Annual Report
2015-16

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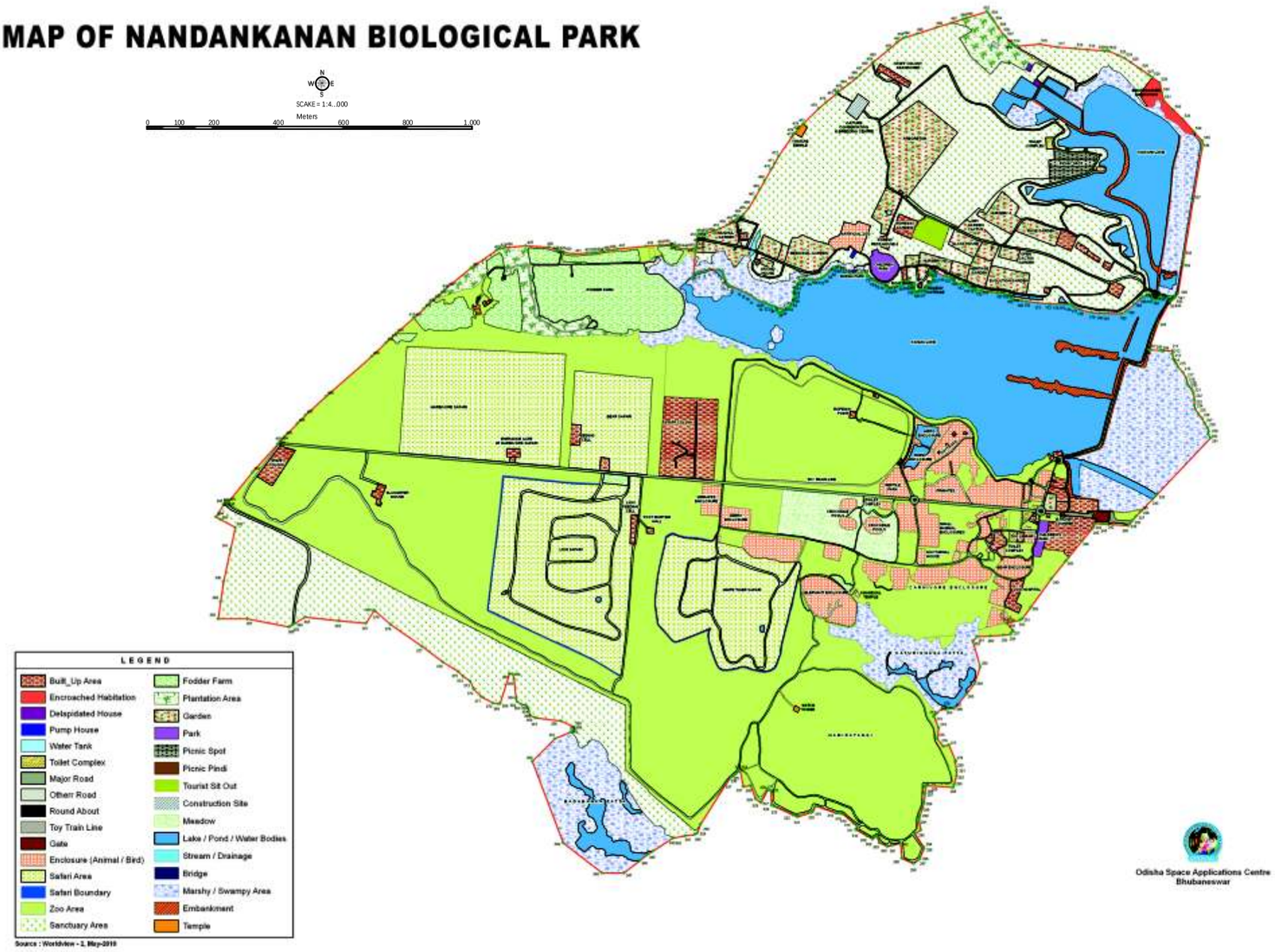
NANDANKANAN
The Paradise on Earth

MAP OF NANDANKANAN BIOLOGICAL PARK



ANNUAL REPORT
2015-16

Nandankanan Zoological Park

Bhubaneswar

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From Director's Desk

Nandankanan Zoological Park (NKZP) the first zoological park of the State started its humble beginning in 29th December 1960. NKZP has become a destination for all those who like to experience nature & the wild. Far more than just a tourist attraction, our major management thrust has been: ex situ conservation of the threatened species; education to spread awareness about the animal world and their conservation needs; research to achieve the conservation goals and to provide exciting visitor experiences. Displaying our commitments, we have worked diligently to make significant improvement in the infrastructure development, animal collection, health care, enclosure enrichment, fodder production and conservation research to ensure our place as a conservation leader. The steady increase in annual footfall from 24.01 Lakhs in 2010-11 to 33.19 Lakhs in 2015-16 indicates the appreciation of innovative ideas by the new generation visitors & will be further visible in coming years.

The park is home to more than 2669 animals representing 152 different species of amphibians, reptiles, birds and mammals. The Zoological Park together with the panoramic Kanjia lake and State Botanical Garden have been declared as Nandankanan Wildlife Sanctuary over an area of 4.37 sq. km. on 3rd August, 1979. The natural forest areas of Nandankanan have a rich floaral and faunal diversity including 704 species of plants, 13 species of mammals, 15 species of reptiles, 71 species of birds, 20 species of amphibians, 85 species of butterflies and 51 species of spiders.

Many species of wild animals including four horned antelope, hog deer, swamp deer, gaur, giant squirrel, manipuri deer, Himalayan black bear, black buck, jackal, marmoset, hippopotamus, peafowl, night heron, white ibis, pariah kite, gharial and flap shelled turtle etc. have bred successfully in the park during the year. Nandankanan had successfully reared four striped hyena cubs received on 21.11.2015 from Cuttack Forest Division. Besides, one lion cub born on 23.07.2015 in the park was also reared following rejection by her mother.

During the year, a Live Feed Rearing Centre was established in the park to ensure regular supply of hygienic live feed to fulfill the special dietary requirement of zoo animals. Many enclosures were renovated and supplemented with standoff barriers, signage and landscaping. Renovation of Nocturnal House to exhibit nocturnal animals of regional importance in spacious enclosure simulating their natural habitat and renovation of Zoo Museum to preserve, display and interpret the animal species and their early developmental stage for public viewing and nature education are worth mentioning.

Animal exchange programme is an essential component of zoo management. One pair of gaur from Chhatbir zoo, Panjab and Two male and three female Manipuri deer from National Zoological Park, New Delhi was brought under animal exchange programme during May, 2015. Two pair of African lion and two pair of Grant's zebra were received from Tel Aviv zoo, Israel during September, 2015. One male Giraffe was brought from Alipore zoological garden, Kolkata during February, 2016.

The last financial year, the park organized a range of innovative educational and awareness pogrammes including birth day celebration for tigers, naming ceremony, celebration of World Wetlands Day, World Pangolin Day, Wildlife Week, Elephant Day, Foundation Day etc. We have tried not only to build an enduring emotional bond with the animals, but also alerts them to the challenges faced by the animals in the wild. Besides, training for field staff on tranquilization techniques, orientation training of zoo guides, forester and forest guards and exposure visits were organized during the year for capacity building of staff. In addition, our staff also attended training/workshop organized by CZA. During the year one education officer five foresters and three forest guards were recruited at Nandankanan.

Highest standards of animal husbandry and veterinary care have been always our priority. To achieve this, we have a well equipped zoo veterinary hospital and three dedicated veterinary surgeons. The average mortality of the captive animals during the year 2015-16 was observed to be 3.61% due to intensive health care and preventive actions. This was possible due to the 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.

In the era of modern zoo management, zoos are considered as center for conservation and research. In this context, it is worth mentioning that two research papers were published during the year in national and international journals. Research activities on Indian pangolins have also been carried out at Pangolin Conservation Breeding Centre to understand the biology of this secretive species. After repeated death of male gharials, steps were taken for artificial incubation and rearing of gharial eggs collected from the sand bank of gharial pool. The eggs were successfully hatched and hatchlings were now reared in separate pools.

The State Botanical Garden which spreads over an area of 75 ha adjoining the Zoological Park was handed over to Nandankanan Management since August, 2006. This is one of the most important plant conservation facilities in the State. In the past year, a Carnivorous Plant Garden was established to exhibit and promote awareness about the carnivorous plant and their conservation needs.

The Annual Report in your hand is no doubt a report that provides for our achievement, but also a document that will help to build on the future opportunities & innovations as well. I convey my best wishes to the entire team of management of the park and seek whole hearted support for the overall development of Nandankanan. I sincerely believe that during the coming years, Nandankanan will continue to grow as a world class zoo and contribute significantly in the field of wildlife conservation, education and research.

