoo, in particular the tigers as how they are kept. The organization and upkeep of animals in the zoo is very nicely done. Thanks for the opportunity to see these animals and for organizing the visit.

Sailendra Pattanayak
Washington DC, USA
Deputy Division Chief International Monetary Fund
21.09.2018

Wonderful visit! The animals are being kept in their habitats as close as natural. The facility for animals apart, there are arrangements for visitors as well. Keep up the momentum to improve further.

Prof. Surendra S. Yadav
DMS, IIT Delhi
16.10.2018

Very well maintained place. I am especially pleased to see the work done for ensuring barrier free access for persons with disabilities. A small excess and it can help do more and feel it could be a zoo barrier free for replication by other states and also for national award on access.

T.D. Dhariyal
State Commissioner for Persons with Disabilities
Govt. of Delhi
16.10.2018

A remarkable variety of animals, beautiful exhibition and a sustainable view on animal preservation. The staff is friendly and knowledgeable. Me and my friend had an amazing time.

Servaas Strabbe
Belgium
05.11.2018

Happy to see the zoological Garden and animal safari. Unique variety of animals, birds and reptiles. Maintenance of the animal and park is very good. Good hospitality and arrangements for the visitors.

Prof. Jagdish Mukhi
Governor, Assam
11.11.2018

The animals and birds are maintained in natural habitat condition and entire compound is well maintained in visitors' friendly condition.

G.R.Purohit
Judicial Member, OAT
18.11.2018

Nandankanan is a unique zoological park treat with birds, animals and reptiles which added to natural fauna. OTDC & Forest Dept deserve the highest accolades for the arrangement made.

Ranjanesh Salai
Secretary, Railway Board
Ministry of Railway
21.11.2018

I was quite impressed by the variety of animals in the zoo, particular the tigers and how they are kept. I think one of the best in the country and hope and expect that the good work undertaken will be carried forward. Good hospitality and arrangements for the visitors.

Ashok Kumar Anand
Joint Secretary, Parliament of India
Rajya Sabha, New Delhi
21.11.2018

Visited the zoo today on way back to Delhi and specially seen Pangolin Breeding Centre and found wonderful success. Keep it on. Other animals like White tiger, Giraffe, Lion, R.D.T and Chimpanzee were found fine, wishing success of the zoo especially in breeding in captivity.

Ajit Kumar Bhowmik, IFS (Rtd)
Ex Joint Director
National Zoological Park, New Delhi
09.12.2018

Visit to Nandankanan as part of MEE work was very enriching. One of very few areas where you have arranged for visitors as well as professionals. Management is very intensive and staffs are very committed. Leadership of Deputy Director, Shri Jayant Kumar is very excellent. Management of P.A is very professional and it can serve as a learning centre for others. Theme of interpretation are very innovative and there could be further strengthened would like to visit again. Thanks a lot for this experience and personal care. My best wishes to all.

A.K.Bhardwaj
Ex- PCCF & HOFF, Kerala
Senior Professional Fellow
WII, Dehradun
11.12.2018

I have visited Nandankanan zoological park for two days as an expert committee member for Monitoring Effectiveness Evaluation 2018-19. I feel that this is one of the well maintained zoos in India. Also there are lots of attractions in this zoo. Unlike other zoos in India. Various activities are engaged in one place such as botanical garden, boating, Butterfly Park and various gardens added great value for this P.A. Conservation breeding programmes are good initiatives and significant. As a whole the P.A is a good model. I wish the management and staffs all the best.

Dr K. Ramkumar
Manger & Project Head
Wildlife Trust of India
11.12.2018

I had an opportunity to visit this zoo along with my wife. This zoo is well maintained. It is eco friendly. Rare white tigers are available here with their own stories. This place is worth visiting. The staff of this zoo is very friendly, respectful and efficient.

Justice Darshan Singh (Rtd)
Chairman Haryana Real Estate
Appellate Tribunal
22.12.2018

Visited Nandankanan Zoological Park today along with my family. The park is scientifically managed and boasts of certain species found only in the zoo. Despite thick green foliage, the area is maintained very neat and clean. The place leaves a deep imprint in the mind of every visitor and provides experience and memory worth cherishing for long time to come. Thanks to the management teams and staff as well as senior officers for providing guidance and leadership to make Nandankanan a distinct place.

N.N.Pandey
State Election Commissioner
Jharkhand
09.01.2019

This was my first visit with family to this zoo. It was a memorable experience to visit this zoo. I found this zoo to be the best till date. It is very well managed and all types of fauna have been exhibited in a proper manner. Also the flowers and garden of T.R.N is very nicely maintained and is very beautiful. It was a memorable and wonderful trip. Hats off to the management team of forest service, working here. All the best and my regards.

Abhijeet Agarwal, IAS
Deputy Secretary
Govt of Madhya Pradesh
10.01.2019

Visited today Nandankanan zoo & Safari. This is an excellently managed zoo. The natural atmosphere maintained around the zoo is commendable. The behavior of zoo staff with the public as observed during the visit is highly professional. Thanks to H.S. Upadhyay and Deputy Director.

M.S.Negi
ADG (WL)
MOEF & CC
03.03.2019

Interacted with staff at Rest House on various aspects of captive animal management particularly with respect to rescued animals. Also visited the conservation breeding programme in respect of Indian Pangolin and Gharial. Great work by the Nandankanan team. I wish the zoo all success.

Dr Anup Kumar Nayak
Member Secretary
Central Zoo Authority
23.03.2019





VETERINARY CARE

Nandankanan Biological Park has always given priority for the highest standards of animal husbandry and veterinary care. Monitoring of animal health starts from the moment of its birth/arrival at the zoo. Prevention of disease/ailment is the main motto of the health program of Nandankanan.

A dedicated veterinary hospital is located inside the park. Three full time veterinary surgeons are providing veterinary services to the captive animals and birds with specialist support from the College of Veterinary Science & Animal Husbandry (C.V.Sc & A.H) Bhubaneswar and input from an array of experts. A close liaison is maintained with the C.V.Sc & A.H., Bhubaneswar and the services of the 'Health Committee' from C.V.Sc & A.H are requisitioned in case of emergency. A five member 'Technical Committee' constituted by the Government of Odisha regularly monitor and review health care and related matters. A strict protocol for vaccination, deworming and prophylactic chemotherapy is meticulously followed to prevent diseases.



ZOO HOSPITAL

The Zoo Hospital is well equipped with the following infrastructures.

- A well-equipped operation theatre backed by a generator, oxygen supply gadget and an x-ray unit.
- A spacious 'Isolation Ward' to house the sick and injured animals for treatment.
- A 'Quarantine Ward' to house the newly acquired animals and sick animals suspected for contagious diseases.
- A microbiological laboratory to carry out the cultural tests and antibiotic sensitivity tests of different bio-samples for easy diagnosis and effective treatment of different ailing animals.
- An incubation unit to assist the incubation of eggs of exotic and indigenous species of birds.
- A fully-fledged anti-depredation unit equipped with all necessary equipments and drugs for chemical immobilization is operating from the Nandankanan Biological Park which meets the emergency needs of the entire state.

COLLABORATION WITH ODISHA VETERINARY COLLEGE:

A MoU is signed with the College of Veterinary Science & Animal Husbandry (C.V.Sc & A.H), Bhubaneswar for captive use of the "Centre for Wildlife Health". The centre is equipped with onsite ultra-sound and X-ray facility backed by a state of the art clinical laboratory.

The 'Centre for Wildlife Health' was initially set up at C.V.Sc & A.H, Odisha University of Agriculture and Technology, Bhubaneswar as a regional centre with the financial assistance from the Central Zoo Authority, New Delhi. It was renamed as 'Centre for Wildlife Health' since April 2007 subsequent upon the bipartite agreement signed between the Forest Department, Government of Odisha and Odisha University of Agriculture and Technology, Bhubaneswar. The centre received an amount of Rs. 45 lakhs from Nandankanan for up gradation of facility as well as to meet the recurring expenses. The prime objective of the centre is to extend diagnostic facilities and advanced medical care to the captive animals and birds of the Nandankanan Zoological Park. The centre is well equipped to carry out molecular, haemato-biochemical, bacteriological, parasitological and histo-pathological examinations.