Mr S. K. Acharya, IFS
Director
Nandankanan Biological Park

Contents

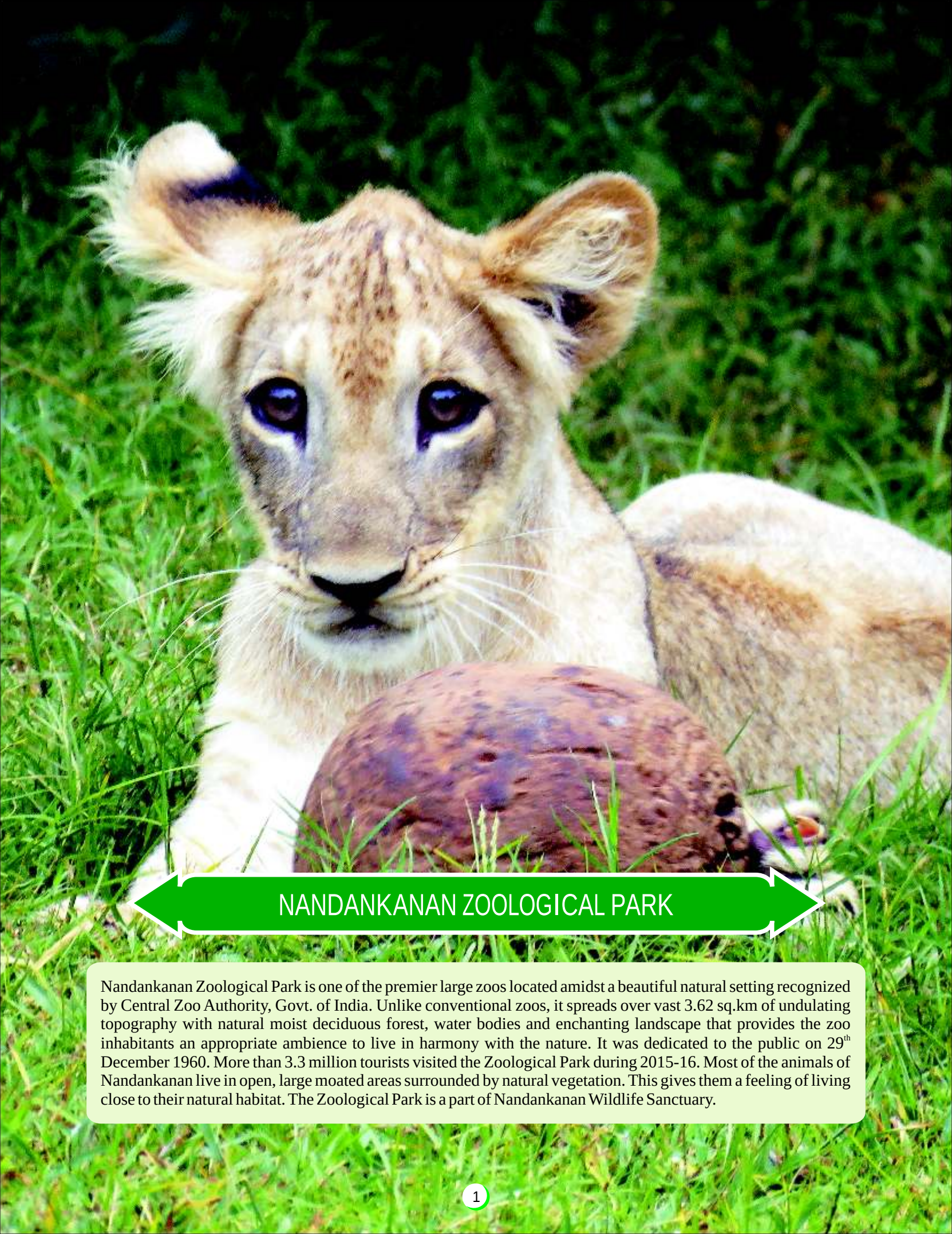
MISSION

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.



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 the nature. It was dedicated to the public on 29th December 1960. More than 3.3 million tourists visited the Zoological Park during 2015-16. Most of the animals of Nandankanan live in open, large moated areas surrounded by natural vegetation. This gives them a feeling of living close to their natural habitat. The Zoological Park is a part of Nandankanan Wildlife Sanctuary.

SALIENT FEATURES

Area	Nandankanan Zoological Park (includes Kanjia lake of 66.1 ha.)	-	362.1 ha. (3.62 Sq.Km.)
	Nandankanan Wildlife Sanctuary	-	437 ha. (4.37 Sq.Km.)
Captive animals and birds as on 31.03.2016	Mammals	43	936
	Birds	79	1473
	Reptiles	24	239
	Amphibians	06	21
	TOTAL	**152**	**2669**
No. of animal House	210 nos. (covered - 116, open moated - 94)		
Zoo holiday	Every Monday		
Zoo timing	For visitors	0730 hrs. to 1730 hrs (April - September)	
		0800 hrs. to 1700 hrs. (October-March)	
Animal feeding time	Carnivores	03.00 pm to 05.00 pm (Except Monday)	
	Reptiles	11.00 am to 1.00 pm	
	Birds	11.00 am to 1.00 pm/3.00 pm to 5 pm	
	Herbivores	11.00 am to 1.00 pm/3.00 pm to 5 pm	

SPECIAL ATTRACTIONS

The sylvan setup of the Park provides many special features which attracts 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 more than 66 ha. lake. The boating service is outsourced for better management and satisfaction of the visitors. The lake is also known for its rich floral and faunal diversity and is declared as a Wetland of National Importance by Govt. of India.

White tiger safari

A unique white 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 to have a white tiger safari.

Lion safari

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

Herbivore safari

Herbivore safari was established in the year 2011 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, wild boar, jungle fowls, peafowls etc.

Bear safari

A Bear safari covering an area over 5 ha. has been established in the zoo during the year 2012. 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 secretively do in the darkness of the night.

Reptile Park

A reptile park, with a life size Tyrannosaurus at its entrance with an interpretation centre houses 24 species of reptiles including crocodiles, lizards, turtles and snakes. One would encounter crocodiles, king cobras and a huge reticulated python inside the reptile park.

Reptile Interpretation Centre

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

Toy Train

The toy train has been a great attraction for the children. Its 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.

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

Eco friendly & non polluting Battery Operated Vehicles(BOVs) to go round the zoo for senior citizen, children, & physically challenged visitors have been provided on tender basis. The 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 30.03.2012. 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.

Amphibian enclosure

An amphibian enclosure has been established with viewers gallery over a plinth area of 56 m^2. 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.

Walk Through 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 & awareness programme
- Conducted tour for school children.
- Availability of trained guides

VISITORS' AMENITIES

- Drinking water kiosks
- Toilets at convenient locations
- Special toilets, wheel chairs & ramps for differently abled persons
- Rest areas / sit-outs / visitors' sheds at various locations.
- Tourist cottages
- Restaurant & Snacks bar
- Cloak room near the entrance gate
- First-aid (at zoo hospital & administrative office)
- Library
- Battery operated vehicles
- Guide maps
- Publications
- Children Park
- Souvenir shop

ENTRY FEES AND OTHER CHARGES

Entry Fee:		
Indians (Above 12 years)	-	Rs.25/-
Children Age group of 3-12	-	Rs. 10/-
Foreign visitor	-	Rs.100/-
Differently able persons & Children below 3 years	-	FREE.
Tourist Cottage	-	Rs.200 & 300/-
Film Still Camera	-	Rs.5/-
Digital Still Camera	-	Rs. 10/-
Handy cam camera	-	Rs.100/-
High end Video Camera (Amateur Photographer)	-	Rs.500/-
Movie Camera(Professional Photographers)	-	Rs.4,000/-
Safari		
Lion safari & White tiger safari	-	Rs. 30/-
Herbivore safari	-	Rs.10/-
Bear safari	-	Rs. 10/-
Toy Train (under renovation)	-	Rs.10/-
Ropeway (New) (under construction)	-	Rs. 50/-
Aquarium		
Adult	-	Rs.10/-
Children	-	Rs.5/-
Boating (for 30 minutes)		
Paddle Boat (2 seater)	-	Rs.35/-
(4 seater)	-	Rs.70/-
Family boat	-	Rs.120/-
Wheel chair for differently able persons	-	Free
Perambulator for children	-	Rs.2/- per hour
Battery Operated Vehicle	-	Rs. 50/ person

Monthwise number of visitors during 2015 -16

Month	No. of visitors	Month	No. of visitors
April	1,81,134	October	2,92,338
May	1,78,308	November	2,62,637
June	1,90,074	December	4,38,822
July	1,80,683	January	5,14,375
August	2,34,474	February	3,24,332
September	2,03,328	March	3,11,006
Free entry of school children Wildlife Week & Children's Day			4,050
Free entry of differently abled persons			828
TOTAL			**33,19,389**

Month wise visitor flow % at NKZP from April,2015 to March, 2016

Human Resource

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

Sl. No.	Name of each category of post	Sanctioned strength	No. of staff in position	No. of vacancy
1	Director	1	1	-
2	A.C.F.	1	1	-
3	Forest Range Officer	1	-	1
4	Senior Steno	1	-	1
5	Senior Clerk	4	2	2
6	Junior Clerk	4	4	-
7	Driver	1	1	-
8	Office Chowkidar	1	1	-
9	Office Sweeper	1	1	-
10.	Office Peon	1	-	1
	TOTAL	16	11	5
Total strength of Nandankanan Zoological Park including Director's office		168	125	43

(B) Statement showing sanctioned strength and present staff position in Nandankanan Zoological Park

Sl.No.	Name of each category of post	Sanctioned strength	N o. of staff in position	No. of vacancy
1	Deputy Director, N.K.Z.P.	1	1	-
2	Sr.Veterinary Officer	1	1	-
3	Asst. Director/ ACF	2	2	-
4	Veterinary Assistant Surgeon	1	1	-
5	Forest Ranger	7	7	-
6	F.E.S.	1	-	1
7	Biologist	1	1	-
8	Education Officer	1	1	
9	Deputy Ranger	1	-	1
10	Head Clerk	1	1	-
11	Fitter -cum -Mechanic	1	-	1
12	Junior Accountant	5	3	2
13	Junior Stenographer	1	1	-
14	Forester	9	7	2
15	Driver(H.V)	3	3	-
16	Driver (L.V.)	4	2	2
17	Livestock -Inspector	3	2	1
18	Projector Operat or	1	-	1
19	Junior Librarian	1	1	-
20	Artist - cum - Modeler	1	1	-
21	Guid e	1	-	1
22	Junior Clerk	4	3	1
23	Booking Clerk	3	3	-
24	Engine Driver	1	-	1
25	Welder -cum -Blacksmith	1	-	1
26	Forest Guard	25	19	6
27	Mali	5	4	1

28	Khansama	1	1	-
29	Mahunta	3	3	-
30	Animal Keeper	25	22	3
31	Office Peon	1	1	-
32	Sweeper	10	10	-
33	Bunglow Chowkidar	3	1	2
34	Winch Operator	1	1	-
35	Gangman	2	-	2
36	Ticket Collector	2	1	1
37	Mate	2	1	1
38	Boat Man	2	1	1
39	Zoo Watcher	6	3	3
40	Watchman	7	5	2
41	Cook-Cum- Animal feed Distributor	1	-	1
TOTAL		152	114	38

(C) Statement showing sanctioned strength and present staff position in State Botanical Garden

Sl. No.	Name of each category of post.	Sanctioned strength	No. of staff in position	No. of vacancy
1.	Curator	1	-	1
2.	Horticulture Overseer	1	-	1
3	Senior Clerk	1	1	0
4	Artist	1	-	1
5	Junior Typist	1	-	1
6	Grafter	2	-	2
7	Pump Driver	1	-	1
8	Power tiller operator	1	-	1
9	Herbarium Attendant	1	-	1
10	Gardener	6	-	6
11	Attendant	6	-	6
12	Peon	3	2	1
13	Watchman	1	-	1
	TOTAL	26	3	23

Human Resource Development

(A) Workshop/Training programmes:

- A training programme on tranquilization with hands on practice was conducted at Nandankanan on 29th and 30th September 2015. The training was attended by 28 field staff from different wild life circles of Odisha.
- 59 Nos. of Registered Guides of Nandankanan have participated in an Orientation Training Programme of Zoo guides on 23rd November 2015.
- Sri Rajesh Kumar Mohapatra, Biologist, Nandankanan Zoological Park has undergone Zoological Information Management System (ZIMS) training at Chandigarh organized by CZA and ISIS on 26th and 27th November, 2015
- An Orientation Training Programme for frontline forest staff was held on 14th December 2015 at Nandankanan Zoological Park where 26 Nos. of Foresters and Forest Guards have participated .

(B) Exposure visit:

- A team of seven persons led by Samir Kumar Sahoo, Range Officer and accompanied by Debendra Honaga, Mohan Soren, Ramachandra Hansda, Tikam Bhoi, Braja Kishore Sahu and Rajendra Jena had been to Nehru Zoological Park from 16th March 2016 to 24th March 2016.
- A team of seven persons led by Mahendra Hati, Forester and accompanied by Bedaprakash Sahu, Banamali Jena, Gopinath Hembram, Udayasigh Tamsey, Rajkishore Jena and Satyanarayan Sahu had been to Indira Gandhi Zoological Park, Visakhapatnam, Andhra Pradesh from 10th March 2016 to 15th March 2016.

FINANCE

Revenue collected

An amount of Rs. 856.90 lakhs was generated towards revenue from all sources during 2015-16.

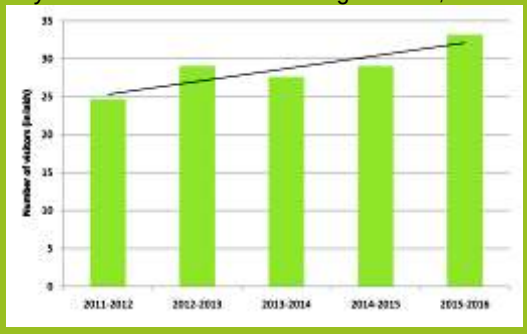
Visitor flow and revenue generated during the year 2015-16

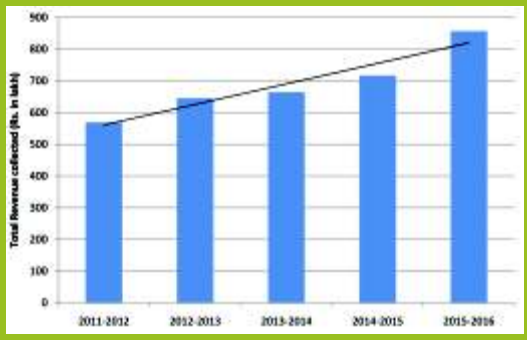
Item	Visitors number	Revenue (in rupees)
Entry Fees		
Common Visitors (Above 12 years)	2,798,531	573,15,155.00
Children (3 to12 years)	469,906	25,59,670.00
School children	44,972	2,24,860.00
Foreign visitors	1,102	1,10,200.00
Free entry (during Wildlife Week and Children's' Day)	4,050	0.00
Free entry of differently abled persons	828	0.00
Still camera	1,201	6,005.00
Digital camera	79,525	7,95,250.00
Handycam	1,845	1,84,500.00
Video camera	3	1,500.00
Outsourced Facilities		
O.T.D.C. Restaurant		79,200.00
O.T.D.C. snacks bar		57,000.00
Weighing machine		24,192.00
Cloak room		75,444.00
Rent of Boating facilities		10,66,600.00
Rent of Parking Place		42,42,441.00
Rent of Toy Train facility		0.00
Rent of safari facility		96,24,010.00
Rent of Aquarium facility		15,25,165.00
Rent of BOV facility		36,30,250.00
Sale of waste cattle bones		29,000.00
Rent of ATM counter		60,000.00
Rent of Souvenir shop		51,000.00
Walk Through Aviary		4,52,940.00
State Botanical Garden(SBG)		
Revenue collected at SBG		35,09,340.00
Others		
Division Office		41,786.00
Tourist cottage		6,700.00
Misc. Revenue		18,240.00
Total	3319389	8,56,90,448

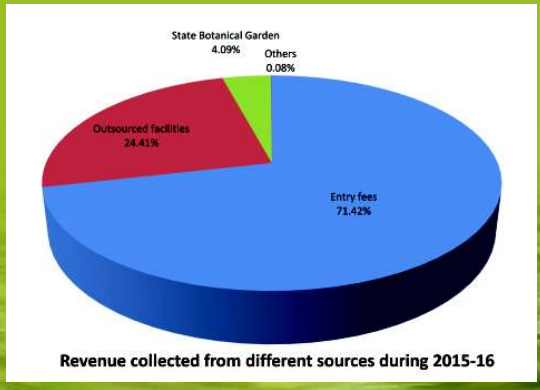
Revenue generated during last five years

Visitor flow during last five years		
Year	No. of visitors (in lakh)	Total Revenue collected (Rs. in lakh)
2011-2012	24.690	569.04
2012-2013	29.059	645.22
2013-2014	27.615*	664.49
2014-2015	29.047	716.86
2015-2016	33.193	856.90

* The visitor flow was reduced due to very severe cyclonic storm "Phailin" during October, 2013.







Revenue collected from different sources during 2015-16

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
1	2	3	4	5	6	7	8	10	11
2011 -12	Allotment	475.64	631.95	2.00	8.80	37.40	52.00	373.77	1553.56
	Expenditure	471.00	603.95	2.0 0	8.80	37.40	52.00	255.66	1430.81
2012 -13	Allotment	494.64	84.65	1.00	8.60	56.25	68.76	675.62	1389.52
	Expenditure	493.34	84.65	1.00	6.88	20.25	38.86	668.04	1313.02
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	65.7	-	6. 65	15.00	119.75	944.00	1859.03
	Expenditure	698.84	65.7	-	6.65	10.00	118.78	767.91	1667.87

Exchange of Animals :

Arrival of new animals from different zoos under animal exchange programme (2015-16)

Name of the zoo	Date	Animal brought	Animals sent
MC Zoological Park, Chhatbir, Panjab	26.05.15	Gaur (1M+1F)	Four horned antelope (2M+2F) White ibis (2M+2F) Water monitor lizard (2M+2F)
National Zoological Park, New Delhi	26.05.15	Manipuri deer (2M+3F)	Four horned antelope (1M+2F) Water monitor lizard (2M+2F)
Tel Aviv Zoo, Israel	14.09.15	African lion (2M+2F) Grant's zebra (2M+2F)	-
Zoological Garden, Alipore, Kolkata	24.02.16	Giraffe (1M)	Normal tiger (1M+2F) White tiger (1M)

Notable births:

Four horned antelope, Hog deer, Swamp deer, Gaur, Giant squirrel, Manipuri Deer, Himalayan black bear, Black buck, Jackal, Marmoset, Hippopotamus, Peafowl, Black kite, Night Heron, White Ibis, Pariah kite, Gharial and Flap shell turtle.

New arrivals:

Gaur, African lion, Thamin deer, Grants zebra, Sun conure and Reev's pheasant.

Glimpses of the events of 2015-16

Establishment of Live Feed Rearing Centre

The live feed rearing centre was established in Nandankanan Zoological Park to ensure regular supply of hygienic live feed to the zoo animals. It was inaugurated by PCCF Wildlife and CWLW, Odisha on 08/07/2015. The centre have the facility of upkeep and breeding of Wistar (albino) rat, BALB/c (albino), Mice, Guinea pig and Mealworm at present which shall be extended in future for upkeep and breeding of other live feed animals required for the zoo animal.

Renovation of Nocturnal House

Nocturnal House was renovated during the year 2015-16 at Nandankanan exhibiting ten species of nocturnal animals of regional importance in spacious naturalistic enclosures simulating their natural habitat with species specific enrichment to fulfill their biological needs. The exhibits will promote education and awareness among the visitors towards biology and conservation of wildlife in general and nocturnal animals in particular. The animal enclosures have been progressively designed to create conditions simulating the natural environment.

Renovation of 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 was inaugurated by Principal Secretary; F&E Department on 18/12/2015, which 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.

Wild blood line infusion to the Tiger population of Nandankanan

Two normal coloured male tiger cubs are born on 20th April 2016 from a zoo born tigress Megha and the strayed wild tiger Nandan housed at Nandankanan. The tiger Nandan strayed into the forests of Nandankanan Sanctuary in the month of March 2013 and On 24.03.2013 one adult male tiger The strayed wild tiger was eventually confined in the white tiger safari on 23.06.2013 and to the top covered enclosure on 07.07.2013 and kept at Nandankanan Zoological Park for use in conservation breeding program in accordance with the order of NTCA and instruction issued thorough letter No. 17230/F&E dated 19.09.2014 of Government of Odisha. This breeding event resulted in infusion of wild blood line into the captive tiger population of Nandankanan, reducing their inbreeding depression and fulfilling the aim of keeping Nandan in captivity.

Resuming captive breeding of Gharial

Following the repeated death of male gharial in gharial pool of Nandankanan during 2014, it was decided to restart captive breeding programme of gharial crocodiles at Nandankanan in a newly constructed hatchery during 2015. The gharial eggs collected from nests at sand banks of gharial pool were incubated in the hatchery to get the hatchlings. Presently 80 numbers of gharial hatchling are being reared in the hatchling pools.

Recruitment of staff

During the year one Education Officer, five Forester and three Forest Guard were recruited. Milan Kumar Panda joined as Education Officer. Sudipa Behera, Pragnya Sahoo, Sudhir Kumar Behera, Arup Rout and Santosh Murmu had joined as Foresters. Jyostna Patra, Sagarika Biswal and Rajshree Rout had joined as Forest Guards.

Successful rearing

Hand rearing of young wild animals is always a challenging task. Nandankanan had successfully reared four striped hyena cubs received on 21.11.2015 from Cuttack Forest Division. Besides, one lion cub born on 23.07.2015 in the park was also reared following rejection by her mother. Conservation breeding programme of gharial crocodiles restarted at Nandankanan in a newly constructed hatchery during 2015. The gharial eggs collected from nests at sand banks of gharial pool were incubated in the hatchery to get the hatchlings. Presently 80 numbers of gharial hatchling are being reared in the hatchling pools.