ZOO ADVISORY COMMITTEE

Technical Committee:

A Technical Committee was constituted on 22.08.2000, by Govt. of Odisha.

Members:

- Dr S. K. Ray, Retd Prof. & Head, Dept. of Medicine, Orissa Veterinary College- Chairman
- Dr J.N. Mohanty, Retd. Prof. Surgery, Orissa Veterinary College and Director, Veterinary Services- Member
- Sri Sudhakar Mohapatra, IFS (Retd) (Former Chief Wildlife Warden, Odisha)-Member
- Dr L.N. Acharjyo, Retd. Zoo Veterinarian, Nandankanan - Member
- Conservator of Forests (WL) & Ex-Officio Director, Nandankanan Zoological Park, Bhubaneswar -Convenor

Technical Committee meetings were held on 26/06/2018, 27/11/2018 & 15/02/2019.

Health Advisory Committee:

MoU signed with CVSc & AH, OUAT on 21.08.2008 for health care advice.

Members of Health Committee

1. Dr N. Sahoo, Prof. Preventive medicine, CVSc & AH, OUAT, Coordinator
2. Dr I. Nath, Prof. Surgery, CVSc & AH, OUAT, Co-coordinator
3. Dr S.K. Panda, Prof. Pathology, CVSc & AH, OUAT, Co-coordinator

Health Committee visited to the zoo on:

02/04/2018, 12/05/2018, 22/05/2018, 26/06/2018, 18/07/2018, 29/07/2018, 17/08/2018, 27/11/2018, 02/12/2018, 04/02/2019, 15/02/2019

Intervention by the veterinary wing of the zoo.

Sl. No.	Activities	Number of cases dealt
1	Cases treated	5850
2	Surgery performed	12
3	Deworming	5509
4	Chemical immobilization	40
5	Screening of blood smears	49
6	Bacteriological examination	12
7	Faecal Sample examination	670

Vaccination/Chemoprophylaxis:

Sl. No.	Vaccination	Number of cases dealt
1	BioFel PCHR (against Feline Panleucopenia)	68
2	Triovac	1
3	H.S.V.	34
4	Triquin	127
5	Anti Rabies Vaccine	7
6	Tetanus Toxoid	14
7	Multivalent Vaccine	15
8	B.Q. Vaccine	30
9	Anthrax Vaccine	7
10	F.M.D.	7



PROPHYLACTIC PROTOCOL

A set of protocol is meticulously followed as a prophylactic measure against some of the devastating diseases. In addition to this disinfection and deworming protocols are followed for the management of ecto and endo parasitic infestations in captive animals. Following prophylactic protocol is observed in the park:

- Annual vaccination to Tigers, Lions, Leopards, Fishing cat, leopard cat and Jungle cats against Feline Panleucopenia.
- Annual vaccination of Jackal, Hyena and Indian Grey Wolf with multivalent vaccine.
- Administration of Triquin as a prophylactic measure against Trypanosomiasis to Tigers, Lions and Leopards at four months interval.
- Vaccination of elephants against Haemorrhagic Septicemia (HS), Black Quarter (BQ) Tetanus, Rabies, Anthrax and Foot & Mouth Disease. Vaccination of four-horned antelopes with BQ and HS vaccines.
- Body spray with cypermethrin/deltamethrin at 2 months interval against ticks, flies and other vectors in case of big cats.
- Kohrsolin-TH sprays in enclosures at two months intervals.
- Screening of the fecal samples of all Nandankanan Biological Park inmates and de-worming at 3 months interval.
- Periodical screening of blood samples.



SIGNIFICANT ACHIEVEMENTS IN HEALTH CARE

1. Management of post-partum cervico-vaginal prolapse in a swamp deer

Cervico-vaginal prolapse is most commonly observed in large ruminants like cows, buffaloes and sheep, but it is not frequent amongst deer species. On 16.06.2018, a female swamp deer of Nandankanan that had delivered a fawn three days back, observed with cervico-vaginal prolapse. The deer was running relentlessly to avoid crows. The situation warranted immediate intervention through immobilisation, which was carried out the next day early morning, using Xylazine and Ketamine mixture darted using a dart gun from outside the enclosure. The deer went down smoothly, the prolapsed mass was then washed with potassium permanganate solution and ice pack was applied to reduce the inflammation. The repositioning of the prolapsed mass was done by initially pushing the lateral walls and middle portion with fistled hands followed by roof of cervix and vagina. Retention (prevention of recurrence) was achieved by horizontal mattress sutures using Vicryl, an absorbable synthetic braided suture. To prevent bacterial infection, two numbers steclin bolus were put intrauterine along with long acting penicillin and meloxicam injections administered intramuscularly. Oral antibiotic was administered through feed for five days. Uneventful recovery was achieved and presently the deer is doing well.

2. Treatment of big abscess at forehead of hog deer

Hog deer are very timid and frightened animals and always pose a challenge for immobilisation and treatment. During June, 2018 one hog deer stag of Nandankanan was observed with a swelling at forehead that was continuously growing in size. The deer was remaining dull with reduced appetite. For investigation and treatment, it was immobilised on 07.06.2018, physical examination and explorative puncture revealed the presence of pus inside the pocket. The abscess was opened at the pointing and drained. A counter opening was also made at the lowest part to facilitate further draining. The cavity was irrigated with betadine lotion and dressed with antibiotics solution. Long-acting antibiotics, anti-inflammatory, analgesics and multivitamins were administered parenterally along with fluid. After reversal, the deer was housed separately and oral antibiotic was supplemented in feed for five days. The deer completely recovered in about two week time.

3. Preputial prolapse in a swamp deer stag and its surgical correction

On 20.11.2018, one adult swamp deer stag of Nandankanan was found with prolapse of preputial sheath which was inflamed and dark red. It was the mating season and the stag was alpha male. So we came to a conclusion that this condition might be sequelae to breeding injury. The stag was following the oestrous does, but unable to mate as it has developed phimosis. The stag was immobilised using xylazine and ketamine mixture darted through dart gun and treatment was carried out in consultation with surgery experts of CVSc & AH. Upon physical examination, the sheath was found to be injured with suppuration. It was cleaned with potassium permanganate solution, dressed and ice pack was applied to reduce the inflammation. The prolapsed mass was repositioned into the preputial cavity. Pursestring retaining sutures using 'vicryl' were applied at the preputial orifice to prevent recurrence. Long-acting antibiotics, anti-inflammatory drugs were administered parenterally. The stag has completely and presently doing well.

4. Hind limb paresis and concurrent acute bacterial infection in an aged Asiatic lion and its management

On 22-02-2019, the male Asiatic lion 'Pichhan' aged about 20 years of Nandankanan was observed in recumbency, dullness, lethargy, inappetance and paresis of hind limbs. It was unable to get up. On mild sedation, it was physically examined; blood and serum samples were collected. Haematological findings were suggestive of acute bacterial infection. The lion was kept confined to the feeding cell. It was hand fed with small pieces of chicken meat with help of a long forceps. Intravenous fluid, plasma extenders along with antibiotics and neurotonics were administered for five days. The lion slowly became active and started walking. Neurotonic injection was continued for another two weeks being administered on alternate days. Presently the lion is having normal appetite and activity.

5. Ascending Tail necrosis in green Iguanas and its successful management

Ascending avascular necrosis of tail is not an uncommon presentation in green iguanas. This may be sequelae to dysecdysis where partial amputation of the tail is often required. Two green iguanas of Nandankanan were observed with ascending tail necrosis during February 2019. It was considered for partial amputation of tail proximal to the existing damage, in healthy tissue. The procedure was performed on 01.03.2019, under local anesthesia; a local ring block with lidocaine was performed. The tail was cut off straight through with a scalpel blade. Pressure was applied for haemostasis and the end of the tail was left open to granulate in, so that the tail can regenerate. The end of the tail was kept clean and dry and anti-bacterial cream was applied daily until the wound heals. All the iguanas were shifted to a larger enclosure with a bigger water pool, natural sunlight and more enrichment to exhibit natural behavior. The treatment procedure worked, ecdysis completed, the tails regenerated and the lizards became more active and healthy.