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 general public in the Conservation of endangered animals, birds, and reptiles. Herein lies the fact that, individuals, philanthropists, organizations, corporates 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 2015-16:

Sl. No.	Name of the persons/Institution	Animals/birds adopted	Period of Adoption
1	Ashok Nanda Memorial Foundation, 294, At/ P.O.- Saheed Nagar, Bhubaneswar	One fresh water turtle and One white necked stork	12th June 2014 to 11th June 2015
2	Ms. Archana Kanungo , CME, IRJSSCE, Post Box-170, GPO, Bhubaneswar	One Black headed Munia, One Bengali Finch and One Java Sparrow	29th June 2014 to 28th June 2015
3	Suman Mohapatra, E/24, Executive Apartment, Sector-5, Rourkela Dist- Sundergarh	One Dimond dove, One Sarus crane and One Silver pheasant	29th June 2014 to 28th June 2015
4	Mr. Jogesh Chandra Sahu, State Bank of India, SME Branch, Bisra Chowk, Rourkela	Seven Alexandrine Parakeets	2nd Mar., 2015 to 29th Feb., 2016
5	Dr. V. Narayan, Flat S-2 Jain Sashi Graha, Jagadhambal Street, T. Nagar, Chennai, Tamil Nadu	One Tiger	1st Feb. , 2015 to 31st Jan. , 2017
6	The Chairman, Womens Forum YMCA, Old Secretariate Road, Buxi Bazar, Cuttack	One Yellow Backed Lorry	2nd Mar. , 2015 to 29th Feb. , 2016
7	Sujay Tripathy, Plot No-1018, Nayapally, Bhubaneswar	One Fischers love bird	2nd Mar. , 2015 to 29th Feb. , 2016
8	Sandeep Pattnaik, Branch Manager, IDBI Bank, Janapath Branch, Saheed Nagar, Bhubaneswar	One Leopard	1st Sep. , 2015 to 31st Aug. , 2016
9	Amlan Patro, B-109, Acharya, JC Bose hall of Residence, IIT Kharakpur, West Bengal	One Black Buck	1st Sep. , 2015 to 31st Aug. , 2016
10	Sri Trinath Nayak, Arapur, P.O.- Dolanapur, Banki, Cuttack	One Black headed Munia	16th Mar. , 2015 to 15th Mar. ,2016
11	Smt. Shaila Naik, At- Tambi Bahal, P.O.- Bhedabahal, PS- Sadar, Dist- Sundergarh	One Java Sparrow	1st Feb. , 2016 to 31st Mar. , 2017
12	Sri Rajib Lochan Naik, Retired Forester, At- Tambibahal, P.O.- Bhedabahal, PS- Sadar, Dist- Sundergarh	One Zebra Finch	1st Feb. , 2016 to 31st Jan. , 2017

Impression of Our Esteemed Guests

Besides, the general public, there are plenty of visits by VVIPs, eminent personalities & others whose presence adds value to NKZP.Some of the dignitaries who visited the NKZP facilities & also commented on various products are as follows:

"My sincere compliments to the entire team of the Zoo. It is my fond hope that persons who visit this oasis of Nature will in some small way begin to respect mother Nature. Otherwise mother Nature will die. All good wishes for future efforts to make the zoo the best in the country. God bless !!".

R. H. Khwaja, IAS (Rtd)
Former Secretary, Govt. of India
25.04.2015

"Bhubaneswar always fascinates me for beautiful and healthy white tiger besides other animals of Nandankanan. I consider Nandankanan is our National pride. This time additions were melanestic tiger (More dark (black colour) on white and other one on normal yellow one). I think unique ones in the history of mammals. Mr. Purohit was more than the knowledge bank to educate me on these species which are so dear me. Thank you. Purohit and thanks you tigers of the great Zoo. Keep it up".

Col Ajit Dutt. SM.FRCS
Chairman, National Sport Climbing Committee,
IMF, New Delhi
07.06.2015

"Wonderfully managed zoo. Very much impressed with the outsourced management of various ancillary activities of the zoo, which certainly need replication elsewhere. The melanistic tigers with the white tigers is also a treat to watch Mr. Purohit passion, interest and to knowledge is superb and infections. Best wishes to Nandankanan Zoo".

Vinay Luthra
PCCF, Karnataka
25.09.2015

"Visited Nandankanan Zoological Park after almost 8 year. It was a great learning experience. Visited lion safari, tiger safari, sloth bear safari and herbivores safari in company of Sri S.K. Pattnaik and Dr. S. Panda, Director, Nandankanan and his team. Learned inner details of safaris operations. Also visited elephant enclosure, nocturnal house and walk-in aviary. The zoo has done commendable improvement work in recent past. I am really thankful to S. K. Patnaik and Dr. Panda for fall all the assistance and co-operation. I am sure the NKZP shall continue to flourish under their guidance. Best wishes".

Dr. B.R. Sharma, IFS
Member Secretary
West Bengal Zoo Authority

"I visited Nandankanan today. It is being maintained very well by the staff of Forest & Environment under the leadership of the Director, Sri Sudarsan Panda. It has been developed over a period of time with the number of visitors to Nandankanan increasing to about 29 lakhs in a year. Number of tourist friendly initiatives have been undertaken like developing new safaris. There is a need to quickly notify the eco-sensitive zone for the sanctuary so that increasing urbanization does not adversely affect the eco-system of Nandankanan. I compliment the Director and his team of officials for the initiatives taken to attract tourists and for improving its overall eco-system".

Gokul Chandra Pati
Chief Secretary, Odisha
02.08.2015

"Nandankanan, plenty of nature viz. flora and fauna consisting of rare species of plants and animals taken proper care by keepers. Natural water of lake surrounded by indigenous and exotic species make modern days humans aware about great blessings of almighty to which ordinarily they do not find time to think about. India celebrates her 69th Independence Day, today with utmost respect to Tiranga and Mother India. I wish my good luck to all, who contribute to preserve nature's beauty at its best. Jai Hind".

Justice Anant Dave
High Court of Gujarat, Allahabad
15.08.2015

"A well-preserved show-case of nature and natural surrounding with so many species of birds, reptiles and animals. Truly a wonderful experience. The officers and staff of Nandankanan need to be congratulated and thanked for a good maintenance with limited resources".

D.H. Waghelay
Chief Justice, Odisha
03.10.2015

"Very happy to see the maintenance of the park and health of the animals. We are especially delighted to see the way the melanistic tigers- Krishna, Subhransu, Snehashish and Anini - growing up. Grateful to Mr. Kamal Purohit for another wonderful experience with the animals. We wish the conservation efforts of the Nandankanan team every success".

Sri Sri Dibyasingh Deb,
Gajapati Maharaj, Sri Nahar, Puri
05.11.2015

"This is a magnificent collection of animals. It was a wonderful experience to see them at close quarters and be accompanied by such a knowledgeable guide".

John Walker,
Sidney Sussex College,
Cambridge University, UK,
08.11.2015

"A wonderful place with animals living in natural environment. We were able to see tigers and lions at close quarters and were able to see tigers feeding. There were many animals which we had not seen earlier. A nice experience".

Raj Rahul Garg
Judge Punjab Haryana High Court
22.11.2015

"This is a temple. A temple of love. Both heart and mind are seen and felt here. I have deep admiration for the staff and management of this wonderful zoo. This zoo is doing a great service to mankind and animal kingdom. In gratitude for all that you are doing".

Swami Smaranananda
Yogada Ashram, Ranchi, Jharkhand
18.12.2015

"Visit to Nandankanan is always an exhilarating and exciting experience. The sheer natural beauty of this wonderful eco-park is breath taking. One gets the real 'feel' of wilderness here. Perhaps the

captive animals also feel this way. That's why they look so healthy, cheerful and active. The newly built open bird enclosure is simply magnificent. So is the open enclosure for the leopards. Every time I visit the park. I feel how much we have missed by messing up our biodiversity. It is only eco-park like Nandankanan which gives us a glimpse of what our mother earth was like centuries ago. Full marks to the well trained and well informed zoo managers as well as the zoo keepers".

Jugal K. Mohapatra
Ex Chief Secretary
24.12.2015

"A wonderful place to visit. Location of Rest House is excellent. A large number of wild animals have been kept in the Nandankanan and the place has beautiful surroundings".

J. Prakash Thmastena
High Court, Madhya Pradesh
25.12.2015

"I have visited zoo at Dehradun, Guwahati, Delhi and many places. But I got and excellent experience in this zoo. It's amazing. Well maintained disciplined staff and more. Please keep it up".

Jagat Hajarika
NITI Aayog
New Delhi
02.01.2016

"I have visited many zoos in India. But I am very happy to see this zoo in the eastern part of India. It is maintained nicely that I feel proud to be at this zoo. Excellent facilities are available for visitors. Staff are well disciplined and work minded. Greenery plant of this zoo is one of its kind. My congratulation to Director & his team for making this difference. Keep it up the spirit".

Dr. K. C. Satapathy
Regional Director
DAV Institutions, Odisha
13.01.2016

"I, as a visitor from Germany, was very impressed by the number of tigers and lions. The leopard cat, I have seen was a unique variety. The aviary complex is very nicely made".

T. Ron
Oofenbung,
West Germany
20.01.2016

"I visited the zoo after 25 years. This visit refreshed my past memory, when we used to come in groups from Ravenshaw & Vani Vihar and enjoyed luhch inside. Now I find that the zoo has many innovations and the birds enclosure, the white tigers and the chimpanzee were very attractive. The safari visit can be done on open jeeps, so that it will be more thrilling experience ".

P. K. Dash
Addl. Secretary & FA
MoEF
20.01.2016

"I am really impressed by maintenance, innovation carried out the zoo. Motivation of the officers is highly appreciated as they have shown tremendous dedication to preserve flora and fauna creating most natural like environment. I suggest a short movie for Do's & Don't for visitor and facility available at the entrance of the zoo would probably help in better up keep of the facilities. My congratulations to all associated and contributing to the best zoo I have seen so far".

Balvinder Singh
Deputy CAG of India, New Delhi
12.02.2016

"An amazing experience going around the place. The aviary, the open zoo or the safaris, were fascinating. Kudos to the Administrators and the staff. Very well kept".

Shailendra Agarwal
Pr. Secretary, Tourism, Rajasthan
24.02.2016

"I was delighted to visit Nandankanan zoo this morning and is my third visit. The zoo has good collection of wild species with a concept of tourist friendly environment. I also visited the Zoo Veterinary Hospital facility and interacted with Dr. Sarat Kumar Sahu on technical issues. Looking to the professional risk involved in handling wildlife disease, hence need to provide some kind of risk allowance and non-practicing allowance to the veterinarians working in the zoo. The concept of adopting wild animals maintained in the zoo by public needs little more attention so that the financial burden on the part of the zoo maintenance can be minimized. The animals maintained in the zoo are at sound health and many complements to the entire team of the zoo".

Prof. Dr. Suresh S. Honnappagol
Commissioner Animal Husbandry/Chief Veterinary Officer
DAHDF, MoA & FW, GoI, New Delhi
28.02.2016

VETERINARY CARE

Nandankanan Zoological Park has always given priority for 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 special support from the College of Veterinary Science & Animal Husbandry (C.V.Sc & A.H) Bhubaneswar and input from an array of experts. A five member 'Technical Committee' constituted by Government of Odisha regularly monitor and review the health care and related matters. 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 strict protocol for vaccination, deworming and prophylactic chemotherapy is meticulously followed to prevent diseases.

INFRASTRUCTURE AT 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 is operating from the Nandankanan Biological Park for chemical immobilization 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 in the Veterinary College, 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 and subsequently the bipartite agreement was signed between the Forest Department, Government of Odisha and Odisha University of Agriculture and Technology, Bhubaneswar. The centre received an amount of Rs 26 lakhs during 2015-16 from Nandankanan 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 haematobiochemical, bacteriological, parasitological and histo-pathological examinations.

Intervention by the veterinary wing of the zoo (2015-16)

Sl. No.	Activities	Number of cases dealt
1	Cases treated	8882
2	Surgery performed	17
3	Deworming	4236
4	Chemical immobilization	51
5	Screening of blood smears	67
6	Biochemical assays	15
7	Bacteriological examination	23
8	Faecal Sample examination	949

Vaccination:(2015-16)

Sl. No.	Vaccination	Number of cases dealt
1	BioFel PCHR (against Feline Panleucopenia)	55
2	Triovac	15
3	H.S.V.	17
4	Triquin Administartion	115
5	Anti Rabies Vaccine	8
6	Tetanus Toxoid	18
7	Multivalent Vaccine	18
8	B.Q. Vaccine	8
9	Anthrax Vaccine	8

PROPHYLACTIC PROTOCOL

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

- Annual vaccination to Tigers, Lions, Leopards, leopard cat and Jungle cats against Feline Panleucopenia.
- Annual vaccination of Jackal and Hyena with multivalent vaccine.
- Administration of Triquin as a prophylactic measure against Trypanosomiasis to Tigers, Lions and Leopards at quarterly interval.
- Vaccination of elephants against Haemorrhagic Septicemia, Tetanus, Rabies, Foot & Mouth Disease and Blackquarter. Vaccination of four horned antelopes with Blackquarter and Hemorrhagic septicemia .
- Body spray with cypermethrin at 2 months interval against ticks, flies and other vectors in case of big cats.
- K-Orthrine sprays in enclosures at two months intervals.
- Screening of the fecal samples of all inmates of the park and de-worming at 3 months interval.
- Periodical screening of blood samples.

SIGNIFICANT ACHIEVEMENTS IN HEALTH CARE

1. Hand rearing of hyena cubs

On 21.11.2015, Nandankanan Zoological Park received four hyena cubs rescued from Phulnakhara area of city forest division, Bhubaneswar. The cubs were deserted near a rock side in the forest and too weak when rescued. They were dehydrated and sluggish in their movement and eyes of all cubs were not fully opened. They were about 7-10 days old. They were weighed and other morphometry were recorded. They were immediately fed with reconstituted 'Royal canin dog milk' mixed with glucose and electrolyte to restore energy and electrolyte balance. It was challenging task to rear all four hyena cubs through bottle feeding. The reconstituted 'Royal canin dog milk' was well accepted by the cubs and they got accustomed to it. Care was taken to maintain hygiene. Feeding bottle and utensils were sterilized before and after feeding. A great deal of knowledge was gained during the period of hand rearing. Presently they are in good health and exhibited.

2. Hand rearing of lion cub

One hybrid lioness named 'Radha' aged about 5 years of Nandankanan Zoological Park delivered two live cubs on 23.07.2015 after 103 days of gestation. Again it delivered two more dead cubs on 25.07.15 and 27.07.15 after 2 and 4 days of parturition of first cub respectively. The mother lioness was observed dull and taking less interest in the cub. On 27.07.15, the mother did not feed the cub for about 11 hours. The situation warranted immediate intervention to save the life of the lion cub and to extend treatment to the sick mother. The lioness was immobilized and the cub was rescued with the help of the specialists of C.V.Sc & A.H. The cub was fed with reconstituted dog milk powder, which was accepted nicely after initial hesitation. A room was absolutely dedicated for its rearing by taking proper hygienic measures like strict sterilization of the feeding bottles and utensils, round the clock monitoring of health of the cub etc. Gradually the lion cub was accustomed with keeper and bottle feeding. It started taking minced chicken meat at about 3 months of age. It showed some health problems like constipation and worm infestation during the hand rearing period, which were handled successfully by zoo veterinarians. Presently it is exhibited in the enclosure.

3. Treatment of NCT Sara

On 15.07.2015 evening, tigress 'Sara' aged about 9 years of Nandankanan got serious injuries at the right forelimb due to infighting with another tigress named 'Megha' housed in the adjacent enclosure. Dried blood clots were found scattered inside its feeding chamber with body hair and blood sticking to the shutter door. Fore limb of 'Sara' was severely bitten, pulled and wounded by the other tigress.

The wounded tigress was immediately shifted to the 'Operation theatre' of Zoo Hospital under anaesthesia. Close examination and radiography of the damaged limb revealed open fracture of the two middle digits of the right forelimb with severe tearing of muscles and ligaments. Claws of three digits were also severed. After careful cleaning, the severed muscles were sutured with catgut and skin was sutured with 'Sutupak'. The limb was applied with antiseptic bandage. Reversal of anaesthesia was successful. After surgery the big cat was kept confined in a squeeze cage at isolation ward of zoo hospital. The wound was dressed daily with antiseptic solution along with parenteral administration of antibiotics and analgesics. But the tigress used to remove the sutures with its teeth and exposed the fractured digits. Sincere efforts of about 45 days by zoo veterinarians in regular dressing of the wound and maintenance of hygiene resulted complete recovery of tigress 'Sara'.

4. Artificial incubation of gharial eggs and successful rearing of hatchlings

Following the repeated deaths of male gharials at gharial pool of Nandankanan during 2014-15, it was decided to artificially incubate and rear the gharial hatchlings, as their sex determination is temperature dependant and maintaining optimum temperature can increase male offspring ratio. On 26.04.2015, 62 eggs were collected from two gharial nests in the sand band of gharial pool. The eggs are incubated in hatchery in controlled conditions and the temperature was maintained at 30±1°C. Between 04.06.2015 and 08-06-2015, 57 eggs had hatched. Besides, on 30.05.2015, 37 eggs has hatched in sand bank of gharial pool naturally. Both the stock had been reared separately. Thereafter, they were on live fish fry and fingerlings. Presently the park has 80 yearlings, including 51 out of artificial hatchery stock and 29 from pool stock. Sexing of the yearlings are yet to be done as they have not fully developed genitalia for determination of sex.

5. Treatment of mandible fracture in a sloth bear

On 20.02.2016, a male sloth bear aged about 18 years which was housed in the Bear safari inflicted injury to mandible due to infighting with another female sloth bear named 'Sabitri' housed in the adjacent enclosure. There was dropping of lower jaw with protruding of lower canine teeth. Immediately immobilization was planned with the help of specialists of C.V.Sc & A.H. A mixture of drugs xylaxin and ketamin was used to immobilize the bear. After immobilization was achieved, close examination and radiography of the affected part revealed bilateral mandibular fracture of the lower mandible. The fracture ends were immobilized with intramedular pinning and wiring. Fluid was administered intravenously along with antibiotics and analgesics. Reversal of anaesthesia was successful. The bear was kept confined to a small feeding cubicle near zoo hospital to facilitate regular dressing and antibiotics administration. The bear was provided with liquid diet for the first three days. The bear was so aggressive that it damaged the wiring and suturing and again the lower jaw got exposed to some extent. But regular dressing with luke warm water in proper hygienic condition the wound was healed completely in one month. Presently the said bear is taking normal diet and in good health.

6. Zoological Information Management System (ZIMS)

ZIMS is the world's first and only real-time, unified global database for animals in zoos and aquariums developed by Species360. ZIMS allow users to see collections of animal data in real time, and will enhance local care and international conservation efforts by providing faster and better access to species information. As of 2016, the organization serves 874 zoos and aquariums in 90 countries worldwide and has 21,000 taxa at species level in its database. Members can use the basic biologic information (age, sex, parentage, place of birth, circumstance of death, etc.) collected in the system to care for and manage their animal collections (including demographic and genetic management in many cases). Species360 and the Central Zoo Authority of India (CZA) have a five-year memorandum of understanding with a primary goal of migrating the majority of the zoos in India into the ZIMS database. Nandankanan Zoological Park is a member of Species360 and presently uses ZIMS to manage its current animal collection in the ZIMS database, which are regularly updated. The available historical data of the animals and medical records will be updated subsequently.

ANNUAL REPORT ON BIRTH OF CAPTIVE ANIMALS AT NANDANKANAN ZOOLOGICAL PARK

(FROM 01.04.2015 TO 31.03.2016)