6. Treatment of Trypanosomiasis in a Jackal

On 02.03.2019, a female captive jackal of Nandankanan housed at enclosure 23, was observed lethargic with irregular appetite and corneal opacity of left eye. The said jackal was shifted to Isolation Ward of zoo hospital for close observation and treatment. Blood smear examination revealed the presence of numerous motile Trypanosoma sp. Haematological examination showed anaemia and mild neutrophilia. Treatment with administration of inj triquin to the ailing Jackal yielded immediate positive response. Supportive therapy with Intravenous administration of plasma extenders, broad spectrum antibiotics to prevent secondary bacterial infection and B-complex vitamins were also followed. The jackal was housed in a squeeze cage at Isolation Ward for two weeks. After a week, the jackal started taking its normal diet with normal activity. No Trypanosomes were detected in the stained blood smears taken subsequently after ten days and the jackal recovered completely.

7. Molecular detection of Trypanosomiasis in a lioness and its treatment

The hand raised hybrid lioness named 'Kalpana' aged about four years is usually very playful. During March 2019, the lioness was observed with irregular appetite, nonresponsive to calls and lethargic. Treatment with antibiotics and liver tonics was proved futile. On 12.03.2019, it was immobilised for blood sampling and detailed physical investigation. Haemato-biochemical values were found within the normal range and blood smear examination was found negative for blood protozoan parasites. But molecular analysis (PCR) of blood sample conducted at Centre for Wildlife Health, CVSc & AH revealed presence of Trypanosoma parasites in blood. The lioness was immediately administered with anti protozoal drug (inj Triquin) along with other supportive therapy. 'Kalpana' slowly regained its appetite and became active.



Annual Report on Birth of Captive Animals at Nandankanan Zoological Park From 01.04.2018 to 31.03.2019

S.N.	Date	Species	Sex(M:F:U)	S.N.	Date	Species	Sex(M:F:U)
1.	05.04.18	Spotted deer	2:1:0	39.	29.07.18	White peafowl	0:0:1
2.	13.04.18	Spotted deer	2:2:0	40.	29.07.18	Indian peafowl	0:0:2
3.	15.04.18	Spotted deer	0:0:2	41.	29.07.18	Reeves's pheasant	0:0:2
4.	20.04.18	Spotted deer	3:0:0	42.	07.08.18	Blackbuck	0:0:1
5.	21.04.18	Spotted deer	1:2:0	43.	10.08.18	Spotted deer	1:2:0
6.	24.04.18	Spotted deer	4:0:0	44.	15.08.18	Jungle cat	0:0:2
7.	27.04.18	Spotted deer	1:2:0	45.	17.08.18	Mouse deer	0:0:1
8.	27.04.18	Barking deer	0:0:2	46.	26.08.18	Mouse deer	0:0:1
9.	30.04.18	Sloth bear	1:0:0	47.	13.09.18	Spotted deer	3:0:0
10.	04.05.18	Spotted deer	1:5:0	48.	22.09.18	Tiger	1:1:0
11.	15.05.18	Spotted deer	3:0:0	49.	27.09.18	Hippopotamus	0:0:1
12.	22.05.18	Spotted deer	2:3:0	50.	30.08.18	Spotted deer	3:2:0
13.	26.05.18	Alexandrine parakeet	0:0:2	51.	31.08.18	Spotted deer	1:3:0
14.	31.05.18	Silver pheasant	0:0:11	52.	20.11.18	Brow antlered deer	0:0:1
15.	31.05.18	Lady Amherst's pheasant	0:0:5	53.	30.11.18	Night heron	0:0:11
16.	31.05.18	Red jungle fowl	0:0:2	54.	30.11.18	White ibis	0:0:10
17.	31.05.18	Golden pheasant	0:0:10	55.	30.11.18	Budgerigar	0:0:12
18.	31.05.18	Indian peafowl	0:0:1	56.	22.12.18	Tiger	0:0:2
19.	08.06.18	Spotted deer	0:4:0	57.	23.12.18	Brow antlered deer	0:0:1
20.	11.06.18	Sun conure	0:0:10	58.	26.12.18	Nilgai	0:0:2
21.	11.06.18	Jandaya conure	0:0:5	59.	27.12.18	Blackbuck	0:0:2
22.	11.06.18	Violet turaco	0:0:2	60.	01.01.19	Blackbuck	0:0:1
23.	15.06.18	Spotted deer	3:0:0	61.	01.01.19	Grey pelican	0:0:2
24.	20.06.18	Janday conure	0:0:1	62.	19.01.19	Emu	0:0:2
25.	20.06.18	Swainson's lorikeet	0:0:1	63.	29.01.19	Spotted deer	0:0:11
26.	20.06.18	Spotted deer	0:0:5	64.	01.02.19	Spotted deer	2:3:0
27.	23.06.18	Spotted deer	3:1:0	65.	09.02.19	Mouse deer	0:0:1
28.	25.06.18	Hog deer	0:0:1	66.	20.02.19	Gaur	0:1:0
29.	28.06.18	Assamese macaque	0:0:1	67.	01.03.19	Long billed vulture	0:0:1
30.	28.06.18	Spotted deer	0:3:0	68.	06.03.19	Spotted deer	5:1:0
31.	05.06.18	Mugger crocodile	0:0:7	69.	07.03.19	Black tufted marmoset	0:2:0
32.	05.07.18	Blackbuck	0:0:1	70.	08.03.19	Spotted deer	4:2:0
33.	05.07.18	Blackbuck	0:0:1	71.	11.03.19	Budgerigar	0:0:10
34.	06.07.18	Barking deer	0:0:1	72.	12.03.19	Spotted deer	3:1:0
35.	07.07.18	Spotted deer	2:2:0	73.	15.03.19	Hog deer	0:0:1
36.	11.07.18	Mouse deer	0:0:1	74.	15.03.19	Blackbuck	0:0:1
37.	21.07.18	Four horned antelope	0:0:1	75.	16.03.19	Hog deer	0:0:1
38.	28.07.18	Spotted deer	1:2:0	76.	16.03.19	Blackbuck	0:0:1

ABSTRACT

	MAMMAL	BIRD	REPTILE	AMPHIBIAN	TOTAL
BIRTH	149	102	07	0	258

Annual Report on Death of Captive Animals at Nandankanan Zoological Park (From 01.04.2018 to 31.03.2019)

MAMMALS

Sl. No.	Date	Animal	Age	Sex	Cause Of Death
1	01.04.18	Himalayan black bear	About 30yrs	M	Tumors in the abdomen associated with old age
2	05.04.18	Hippopotamus	Adult	M	Infighting
3	07.04.18	Barking deer	Adult	M	Pneumonia
4	15.04.18	Spotted deer	Adult	M	Infighting
5	24.04.18	Nilgai	Adult	M	Shock
6	25.04.18	Spotted deer	Adult	M	Infighting & internal haemorrhage
7	20.05.18	Manipuri deer	About 3yrs	F	Shock
8	24.05.18	Spotted deer	Adult	M	Old age
9	06.06.18	Spotted deer	Adult	M	Hepatitis & Enteritis
10	08.06.18	Barking deer	Adult	F	Infighting
11	18.06.18	Jackal	Adult	M	Anaemia
12	21.07.18	Hog deer	Adult	M	Impaction of rumen
13	30.07.18	Hippopotamus	About 20yrs	M	Septicemia associated with infighting injuries
14	31.07.18	Nilgai	Adult	F	Internal haemorrhage and shock
15	31.07.18	Barking deer	Adult	F	Pneumonia
16	07.08.18	Hippopotamus	Adult	M	Infighting
17	10.08.18	African lion	About 8yrs	M	Acute haemorrhagic gastro-enteritis
18	29.08.18	African lion	About 8yrs	M	Acute diffuse haemorrhagic gastro-enteritis
19	02.09.18	Normal colour tiger	About 10yr 6mn	M	Necrotic hepatitis, ascites and pneumonia suggestive of <i>Cytauxzoon felis</i> infection
20	02.09.18	Sloth bear	Adult	M	Tuberculosis
21	20.09.18	Spotted deer	Adult	M	Tuberculosis
22	02.10.18	Bonnet macaque	Adult	M	Debility and old age,
23	01.11.18	Spotted deer	Adult	M	Pneumonia with caseated nodules
24	04.11.18	Sambar	Adult	F	Necrotic hepatitis
25	13.11.18	Mouse deer	Adult	M	Enteritis
26	28.12.18	Jungle cat	Adult	F	Anaemia
27	21.02.19	Normal colour tiger	Adult	M	Necrotic hepatitis & pulmonary collapse associated with recumbency & old age.
28	21.02.19	Gaur	Day old	F	Trampling by the herd resulting to internal haemorrhage and shock
29	07.03.19	Indian grey wolf	Adult	F	Cardiac failure
30	19.03.19	Four horned antelope	Adult	F	Traumatic injury and shock
31	25.03.19	Spotted deer	Adult	F	Old age
32	29.03.19	Nilgai	Adult	M	Old age associated with hepatic tumor

BIRDS

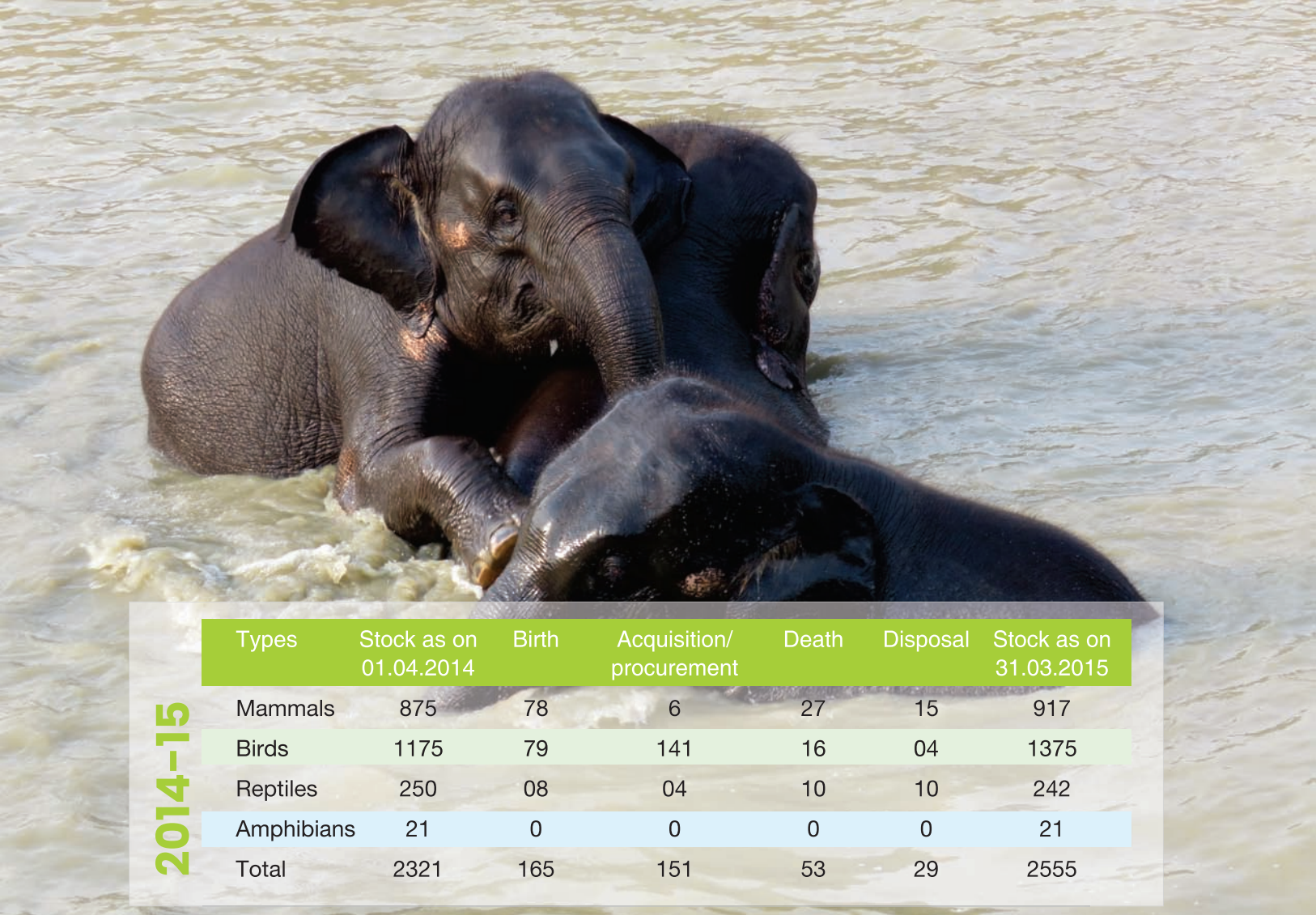
SL. NO.	DATE	ANIMAL	AGE	SEX	CAUSE OF DEATH
1	13.04.18	Red jungle fowl	About 1yr	F	Anaemia & Enteritis
2	13.04.18	Lady Amherst's pheasant	Adult	M	Infighting
3	19.04.18	Blue & yellow macaw	About 25yrs	M	Hepatitis & Enteritis
4	25.04.18	Ring necked parakeet (Lutino)	Adult	F	Enteritis
5	26.04.18	Mandarin duck	Adult	M	Tumor in the liver
6	02.05.18	Ring necked pheasant	Adult	F	Shock
7	10.05.18	Mandarin duck	About 1yr	F	Tumor in the lungs
8	19.05.18	Mandarin duck	Adult	F	Tumor in the lungs
9	24.05.18	Mandarin duck	Adult	M	Tumor in airsac with adhesion to pericardium
10	31.05.18	Black swan	About 25 yrs	M	Enteritis & visceral gout
11	11.06.18	Mandarin duck	Adult	M	Ascites, hydropericardium syndrome & tumor in lungs & spleen.
12	14.06.18	Lady Amherst's pheasant	Adult	F	Enteritis
13	08.08.18	Violet turaco	Adult	F	Haemorrhagic enteritis
14	16.09.18	Reeves's pheasant	Adult	F	Salpingitis
15	17.09.18	Barn owl	Adult	F	Infighting
16	25.10.18	Red jungle fowl	Adult	F	Hepatitis
17	29.10.18	Mandarin duck	Adult	M	Hemorrhagic liver & hemorrhagic enteritis
18	14.11.18	Sun conure	Adult	F	Weakness and debility
19	11.12.18	Silver pheasant	Adult	M	Infighting
20	25.01.19	Red bellied parrot	Adult	M	Hepatitis
21	29.01.19	Eastern rosella	Adult	M	Cystic liver & enteritis
22	01.02.19	Livingstone's turaco	Adult	F	Chronic muscular dystrophy
23	25.02.19	Jandaya conure	Adult	M	Enteritis
24	05.03.19	Openbill stork	About 1 yr	F	Gizzard impaction
25	05.03.19	Lady Amherst's pheasant	Adult	F	Traumatic injury and shock
26	11.03.19	Long billed vulture	10 days	M	Necrotic hepatitis
27	20.03.19	Grey pelican	Adult	M	Senility associated with nephritis

REPTILES

1	05.03.19	Red Iguana	Adult	M	Impaction
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ABSTRACT

Mammals	Birds	Reptiles	Total
32	27	01	60



2014-15

Types	Stock as on 01.04.2014	Birth	Acquisition/ procurement	Death	Disposal	Stock as on 31.03.2015
Mammals	875	78	6	27	15	917
Birds	1175	79	141	16	04	1375
Reptiles	250	08	04	10	10	242
Amphibians	21	0	0	0	0	21
Total	2321	165	151	53	29	2555

2015-16

Types	Stock as on 01.04.2015	Birth	Acquisition	Death	Disposal	Stock as on 31.03.2016
Mammals	917	74	18	62	11	936
Birds	1375	116	13	27	4	1473
Reptiles	242	16	0	11	8	239
Amphibians	21	0	0	0	0	21
Total	2555	206	31	100	23	2669

2016-17

Types	Stock as on 01.04.2016	Birth	Acquisition	Death	Disposal	Stock as on 31.03.2017
Mammals	936	247	27	30	5	1175
Birds	1473	68	65	18	42	1546
Reptiles	239	13	18	1	7	262
Amphibians	21	0	0	0	0	21
Total	2669	328	110	49	54	3004