Sl. No.	Date of birth	Name of the species	No.s of new born/Sex
1	16.04.15	Blackbuck	1(US)
2-4	19.04.15	Spotted deer	3(M)
5	16.05.15	Swamp deer	1(US)
6-8	19.05.15	Spotted deer	3 (2M+1F)
9	20.05.15	Chimpanzee	1(US)
10,11	04.06.15	Spotted deer	2(1M+1F)
12	18.06.15	Gaur	1(US)
13-15	22.06.15	Spotted deer	3(2M+1F)
16-19	28.06.15	Spotted deer	4(2M+2F)
20,21	30.06.15	Indian peafowl	2(US)
22	13.07.15	Giant squirrel	1(US)
23,24	23.07.15	Lion	2(US)
25,26	25.07.15	Hog deer	2(US)
27	04.08.15	Four horned antelope	1(US)
28	27.09.15	Hog deer	1 (US)
29	11.10.15	Sambar	1 (US)
30	23.10.15	Manipuri deer	1 (US)
31	09.12.15	Nilgai	1 (US)
32,33	11.12.15	Nilgai	2 (US)
34,35	13.12.15	Spotted deer	2 (US)
36	13.12.15	Bonnet macaque	1 (US)
37-41	14.12.15	Java sparrow	5 (US)
42-46	14.12.15	Zebra finch	5 (US)
47,48	15.12.15	Spotted deer	2 (US)
49	16.12.15	Spotted deer	1 (US)
50	16.12.15	Sambar	1 (US)
51-55	16.12.15	Budgerigar	5 (US)
56	17.12.15	Manipuri deer	1 (US)
57	17.12.15	Rhesus macaque	1 (US)
58	18.12.15	Hippopotamus	1 (US)
59	19.12.15	Sambar	1 (US)
60-62	20.12. 15	Fischer's love bird	3 (US)
63,64	21.12.15	Barking deer	2(US)
65-69	21.12.15	White ibis	5 (US)
70-74	22.12.15	Night heron	5 (US)
75-79	23.12.15	Cockatiel	5 (US)
80-84	24.12.15	Java sparrow	5 (US)
85-89	24.12.15	Zebra finch	5 (US)
90,91	25.12.15	Himalayan black bear	2 (US)
92-96	25.12.15	Budgerigar	5 (US)
97,98	26.12.15	Fischer's love bird	2 (US)
99	28.12.15	Bonnet macaque	1 (US)
100-102	28.12.15	Star tortoise	3 (US)
103-107	29.12.15	White ibis	5 (US)
108	29.12.15	Spotted dove	1 (US)
109-113	30.12.15	Gharial crocodile	5 (US)
114-116	31.12.15	Flap shell/fresh water turtle	3 (US)
117	31.12.15	Rhesus macaque	1 (US)
118	01.01.16	Hog deer	1(US)
119-123	01.01.16	Budgerigar	5 (US)
124-128	01.01.16	Zebra finch	5 (US)
129-133	05.01.16	Java sparrow	5 (US)
134-136	05.01.16	Cockatiel	3 (US)
137-141	10.01.16	Budgerigar	5 (US)
142-146	10.01.16	Zebra finch	5 (US)
147-151	11.01.16	Java sparrow	5 (US)
152,153	11.01.16	Cockatiel	2 (US)
154,155	13.01.16	Fischer's love bird	2 (US)
156-160	14.01.16	Night heron	5 (US)
161-165	14.01.16	White ibis	5 (US)
166-168	16.01.16	Fischer's love bird	3 (US)
169-173	17.01.16	White ibis	5 (US)
174	05.02.16	Blackbuck	1(US)
175-177	23.02.16	Spotted deer	3(2M+1F)
178-181	29.02.16	Spotted deer	4(1M+3F)
182-185	09.03.16	Spotted deer	4(2M+2F)
186	10.03.16	Indian hare	1 (US)
187-191	10.03.16	Gharial crocodile	5 (US)
192	12.03.16	Common mongoose	1 (US)
193,194	13.03.16	Jackal	2 (US)
195	13.03.16	Pariah kite	1 (US)
196	15.03.16	Common palm civet	1 (US)
197,198	18.03.16	Indian peafowl	2 (US)
199-203	20.03.16	Spotted deer	5(3M+2F)
204	20.03.16	Hog deer	1 (US)
205	22.03.16	Hog deer	1 (US)
206	25.03.16	Hog deer	1 (US)

ABSTRACT

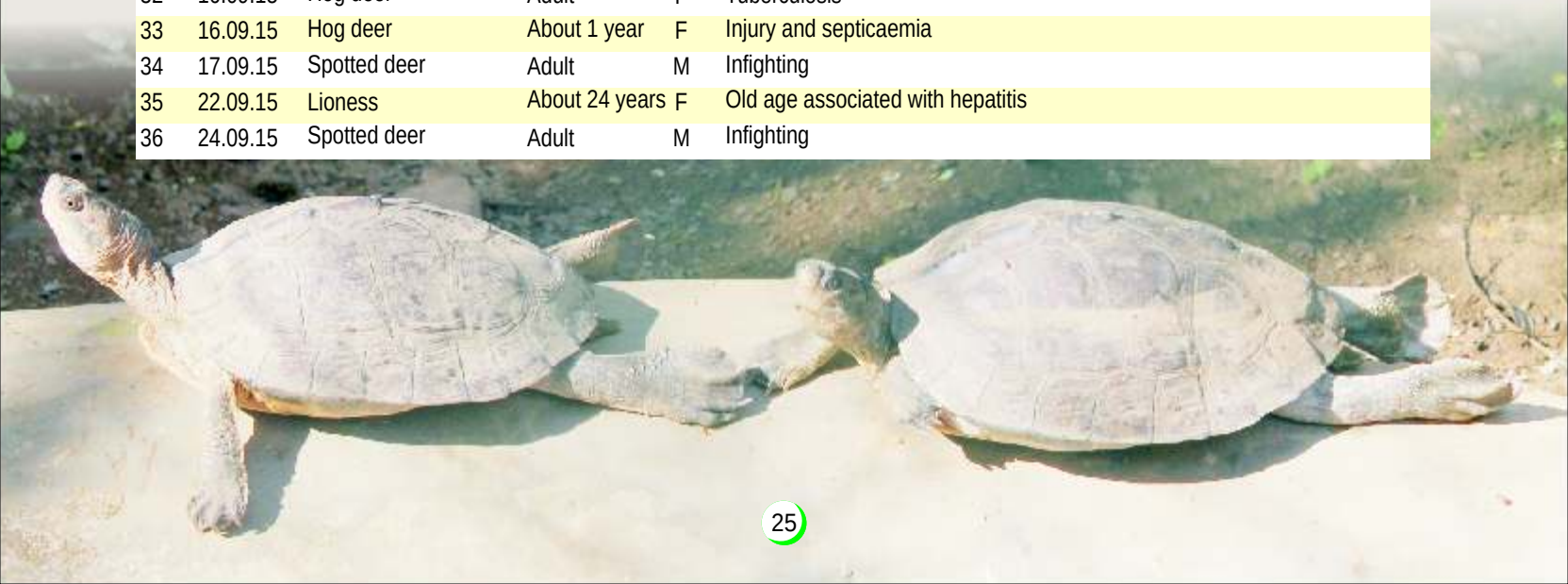
	MAMMAL	BIRD	REPTILE	AMPHIBIAN	TOTAL
BIRTH	74	116	16	0	206

ANNUAL REPORT ON DEATH OF CAPTIVE ANIMALS AT NANDANKANAN ZOOLOGICAL PARK

(FROM 01.04.2014 TO 31.03.2015)

MAMMALS

SL. NO.	DATE	ANIMAL	AGE	SEX	CAUSE OF DEATH
1	29.04.15	Blackbuck	Adult	M	Old age
2	30.04.15	Sambar	Adult	F	Nasal tumor and anaemia
3	20.05.15	Chimpanzee	---	F	Still birth
4	25.05.15	Brow antlered deer	Adult	F	Shock due to stress
5	13.06.15	Barking deer	Adult	M	Infighting
6	18.06.15	Spotted deer	Adult	M	Infighting
7	29.06.15	Swamp deer	About 6 years	M	Pneumonia and haemorrhagic enteritis
8	30.06.15	Indian hare	Adult	M	Enteritis
9	05.07.15	Hog deer	Adult	M	Pneumonia and enteritis
10	06.07.15	Spotted deer	Adult	M	Bronchopneumonia
11	08.07.15	Spotted deer	Adult	M	Infighting
12	11.07.15	Barking deer	Adult	M	Hepatitis and enteritis
13	17.07.15	Giant squirrel	3 days	M	Mother rejection
14	18.07.15	Spotted deer	Adult	M	Infighting
15	21.07.15	Barking deer	Adult	M	Hepatitis and enteritis
16	24.07.15	Lion cub	1 day	M	Asphyxia
17	08.08.15	Tigress (Sailaja)	22 years	F	Cystic tumor of liver associated with Old age
18	12.08.15	Spotted deer	Adult	M	Hepatitis
19	12.08.15	Spotted deer	Adult	F	Injury and shock
20	15.08.15	Four horned antelope	2 years	M	Pneumonia and septicemia
21	16.08.15	Nilgai	1 ½ years	F	Mixed infection of BQ & HS
22	16.08.15	Four horned antelope	7 months	F	Mixed infection of BQ & HS
23	17.08.15	Four horned antelope	2 years	F	Haemorrhagic myositis and septicaemia
24	19.08.15	Nilgai	Adult	M	Tracheitis and pneumonia associated with septicaemia suspected for pasteurellosis
25	20.08.15	Nilgai	7years	F	The mixed infection of Black quarter (BQ) & Haemorrhagic septicaemia (HS)
26	20.08.15	Nilgai	8 years	F	HS
27	21.08.15	Four horned antelope	3 years	M	Pneumonia, skeletal muscle haemorrhage and septicaemia
28	21.08.15	Four horned antelope	7 years	F	Pneumonia skeletal muscle haemorrhage and septicaemia
29	22.08.15	Nilgai	Adult	M	Pneumonia and septicaemia
30	13.09.15	White tigress	18 years	F	The tumor at left lower mandibular region and liver associated with cachexia pasteurellosis
31	15.09.15	Sloth bear	16 years	M	Tuberculosis
32	16.09.15	Hog deer	Adult	F	Tuberculosis
33	16.09.15	Hog deer	About 1 year	F	Injury and septicaemia
34	17.09.15	Spotted deer	Adult	M	Infighting
35	22.09.15	Lioness	About 24 years	F	Old age associated with hepatitis
36	24.09.15	Spotted deer	Adult	M	Infighting



37	27.09.15	Spotted deer	Adult	M	Infighting
38	28.09.15	Spotted deer	Adult	M	Wound at the right pastern and septicaemia
39	08.10.15	Indian porcupine	About 12 years	M	Tumor in the liver
40	11.10.15	Nilgai	Adult	F	Shock
41	12.10.15	Nilgai	About 15 years	F	Tumor in liver
42	15.10.15	Barking deer	Adult	M	Cause could not be ascertained due to advanced putrefaction and autolysis
43	27.10.15	Nilgai	Adult	F	Pneumonia
44	01.11.15	Spotted deer	Adult	M	Infighting
45	10.11.15	Spotted deer	Adult	M	Infighting
46	11.11.15	Spotted deer	Adult	M	Chronic hepatitis and pneumonia
47	18.11.15	Spotted deer	Adult	F	Pneumonia
48	21.11.15	Barking deer	Adult	M	Infighting
49	21.11.15	Albino porcupine	About 23 years	F	Old age
50	01.12.15	Barking deer	Adult	M	Infighting and fracture of lower mandible leading to anorexia
51	08.12.15	Barking deer	Adult	F	Hepatitis
52	09.12.15	Spotted deer	Adult	M	Infighting
53	14.12.15	Marmoset	Adult	M	Hepatitis, nephritis and haemorrhagic enteritis
54	24.12.15	Common palm civet	Adult	M	Pneumonia
55	25.12.15	Common Palm civet	Adult	M	Pneumonia
56	29.12.15	Common palm civet	Adult	F	Pneumonia
57	30.12.15	Nilgai	19 days	F	Trampling by the herd
58	10.01.16	Barking deer	Adult	M	Infighting
59	28.01.16	Spotted deer	Adult	M	Infighting
60	20.02.16	Marmoset	Adult	M	Hepatitis and nephritis associated with pulmonary edema and haemorrhage
61	29.02.16	Giraffe	About 6 years	M	Cardiac failure associated with anemia, icterus, abomasitis and lymphadenitis. Suggestive of Theileriosis.
62	18.03.16	Four horned antelope	About 3 years	M	Debility and pneumonia