2017-18

Types	Stock as on 01.04.2017	Birth	Acquisition	Death	Disposal	Stock as on 31.03.2018
Mammals	1175	191	6	35	02	1335
Birds	1546	122	34	35	14	1653
Reptiles	262	24	10	04	03	289
Amphibians	21	0	0	0	0	21
Total	3004	342	50	74	19	3303

2018-19

Types	Stock as on 01.04.2018	Birth	Acquisition	Death	Disposal	Stock as on 31.03.2019
Mammals	1340	149	9	32	5	1461
Birds	1653	102	12	27	0	1740
Reptiles	289	7	0	1	0	295
Amphibians	21	0	0	0	0	21
Total	3303	258	21	60	5	3517

Death Of Captive Animals In Nandankanan Zoological Park During The Last Five Years

Year	Total stock		Number of deaths				percentage
	As on 1st April	Mammals	Birds	Reptiles	Amphibians	Total	
2014-15	2555	27	16	10	0	53	2.03%
2015-16	2669	62	27	11	0	100	3.61%
2016-17	3004	30	18	01	0	49	1.62%
2017-18	3303	35	35	04	0	74	2.24%
2018-19	3517	32	27	1	0	60	1.67%

ENSURING QUALITY FEED

Supply of well-balanced quality food is crucial for the sound health and reproduction of the captive animals in a zoo. Keeping this in mind, supply of nutritious, healthy and hygienic food to the animals and birds is an important mandate of the Nandankanan Zoological Park. The Park has a 'Food Distribution Centre' with a zoo kitchen to cater to the needs of the captive animals and birds. A separate Store Range headed by a Range Officer looks after the supply of feed materials. To achieve quality supply of feed, a captive slaughter house was established within the Park. A fodder farm has also been developed to achieve self sufficiency in fodder production to meet the nutritional requirements of the herbivores. Various feed items are being procured daily through an annual tender/departmental procurement process. The Tender Committee headed by the Chief Wildlife Warden approves the rate for procurement of feed items.

- **Establishment of captive slaughter house**

As a step forward the Park has set up a captive slaughter house, first of its kind, inside the Park to ensure regular supply of fresh and hygienically processed buffalo meat for the carnivores. Routine inspection includes ante and post-mortem examinations of animals and meat respectively. Post mortem examination is supported by both gross and microscopic examination of meat and vital organs. As a result, food borne health complications are being successfully kept at bay. The daily requirement of buffalo meat to feed the carnivore population in the park is about 400 Kg.

- **Captive fodder farm:**

Different types of grasses and fodder are given to the herbivores from the captive fodder farm of the zoo spread over an area of 33 Acres. Seasonal/periodical organic farming of different grass/fodder is carried out in the farm to ensure supply of fresh and nutritious fodder to the herbivores in the zoo (daily requirement being about 3200 Kg). The month wise production of different grass and fodder during 2018-19 is as follows.

**Month wise production of fodder from Nandankanan Zoological Park
Fodder Farm (in quintals) for the year 2018-19**

Month	Para grass	Hybrid Napier (NB-21) grass	Common grass	Sorghum grass	Oat grass	Cowpea	Total (in quintals)
04/18	270.90	71.50	486.90	56.00	-	130.00	1015.30
05/18	276.83	69.75	513.98	62.00	-	124.00	1046.56
06/18	267.90	64.50	483.40	60.00	-	134.00	1009.80
07/18	274.83	100.65	619.98	30.00	-	18.00	1043.46
08/18	256.03	128.65	637.98	-	-	-	1022.66
09/18	243.90	124.50	629.275	-	-	-	997.675
10/18	236.83	128.65	658.44	-	-	-	1023.92
11/18	219.90	124.50	637.20	-	-	-	981.60
12/18	230.33	131.75	612.84	-	48.00	-	1022.92
01/19	230.33	131.75	459.04	-	186.00	-	1007.12
02/19	208.04	63.00	387.52	-	223.93	-	882.49
03/19	230.33	131.75	372.04	129.00	46.00	130.00	1039.12
Total	2946.15	1270.95	6498.595	337.00	503.93	536.00	12092.625

- **Feed distribution centre**

Feed items received from various sources are screened by the Range Officer (Store), Assistant Director and the Zoo Vets. All the green vegetables and other perishable feed items are thoroughly cleaned and disinfected before distribution. The feed items received are weighed and distributed in prescribed quantities to various animal houses. 100 feed items are collected and supplied daily to meet the nutritional requirements of the 158 species of mammals, birds and reptiles. These include very specific items such as snail, red weaver ant, live grass hoppers etc. The feed items are procured from various suppliers through open tenders and the price is approved by the Purchase Committee constituted by the Government.

- **Seasonal feed**

To supplement the dietary requirements, some seasonal fruits and vegetables are provided to the animals considering their liking and acceptance like water melon, sugarcane, green coconut water, apple, jamun, custard apple, green pea, ripe papaya, amla, guava and orange.

- **Water treatment plant**

The Zoological Park has water treatment plant to ensure the supply of purified drinking water and thereby preventing the spread of waterborne diseases. 6 nos of different capacity chlorination plants have been installed at different water points of Nandankanan Zoological Park.

- **Vermicompost unit**

The Park has a vermicompost unit located inside the fodder farm where the organic waste of the zoo is being converted to natural plant fertilizer using earthworms. Another unit of vermicompost was added during the financial year.

- **Live Feed Rearing Centre**

The centre was established on July, 2015 to ensure regular supply of hygienic live feed to the zoo animals. The centre is successfully breeding Wistar (albino) rat, BALB/c (albino) mice, guinea pig, snails, mealworm and hatching poultry chicks to fulfil daily requirement of live feed required for the zoo animals.

LAWNS AND GARDENS

Beautiful gardens, lawns and meadows have been established at different strategic locations in the zoo to provide resting places for the visitors. Facilities like sit-outs, drinking water and toilets are also provided near such places. Lawns with gardens in six locations and 3 meadows are available inside the Zoological Park. The gardens are maintained with seasonal flowers round the year and are well appreciated by the visitors.



RESEARCH EDUCATION &



RESEARCH

Displaying its long-term commitment to research, Nandankanan Zoological Park supported a number of research projects to assess biodiversity conservation, wildlife management, animal health issues and management of captive animals.

The project entitled 'Ecto-endo parasites of captive animals of Nandankanan Zoological Park' was successfully completed which was jointly operated by the Orissa Veterinary College, OUAT, Bhubaneswar and Nandankanan Zoological Park, Bhubaneswar. The results of the study revealed the prevalence of helminthic infection, either single or mixed, in large carnivores. In the other hand, the administration of different anti helminthic drugs have been tested successfully and found effective in treatment of the infected animals. Saltwater crocodile egg were collected from Bhitarkanika National Park in July, 2018 successfully hatched at Nandankanan Zoological Park to complete hatching of all three Indian crocodiles, unique for any zoo in India.

(a) Indian Pangolin Conservation Breeding Programme:

The research on conservation breeding of Indian pangolin is actively going on in the established 'Indian pangolin conservation breeding centre'. Monitoring through the infrared sensitive CCTV cameras unfolds the secrets of the life of the pangolins. The centre has successfully bred Indian pangolins in captivity. Besides, the centre is also focusing to standardize the hormonal assay of fecal steroid metabolites to better understand reproductive aspect of these endangered species.

(b) Conservation Breeding of Long billed vultures:

The vulture Conservation Breeding Centre has been constructed in an off-exhibit area of Nandankanan Zoological Park, Bhubaneswar during the year 2011-12 in an area of 0.3 acres surrounded by seven acres of undisturbed forest land with financial assistance from Central Zoo Authority, New Delhi. The Centre was established with objectives to develop protocol for captive management and breeding of long billed vultures for reintroduction and release in to wild. The founder populations are twelve numbers of long billed vultures procured from Gandhi Zoological Park, Gwalior on 26.11.2018. All the vultures are marked with leg bands for individual identity. The centre presently has one colony aviary, two nursery aviaries). A laboratory complex with observatory room for CCTV monitoring, laboratory for analysis of biological samples, incubation room and biologist chamber is available. The activity patterns of vultures are being monitored through two fixed angle and one PTZ camera with infrared facility. Mating of two vulture pairs was recorded though CCTV in the centre during December 2018 from which one pair laid an egg on 3rd Jan 2019 that hatched after incubation of 57 days on 1st March 2019.

Publications:

The research studies carried out during the year mostly focused on health care management, breeding biology of endangered species, hormonal studies to determine reproductive status of zoo animals, studies on diversity and distribution of free living species of Nandankanan. Some of the studies are published in national and international journals which are mentioned below.

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Herbivore Safari at Nandankanan Zoological Park. Int J Curr Microbiol App Sci. 7(08): 1034-1039.

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3. Panda, S.K. & Sahu, S.K. (2018). Status of diseases in wild birds. In: proceedings of

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4. Sahu, S. K., Mohapatra, S., & Mohapatra, R. K. (2018). Management of a compound carpometacarpal fracture in a lesser adjutant stork (*Leptoptilos javanicus*): a case report. Int J Avian & Wildlife Biol, 3(4), 315-317.
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 6. Mohapatra, R. K. (2018). Sighting of Indian grey hornbill and Rufous woodpecker at Nandankanan Wildlife Sanctuary, Odisha, India. Int J Avian & Wildlife Biol, 3(4), 307-308.
 7. Mohapatra, R. K., Sahu, S. K., Panda, S., Das, J. K., & Upadhyay, H. S. (2019). Himalayan Griffon: rescue and treatment of *Gyps himalayensis* in Odisha, India. ZOO'S PRINT, 34(3), 24-27.
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 9. Challender, D.W., Ades, G.W., Chin, J.S., Sun, N.C.M., Chong, J.L., Connelly, E., Hywood, L., Luz, S., Mohapatra, R.K., de Ornellas, P. & Parker, K. (2019). Evaluating the feasibility of pangolin farming and its potential conservation impact. Global Ecology and Conservation, 20, p.e00714.
 10. Mohapatra, R.K., Purohit, S., Ray, S.S., Sahoo, A.A., Panda, M.K., Panda, B.P., Nanda, S., Sahoo, M., Padhee, B.K., Parmar, M., Biswal, U., Parida, S.P., Das, J.K., Paul, S. (2019). Addition of some bird species to checklist of Nandankanan wildlife sanctuary, Odisha. Int J Avian & Wildlife Biol, 4(3), 80-85.
 11. Mohapatra, R.K. and Panda, M.K. (2019). Pangolin Education Kit. Nandankanan Biological Park. Bhubaneswar, Odisha. pp 1-36.
 12. Mohapatra, R.K., Bhatia, G. Das, J.K. and Paul, S. (2019) Birds of Nandankanan Wildlife Sanctuary-a pocket guide to 168 familiar birds. Nandankanan Biological Park, Forest and Environment Department, Government of Odisha.



ZOO EDUCATION PROGRAMME

About 3.3 million people visit Nandankanan Biological Park every year. Such a wide, diverse, varied and regular visitors provide an excellent opportunity for education which has enormous potential to heighten public perception and awareness about the wild animals and their conservation. The use of variety of educational techniques, facilities and considerations, together with knowledge, creativity and inventiveness can make the zoo highly interesting, attractive and effective place for environmental conservation and holistic life system education. Zoo provides an opportunity to open up a whole new world of curiosity and sensitize visitors regarding the value and need for conservation of wildlife. To achieve the objectives, we do influence as many people as we can and deliver something relevant and attractive to the wider community. We want visitors to enjoy themselves and to feel the wonder and affection towards animals by making it easy for them to take the feeling of interaction with them after they leave the gate. The education programmes are designed with a different flavour, like celebration of birthday of big cats, elephant day, naming the new born, wetland day, pangolin day, world wildlife day, International tiger day, vulture day, display of thematic signage etc. There is a dedicated Zoo Education Officer to take care of these activities.



DATE	PROGRAMME/EVENT	NUMBER OF PARTICIPANTS
11.04.2018	Field visit of students of Sai International School, Bhubaneswar	80
24.04.2018	Study tour of B. V.Sc & AH final year students from O.U.A.T., Bhubaneswar	36
28.04.2018	Observation of World Veterinary Day	Officers & Staff
02.05.2018	Study tour of people from Committee of Welfare Backward class of Jharkhand	15
03.05.2018	Orientation tour of FRO trainees from Angul, Odisha	32
05.05.2018	Study tour of B.V.Sc & A.H. students from O.U.A.T., Bhubaneswar	38
08.05.2018	Orientation tour of FRO trainees from Angul, Odisha	33
11.05.2018	Study tour of B.V.Sc & A.H. students from O.U.A.T., Bhubaneswar	45
05.06.2018	Celebration of World Environment Day	>200
19.06.2018	Orientation tour of Forest Guard from FTS, G.Udaygiri	45
25.06.2018	Capacity building of Front-line staff of Group-C of Nandankanan Zoological Park	40
07.07.2018	Study tour of B.V.Sc & A.H. students from O.U.A.T., Bhubaneswar	10
29.07.2018	Celebration of International Tiger Day	>180
08.08.2018	Study tour of senior IFS officers from Maharashtra	30
12.08.2018	Celebration of World Elephant Day	>200
17.08.2018		
&18.08.2018	Capacity building of Group-D staff and T.S employees of Nandankanan Zoological Park	85
13.09.2018	Orientation tour of FRO trainees from Himachal Pradesh State Forest Academy, HP	31
19.09.2018	Field visit of B.Sc. students of D. R. Nayapalli College, Bhubaneswar	25
20.09.2018	Field visit of B.Sc Zoology students, from S.C.S College, Puri	28
04.10.2018	Field visit of five officials from Telangana Forest officials	05
07.10.2018	Celebration of Wildlife Week	>200
10.10.2018	Orientation visit of Forest Guard from NFTS, Champua	55
13.11.2018	Field visit of B.A Psychology students from Sailabala Women's College, Cuttack	30
17.11.2018	Field visit of B.Sc Zoology students from JKBK College, Cuttack	29
18.11.2018	Field visit of M.Sc Zoology students from Goa University, Goa	30
29.11.2018	Field visit of M.Sc Zoology students from Utkal University, Bhubaneswar	15
02.12.2018	Field visit of ITBP students from Khordha, Odisha	45
11.12.2018	Orientation visit of FRO trainees from Coimbatore, Karnataka	45
11.01.2019	Orientation visit of FRO trainees from Coimbatore, Karnataka	31
13.01.2019	Field Visit of B.Sc Zoology students from Kendrapada College, Kendrapada	36
20.01.2019	Orientation tour of IFS probationers from IGNFA Group-A	46
26.01.2019	Orientation visit of Forest Guard from NFTS, Champua	47
01.02.2019	Orientation visit of Forest Guard from FTS, G.Udaygiri, Odisha	47
02.02.2019	Celebration of World Wetland Day	>150
09.02.2019	Orientation tour of IFS probationers from IGNFA Group-B	46
16.02.2019	Celebration of World Pangolin Day	>200
18.02.2019		
&19.02.2019	Capacity building of Group-D staff of Nandankanan Zoological Park	90
21.02.2019	Orientation visit of Foresters from FTS, Ghatkhia, Bhubaneswar	43
03.03.2019	Celebration of World Wildlife Day	>100
07.03.2019	Study tour of B.V.Sc & A.H. students from O.U.A.T., Bhubaneswar	45
08.03.2019	Study tour of B.V.Sc & A.H. students from O.U.A.T., Bhubaneswar	45
15.03.2019	East India Tour of officer training of SFS Batch of CASFOS, Burnihat	35

WORLD VETERINARY DAY

World Veterinary Day was celebrated at Nandankanan Zoological Park on 28th April 2018. The celebration was observed with discussion on highlighting important contributions of the veterinary profession. ACFs, Range Officers, Zoo Veterinarians, Biologist, Education Officer, Forester, Forest Guard, Animal Keepers and other Group D staff attended this programme. Veterinarians highlight their speech in significant manner. An open quiz was organized amongst visitors with the above theme and finally a signature campaign was conducted in front of Interpretation centre to raise awareness among the people.