BIRDS

SL. NO.	DATE	BIRDS	AGE	SEX	CAUSE OF DEATH
1	02.04.15	Pineapple conure	Adult	M	Hepatitis and nephritis
2	14.04.15	Jandaya conure	Adult	F	Toxaemia
3	15.04.15	Violet turaco	Adult	F	Necrotic hepatitis
4	23.04.15	Open bill stork	Adult	M	Impaction
5	24.04.15	Open bill stork	Adult	M	Impaction
6	29.05.15	Jandaya conure	Adult	F	Enteritis and dehydration
7	01.06.15	Pineapple conure	Adult	M	Enteritis and hepatitis
8	18.06.15	Canary	Adult	M	Old age
9	16.07.15	Pine apple conure	Adult	M	Traumatic injury and internal haemorrhage
10	14.08.15	Mute swan	Adult	M	Tuberculosis
11	18.08.15	Violet turaco	Adult	F	Haemorrhagic lungs and liver with enteritis
12	27.08.15	Reeve's pheasant	Adult	F	Hepatitis and enteritis
13	09.11.15	Red chattering lorry	Adult	M	Hepatitis and nephritis
14	23.11.15	Lesser adjutant stork	Adult	F	Hepatitis and nephritis
15	27.11.15	Barbary dove	Adult	F	Debility
16	01.12.15	Lady Amhrest's pheasant	Adult	F	Internal haemorrhage
17	02.12.15	Mandarin duck	Adult	M	Tuberculosis
18	08.12.15	Sun conure	Adult	F	Haemorrhagic liver and enteritis
19	10.12.15	Reev's pheasant	Adult	M	Fatty liver and haemorrhagic enteritis
20	11.12.15	Sun conure	Adult	M	Haemorrhagic enteritis
21	12.12.15	Sun conure	Adult	F	Haemorrhagic liver and parasitic enteritis
22	17.12.15	Mandarin duck	Adult	F	Tuberculosis
23	28.01.16	Sun conure	Adult	M	Haemorrhagic hepatitis and nephritis
24	30.01.16	Golden pheasant	Adult	M	Haemorrhagic hepatitis and nephritis
25	26.02.16	Sun conure	Adult	M	Haemorrhagic enteritis
26	04.03.16	Mandarin duck	Adult	M	Haemorrhagic enteritis
27	09.03.16	Mandarin duck	Adult	F	Visceral gout, debility and enteritis

REPTILES

1	06.04.15	Gharial crocodile	About 33 years	M	Injury and septicaemia
2	08.06.15	Gharial crocodile	Adult	M	Peritonitis and haemopericardium
3	17.08.15	Gharial crocodile	Adult	F	Haemopericardium and peritonitis
4	22.08.15	Caimon crocodile	Adult	M	Infighting
5	07.09.15	Gharial crocodile	Subadult	F	Haemopericardium and peritonitis
6	07.09.15	Gharial crocodile	Subadult	F	Haemopericardium and peritonitis
7	08.09.15	Gharial crocodile	Adult	F	Haemopericardium and peritonitis
8	08.09.15	Gharial crocodile	Adult	F	Haemopericardium and peritonitis
9	17.09.15	Gharial crocodile	Adult	F	Haemopericardium and peritonitis
10	29.09.15	Gharial crocodile	Adult	F	Haemopericardium and peritonitis
11	21.12.15	Water monitor lizard	Adult	M	Tumor in the liver

ABSTARCT

Mammals	Birds	Reptiles	Amphibians	Total
62	27	11	0	100

BIRTH AND DEATH OF CAPTIVE ANIMALS FOR THE LAST FIVE YEARS

TOTAL STOCK POSITION FROM 01.04.2011 TO 31.03.2016

2011-12

Types	Stock as on 01.04.2011	Birth	Acquisition	Death	Disposal	Stockas on 31.03.2012
Mammals	690	110	19	40	04	775
Birds	856	115	20	12	04	975
Reptiles	195	33	---	04	02	222
Total	1741	258	39	56	10	1972

2012-13

Types	Stock as on 01.04.2012	Birth	Acquisition	Death	Disposal	Stockas on 31.03.2013
Mammals	775	54	33	18	04	840
Birds	975	82	13	09	--	1061
Reptiles	222	30	02	02	--	252
Total	1972	166	48	29	04	2153

2013- 14

Types	Stock as on 01.04.2013	Birth	Acquisition	Death	Disposal	Stockas on 31.03.2014
Mammals	840	48	16	26	03	875
Birds	1061	69	59	06	08	1175
Reptiles	252	07	05	05	09	250
Amphibians	----	----	21	---	----	21
Total	2153	124	101	37	20	2321

2014- 15

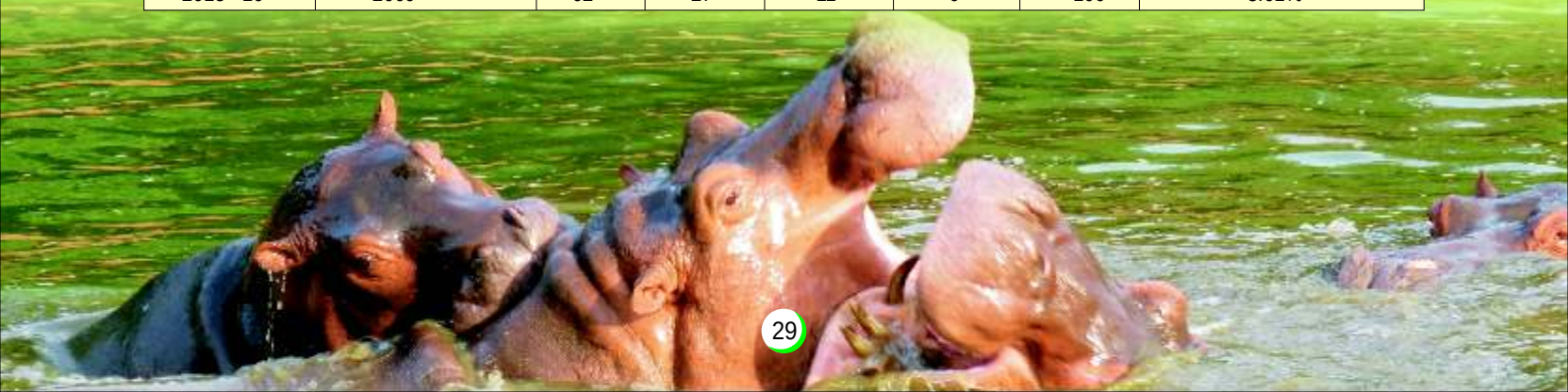
Types	Stock as on 01.04.2014	Birth	Acquisition	Death	Disposal	Stockas on 31.03.2015
Mammals	875	78	6	27	15	917
Birds	1175	79	141	16	04	1375
Reptiles	250	08	04	10	10	242
Amphibians	21	0	0	0	0	21
Total	2321	165	151	53	29	2555

2015-16

Types	Stock as on 01.04.2015	Birth	Acquisition	Death	Disposal	Stockas on 31.03.2016
Mammals	917	74	18	62	11	936
Birds	1375	116	13	27	04	1473
Reptiles	242	16	0	11	08	239
Amphibians	21	0	0	0	0	121
Total	2555	206	31	100	23	2669

Death of captive animals in Nandankanan Zoological Park during the past five years

Year	Total stock As on 1st April	Number of deaths					Percentage
		Mammals	Birds	Reptiles	Amphibians	Total	
2011 - 12	1972	40	12	04	-	56	2.83 %
2012 - 13	2153	18	09	02	-	29	1.33%
2013 - 14	2321	26	06	05	-	37	1.57%
2014 - 15	2555	27	16	10	0	53	2.03%
2015 - 16	2669	62	27	11	0	100	3.61%



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 Center with a zoo kitchen to cater to the needs of the captive animals and birds. A separate Store Range is headed by a Range Officer looks after the supply of feed materials. To achieve the 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. Hundred one 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 postmortem 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 359 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 essential fodder to the herbivores in the zoo (daily requirement being about 3703 Kg). The month wise production of different grass and fodder during 2015-16 is as follows-

Month-wise production of fodder from the captive fodder farm (in quintal) for the year 2015-16

Month	Para grass	Hybrid Napier (NB -21) grass	Common grass	Sorghum grass	Oat grass	Cowpea	Banana tree	Total
04/2015	278.40	6.20	511.90	93.80	6.30	55.00	6.00	957.60
05/2015	287.68	93.72	472.56	96.00	-	34.00	6.20	99 0.16
06/2015	278.40	79.96	480.10	94.00	-	38.00	6.00	976.46
07/2015	276.68	76.50	570.11	98.50	-	-	5.00	1026.79
08/2015	256.68	46.50	576.56	108.50	-	36.00	-	1024.24
09/2015	258.00	45.00	587.58	105.00	-	-	-	995.58
10/2015	295.48	92.55	585.59	45.50	-	-	-	1019.12
11/2015	299.40	121.50	566.70	-	-	-	-	987.60
12/2015	326.18	127.15	601.59	-	-	-	-	1054.92
01/2016	333.28	125.65	598.66	-	36.00	-	-	1093.59
02/2016	232.32	91.20	487.20		263.00	-	-	1073.72
03/2016	291.48	99.65	552.30	-	166.00	32.50	-	1141.93
Total	3413.98	1005.58	6590.85	641.30	471.30	195.50	23.20	12341.71

The total production of fodder in the fodder farm during the year 2015-16 was 12341.71 quintals. The cost of production was calculated to be Rs.1.65/Kg of fodder.

- 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. 101 feed items are collected and supplied daily to meet the nutritional requirements of the 152 species of mammals, birds and reptiles. These include very specific items such as snail without shell, tree termite egg, live grass hoppers and the like. The feed items are procured from various suppliers through open tenders and the price is approved by the Purchase Committee constituted by the Govt.

- 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, Ripe apple, Jamun, custard apple, green pea, ripe papaya, amla, guava and orange.

- Chlorination plant

The zoological park has chlorination plant to ensure the supply of purified drinking water and thereby preventing the spread of waterborne diseases. Second chlorination plant was added to the existing chlorination plant for un-interrupted supply of chlorinated water.