WORLD ENVIRONMENT DAY

Nandankanan Zoological Park commemorates the World Environment Day on 5th June, 2018 by organizing and promoting the Day through a series of engaging activities and events generating strong public interest and participation. This auspicious Day started with clean up drive of the Zoo surroundings. A signature campaign was organized in three different locations inside the Zoo to create awareness to free the earth from Plastic. The visitors coming to the Zoo from different parts of the country participated in this campaign. A quiz competition was also organized where visitors were participated and given a prize as a token of memory and commitment to the cause of the Day. In this day, fruit-bearing and medicinal plants were planted by the officials and visitors in the identified locations inside the Zoo. Nandankanan is going to install one plastic bottle crusher and one plastic waste disposal unit shortly as a commitment on the eve of this auspicious day and also looking forward to explore sustainable alternatives. We are very much committed to make the planet a cleaner and greener place.

INTERNATIONAL TIGER DAY

International Tiger Day, 2018 was celebrated on 29th July, 2018 at conference Hall of Nandankanan Zoological Park. The celebration was attended by school students, teachers, and representatives of Print and Electronic media and staff of Nandankanan. An interactive written quiz programme on “Tiger Conservation” was conducted amongst the school children, in which 48 students from 6 schools were participated. Prizes were distributed to the students answered correctly in the quiz. The chief Guest emphasized on facts about tiger, status, conservation strategy, behavior, and their importance in wild.



WORLD ELEPHANT DAY

Elephant day was celebrated at Nandankanan Zoological Park on 12th August, 2018 in the presence of Dr H.S.Upadhaya, Director Nandankanan Biological Park, Sri Jayant Kumar Das, Deputy Director, Nandankanan Zoological Park, Sri K.L. Purohit, DCF, Nandankanan Biological Park and Sri A.K.Roy. The celebration was observed with a mass awareness programme amongst the visitors, school children and guides with a message for elephant conservation. The elephants have received a special treat of coconut, banana, sugarcane, maize, grapes and apple. The mahouts were also felicitated in the auspicious occasion for their hard work. A meeting convened to distribute prizes to the winners of Sit & Draw competition which was organized previously.



WILDLIFE WEEK

64th Wildlife Week was celebrated at Nandankanan Zoological Park on 6th October, 2018 in a great manner with collaboration with Nature & Wildlife Conservation Society of Odisha, (NWCSO). An interactive quiz programme on “Wildlife” was conducted amongst the school children. 55 students from 9 schools were participated in the quiz competition. Prizes were distributed to 20 students which are highly appreciated by participants. Jointly a meeting was convened to distribute prizes to the winners of Sit and Draw competition which was organized previously. Finally, a signature campaign programme was conducted in front of Interpretation centre of Nandankanan Zoological Park to create awareness on importance of Wildlife Conservation amongst the visitors.



WORLD WETLAND DAY

World Wetland Day, 2019 was celebrated on 2nd February, 2019 on the bank of Kanjia Lake, near Waterbird aviary at Nandankanan Zoological Park. The celebration was attended by the local school students, representatives of Print and Electronic media and staffs of Nandankanan Zoological Park. The theme for this year 2019 was “Wetlands and Climate change”. An interactive quiz programme on “Wetlands” was conducted amongst the school children. Prizes were distributed amongst the winners of quiz programme. The Guest of Honour discussed the importance of wetland in biodiversity conservation and climate change. The Chief Guest emphasized on conservation of the wetlands in general and Kanjia Lake in particular in the interest of water management of the locality. Guests discussed on Wetlands and their importance, theme of this year and their conservation strategy to conserve wetlands and their role in our economy.





FOUNDATION DAY

The 59th Foundation Day of Nandankanan was celebrated on 29.12.2018 in the zoo premises. Sri Bijayshree Routray, Hon'ble Minister, Forest and Environment Department, Government of Odisha, graced the occasion as the Chief guests and Dr Sandeep Tripathy, Principal Chief Conservator of Forests & Chief Wildlife Warden, Odisha was the guest of Honour of the ceremony. Annual Report for the year 2017-18 and a calendar for 2019 were released on the occasion. The best workers of Nandankanan were rewarded by the Guests. The meeting was attended by VIPs, school children, visitors, serving and retired forest officers and zoo staff and media persons. On the eve of 59th foundation day, the newly constructed Vulture Conservation Breeding Centre was inaugurated by the chief guest.

WORLD PANGOLIN DAY

The World Pangolin Day, 2019 was celebrated at Nandankanan Zoological Park on third Saturday of February, i.e. 16th February 2019. A drawing competition themed “PANGOLIN & ME” was organized among school children on this occasion and prizes were distributed to the winners. Besides, a signature campaign themed “I Support Pangolin Conservation” and selfie with Pangolin programme were organized during this celebration supported by many school children, teachers, staff of Nandankanan, zoo guides and visitors by their signature and writing message for pangolin conservation. A booklet titled “Pangolin Education Kit” was released by the chief guest. Leaflet and stickers with information on pangolin and their conservation were distributed to visitors for awareness.



WORLD WILDLIFE DAY

The World Wildlife Day was celebrated at Nandankanan Zoological Park on 3rd March 2019 to create awareness among people on help to reduce the threats on marine species. A Quiz competition on theme “Life below water: for people and planet” was organized during the celebration. The School children, visitors, zoo guides and employees of Nandankanan Zoological Park have participated in the celebration.



STATE BOTANICAL GARDEN, NANDANKANAN

The State Botanical Garden spreads over an area of 75 ha. is situated in the sylvan settings of the moist deciduous forest of the sprawling green Nandankanan Sanctuary hemmed between two wetlands. The Botanical Garden was established in the year 1963 and was under the management of the Horticulture Department. The management of the State Botanical Garden was transferred to Nandankanan on 01.08.2006. One would be definitely impressed by nature's symphony and the exquisite touch of the wilderness here. This is one of the pioneering plant conservation and nature education centre of the State. The Botanical garden is sure to provide a memorable experience to the green enthusiasts. The State Botanical Garden is situated inside the Nandankanan wildlife sanctuary. Kiakani lake with an area of about 25 ha. is located inside the State Botanical Garden.



ENTRY FEE & OTHER CHARGES

BOTANICAL GARDEN

Children upto 12 years- Free

Adult – Rs. 20/-

Two wheeler- Rs. 30/-

Three wheeler- Rs. 30/-

Four wheeler- Rs. 100/-

Heavy vehicle- Rs. 200/-

Picnic spot

Smaller pindies – Rs. 250/- + Rs. 50/- (Service charges) each.

Bigger pindies – Rs. 500/- + Rs. 50/- (Service charges) each.

Each room of the barrack – Rs. 1200/- + Rs. 100/- (Service charges)

FRH-I- (Suit-I)- Rs. 3000.00+ Rs. 100/- Service charges

FRH-I-(Suit-II)- Rs. 2500.00+ Rs. 100/-Service charges

FRH-II- Rs. 2500.00+Rs. 100/-Service charges

Holiday Cottage- (ground floor) Rs. 2500.00+ Rs. 100/-Service charges

Holiday Cottage- (first floor) Rs. 2500.00+ Rs. 100/-Service charges

Special picnic pindies – Rs. 1500/- + Rs. 100/- (Service charges) each

Picnic sheds – Rs. 1200/- + Rs. 100/- (Service charges) each

Film shooting- Rs. 25,000/- per day

TV serial/documentary- Rs. 15000/- per day

Album song- Rs.10,000/- per day

TIMING

The Garden remains open in all public days except Mondays from 7.30 AM to 5.30 PM (April to September) during summer and 8.00 AM to 5.00 PM (October to March) during winter.

Visitor flow & revenue generated during last five years

Year	No. of visitors	Total Revenue collected (Rs. In lakh)
2014-2015	1,38,681	20.62
2015-2016	1,84,915	35.09
2016-2017	2,00,007	54.28
2017-2018	1,92, 590	71.73
2018-2019	1,86,494	72.26

INFRASTRUCTURE

The Botanical Garden covers 26 different satellite gardens spread all over undulating landscapes mixed with natural vegetation and meadows. The important facilities available in the Botanical Garden are described below.

GLASS HOUSE

A spacious glass house of 2013 sq ft. has been developed for housing succulent plants. A variety of bonsai adds beauty to the Glass House. One can enjoy blooming ornamental plants from the period from November to March.



CACTI HOUSE

A 1080 sq ft. Poly house houses important species of cacti and succulent plants. A rich collection of more than 1200 cacti are available in the Cacti House.

DRY GARDEN

A garden of xerophytic plants has been developed over an area of 0.65 Acre in front of Glass House. The entire garden has been designed with loose stone work to give it exclusive look of dry zone which attracts the visitors.



GREEN HOUSE

A state of art green house of 5200 sq ft. houses the cultivars of 60 species of indoor plants like Aglaonema, Philodendron, Calathea, Cordyline, Diffenbachia, Spathophyllum, Peperomia, Monstera, Hemigraphis etc.

CHILDREN'S PARK

A niche for the kids has been created within the natural setting by providing swings, marry-go-round, sliding chute etc. The gallery located nearby filled with ornamental plants enhances beauty of the Park.



BUDDHA PARK

The park has been developed over an area of 12000 sq ft located by the scenic beauty of Kanjia Lake. It features a beautiful Buddha Statue as its centrepiece. Rain shelter, sit outs and ornamental flower beds are other attractions.

ARTIFICIAL ZOO

Models of different animals are used to explain the ecological niche with an objective to generate awareness among the children.



BUTTERFLY PARK

Butterfly Park, an interesting option among visitors has been developed over an area of 36590 sq.ft. The garden has a unique landscape with 6400 host plants and nectar plants for butterflies. The garden has one cascading waterfall with 170 sq.ft. flowing water channel, fountains and artistic bridges. One can sight more than 58 species of butterfly here. The visitor will get the fragrance of beautiful flowers and feel the beauty of flying jewels of nature. The newly created Butterfly Park was opened to the visitors in February, 2014.



BUTTERFLY INTERPRETATION CENTRE

The Centre spreads over an area of 800 sq.ft has been developed near the Butterfly Park. The newly opened centre has colourful pictorial display boards to disseminate information on butterfly to the visitors. The main objective of the centre is to provide on various biological aspects of butterflies. A short documentary about butterfly is an added attraction. The Interpretation centre was opened to the visitors in March, 2015.

ROSARIUM

It is one of the richest collections of 1200 Rose plants belonging to 55 varieties grown over an area of 1.5 Acres of land. The garden is liked by the visitors most and has maximum foot flow during the winter.



ORCHID HOUSE

The largest Orchid House of the State spreads over an area of 5000 sq.ft. and displays more than 1000 orchids of 57 varieties belonging to 37 species. One can enjoy the orchid in bloom round the year displaying various colour of nature.





MEDICINAL GARDEN

A well renovated medicinal garden spreads over an area of 2.26 Acre which displays a rich collection of 225 species of herbs, shrubs, creeper, climber and trees.

JAPANESE GARDEN

A state of art Japanese Garden in Tsukiyama-niwa style with flowing streams and other typical features is a star attraction. It covers an area of 0.50 acres.



MUGHAL GARDEN

The Mughal Garden covering an area of 1.01 ha has a cascade of flowing water and flowering plants both seasonal and perennial on both sides give a look of gardens of Mughal era. The garden is liked mostly by young people and has maximum foot flow during winter.

EVOLUTION GARDEN

The Evolution Garden covering an area of 0.77 ha gives complete information about the evolution system of plant kingdom. The one way path takes a visitor from lower plant groups like Algae, fungi, Bryophyta, Pteridophyta to the evolution of large plant groups like Gymnosperm and Angiosperms. The concept of such garden is very informative for the students and researchers.



HERITAGE GARDEN

The Heritage Garden covering an area of 1.2 Acre is situated adjoining to the Evolution garden with natural rock and old Banyan trees. A Tulsi (*Occimum santum*) garden containing six varieties of Tulsi plant with models of monk, live size cow and tribal hut are the attraction of the garden.

ARBORETUM

The Arboretum spread over an area of 4 ha has been established with a collection of more than 234 species (from 49 families) found in the Eastern Zone forests. A minimum of 10 nos. of each species has been planted with signage displayed. A network of path has been made through the plantation which will be an ideal walkway for botanization for the trainees and students.





LANDSCAPE GARDEN

It is a model landscaping having different elements like lawn, trees and shrubs spread over an area of 1.6 Acre. 1000 trees of different species have been planted to maintain the rhythm.

PALM GARDEN

Palm garden is an amazing site to see varieties of common and rare palms. A collection of 29 varieties of beautiful palms have been planted over an area of 15000 sq.ft. One designed water body along with 15000 sq.ft grass carpet has been developed inside the Palm Garden for the public.



BOUGAINVILLEA GARDEN

One Bougainvillea garden has been developed over an area of 21400 sq.ft. More than 1000 Bougainvillea plants of different colours (8 varieties) have been displayed in the garden. A series of creepers raised on the back of the garden adds beauty to the park.

HIBISCUS GARDEN

A garden has been developed over an area of 11000 sq. ft, located in between glass house and Palm garden. More than 130 nos of plants of 27 varieties have been planted in the garden.



HYDROPHYTES GARDEN

Hydrophytes garden is an amazing site to see varieties of common and rare hydrophytes. A collection of 23 varieties have been planted over an area of 0.1 Acre.

CARNIVOROUS PLANT GARDEN

The garden established inside the state botanical garden covering an area of 800 sq ft is intended to exhibit carnivorous plants. Nandankanan is the first of its kind to display carnivorous Plants. The garden has been developed initially to accommodate 4 species of carnivorous plants with provision of naturalistic landscape.





CONSTITUTION OF THE SOCIETY FOR MANAGEMENT AND DEVELOPMENT OF NANDANKANAN BIOLOGICAL PARK.

Government of Odisha constituted the “Society for Management and Development of Nandankanan Zoological Park” on 27th August, 2005 and the society has been registered under the Registration of Societies Act of 1860 with Registration No. 22073/54 of 2005-2006 dated 27.08.2005, with the following principal objectives.

- (a) Complementing, supplementing, strengthening or otherwise expanding the activities of Nandankanan Zoological Park in the cause of in-situ conservation of wildlife captive management of wildlife and eco-tourism and facilitating linkage between ex-situ and in-situ management of wildlife.
- (b) To act as platform for open debate, discussion and subscribe to otherwise assist any charitable, benevolent, scientific, national, public or any other institution the object or purpose of which are consistent with or which promotes objects of the society.
- (c) To coordinate and liaise with national/international bodies, experts and funding agencies and to receive constitution and funds from Government of India, Central Zoo Authority, State Government or any individual, institute, national or international agencies, any other institution of Central Government or State Government for specific conservation programme, development of eco-tourism amenities of Nandankanan.
- (d) To receive and manage all contributions given to the Society in large interest of Nandankanan Zoological Park for maintenance and upkeep of zoo animals, improvement of the premises as well as maintenance and upkeep of zoo animals, improve the premises as well as maintenance and improvement of visitors amenities.
- (e) To engage/employ such staff as may be necessary for efficient handling and conduct of business of the society with approval of General Body.
- (f) To do all such acts and activities as area incidental or conducive to attainment of the objectives or directly beneficial to the society in promotion of its objects, subject to the overall control of the Chief Wildlife Warden and in conformity with the Society Registration Act, 1860.
- (g) To carry out any other activities in the furtherance of the above objectives.

UNIQUENESS OF NANDANKANAN

- Only zoo in the world where melanistic tigers were born (2014) and displayed to the visitors.
- It is the host zoo for white tigers, white tigers were born to normal coloured parents in 1980, a unique event in the world.
- First zoo in the country where endangered Gharials were born in captivity in 1980.
- A unique white tiger safari was established in the Zoological Park on 1st October, 1991.
- Wonderful site for wildlife conservation and education where one can experience integration of ex-situ and in-situ conservation of wild fauna and flora.
- Presence of Kanjia Lake- A wetland of National Importance (2006)
- Conservation Breeding Centre for Indian Pangolin and Long-billed vultures.
- Nandankanan has the largest enclosures for housing Gharials and Hippopotamus.
- Second largest heronry for open billed storks in Odisha.
- Has a Captive Fodder Farm (over 33 Acs.) and a Slaughter house to cater the dietary needs of animals housed in the Zoological Park.
- First zoo in the country to become an Institutional member of the World Association of Zoos & Aquarium (WAZA).
- First Zoo in the country where endangered Ratel was born in captivity.
- First zoo in the country after which an express train 12815/12816 Puri-New Delhi Express has been named as "Nandankanan Express".





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