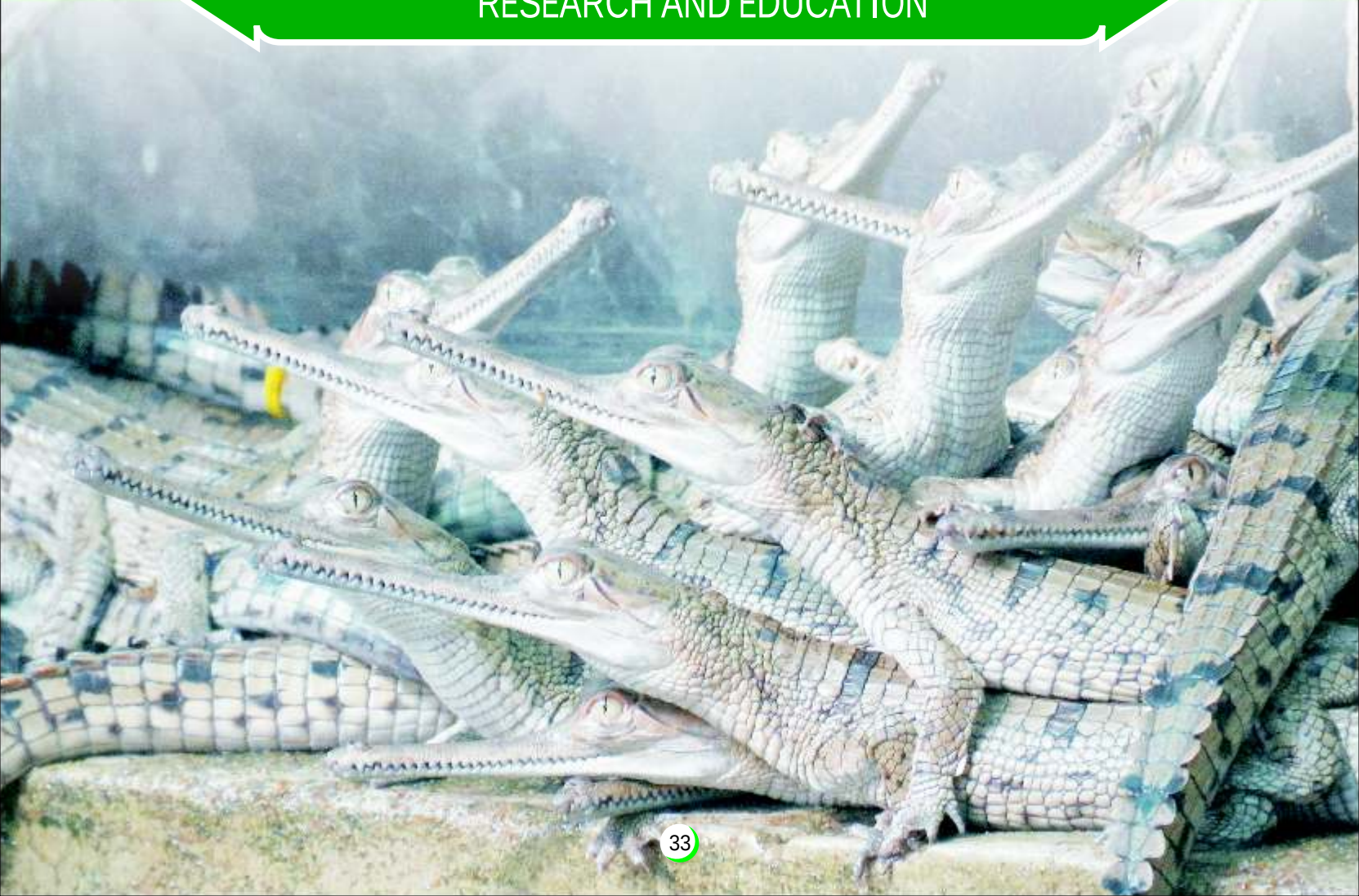
- Vermi-compost unit

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.

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 AND EDUCATION



Research

Displaying its long-term commitment to research, Nandankanan Biological Park supported a number of research projects to assess biodiversity conservation, wildlife management, animal health issues and management of captive animals. To ensure optimal outcomes collaboration with the number of organisations was given priority. The research teams are made up of Orissa Veterinary College, dedicated Veterinarians & Biologist of the zoo, collaborating scientists and students of graduate, masters and PhD levels. Funding for research is provided by CZA. The research findings would further increase our expertise in the 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, Bhubaneswar and Nandankanan Zoological Park, Govt. of Odisha. The results of the study revealed the prevalence of helminthes 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.

(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 center'. The significant achievement of the project is the birth of three pangolin babies during these two years of research. Moreover, the study is being carried out under the CCTV cameras installed inside the enclosures which can capture the activities in the form of videos during the night time also. Monitoring through the infrared sensitive CCTV cameras unfolds the secrets of the life of the pangolins. Now, it is convenient to record and understand the basic needs and activities of the pangolins in captivity.

(b) Conservation Breeding of White-backed vultures: Nandankanan is among the six participating zoos for the conservation breeding of White-backed vulture identified by CZA. With the financial support from Central Zoo Authority. A conservation breeding centre for white backed vultures has been constructed in an off-exhibit area of Nandankanan over an area of 0.3 acres of enclosed area surrounded by about seven acres of forested area. The breeding centre has been developed as a satellite campus with all the basic facilities. Two nursery aviaries (10 X 12 X 8 ft.) and one colony aviary (100 X 40 X 20 ft.) have been constructed for the said purpose. A close liaison was made with BNHS & adjoining States for the procurement of birds to start the breeding programme.

(C) Establishment of the laboratory- Wildlife forensics is an emerging field having an assemblage of different governmental, legal and scientific experts which works to link the suspect, victim and crime scene with physical as well as biological evidences in wildlife offence cases. A wildlife forensic laboratory was constructed in Nandankanan Zoological Park with objective for scientific investigation of wildlife crime, identification of the species, to establish a reference sample repository of the species and submission of report for necessary investigation. Necessary laboratory equipments have been purchased under CAMPA fund during the year.

(D) Research Publications during 2015-16:

Sahu, S., Panda S.K. and Sahoo N. (2016) Black quarter outbreak in four-horned antelopes at Nandankanan Zoological Park. Indian Veterinary Journal: 93 (01): 59 – 60.

Mohapatra, R. K., Panda, S., Sahu, S. K. and Acharjyo L. N. (2016) Maternal behaviour of tigress (*Panthera tigris tigris*): A case study at Nandankanan Zoolgical Park, Odisha, India. International Zoo News. 63(5): 323-332.

Zoo education programme

Over 3.3 million people visit Nandankanan Zoological Park. Such a Large, diverse &varied audience provides an excellent opportunity for education, and an enormous potential to heighten public perception and awareness about animals and nature conservation. Zoos are living institutions, living classrooms, living landscapes. Zoo education is a holistic discipline targeted at zoo visitors, staff and the wider community aiming to promote an understanding of, and concern and respect for biodiversity, animals and the natural world, and encourage action for a sustainable future. In order to have impact, we need to influence as many people as possible. To do this, we need to promise and deliver something relevant and attractive to the wider community. We want visitors to enjoy themselves, and to feel the wonder and affection toward animals. We want to make it easy for visitors to take action during their visit and after they leave our gates. To achieve this education programmes are designed with a different flavor, like celebration of birthday, elephant day, naming of new born, display of signages etc. There is a dedicated zoo education officer in Nandankanan to take care of these activities.

Wildlife Week Celebration

61st Wildlife Week was celebrated in a grand manner in the zoo from 2nd October, 2015 to 8th October, 2015 with display of banners, educating school children on wildlife conservation. More than 3000 school children had free entry into the Zoological Park during the Wildlife Week. Sit & draw competition were organized on the occasion of Wildlife Week celebration among the students of nearby schools.

World Elephant Day celebration

Elephant Day was celebrated at Nandankanan Zoological Park 12th August, 2015 in the presence of Sri U.N. Behera, IAS, Additional, Chief Secretary, Forest & Environment Department, Government of Odisha and Sri S.S. Srivastava, IFS, Principal Chief Conservator of Forests (Wildlife) & Chief Wildlife Warden, Odisha, Bhubaneswar. The celebration was observed with a mass awareness programme amongst more than 2000 visitors displaying a message for elephant conservation. The elephants were received with special treat of coconut, banana, sugarcane and a host of their hot favourites. The mahouts were also felicitated in the auspicious occasion for their hard work. A cycle rally was organised by the Chandaka Wildlife Division from Nandankanan to Godibari of Chandaka Division to mark the occasion. A meeting was convened to distribute prizes to the winners of the quiz competition as well as to winners of naming competition of two white tiger cubs.

Foundation Day celebration

56th Foundation Day of Nandankanan was celebrated on 29.12.2015 in the zoo premises. Sri Bikram Keshari Arukh, Hon'ble Minister, Forest & Environment, Sri Suresh Chandra Mohapatra, IAS, Secretary, Forest and Environment Department, Government of Odisha, graced the occasion as the Hon'ble guests of the ceremony. Annual Report for the year 2014-15, was released on the occasion. The best workers of Nandankanan were rewarded by the Guests. The meeting was attended by school children, visitors, local inhabitants, serving and retired forest officers, zoo staff and media people.






Celebration of World Wetlands Day

World Wetland Day was celebrated on 2nd February, 2016 on bank of Kanjia lake. More than 60 school students participated in the celebration. A quiz competition was held on the spot and prizes were distributed to the winners. A meeting was organized on the bank of Kanjia lake to mark the celebration which was attended by visitors, staff, school children and representatives from media. Director, Nandankanan Biological Park graced the occasion and addressed the gathering about importance of wetlands and need to protect and manage those ecosystems.

Celebration of world pangolin day

World Pangolin Day was celebrated on 20th February 2016 at Nandankanan. School children had participated in sit and draw competition and spread awareness among visitors by interacting and distributing leaflets on pangolin conservation.

Date	ZOO EDUCATION PROGRAMMES	Number of participants
07.07.2015	Study tour of Forest Range Officers of Central Academy for State Forest Service, Assam.	39
28.07.2015	Birthday Celebration of tiger cubs	>100
07.08.2015	Sit and draw competition for school children on the eve of Wildlife Week Celebration	40
11.08.2015	Quiz competition for school children on the eve of World Elephant Day	43
12.08.2015	World Elephant Day Celebration	>200
29 & 30.09.2015	Training programme for “Strengthening tranquilization team in the field establishment of Forest Department”	26
06.10.2015	Quiz competition for school children on wildlife conservation	31
07.11.2015	Induction training course of Forest Guards of Odisha Fo rest Rangers College(OFRC), Angul, Odisha	56
23.11.2015	Orientation training for registered Zoo Guides of Nandankanan	49
03.12.2015	Orientation tour of Zoology Honours students of S.C.S. College, Puri	45
11.12.2015	Orientation tour of Zoology Honours students of R. D Women's College, Bhubaneswar	17
14.12.2015	Orientation training programme for Foresters and Forest Guards of Nandanakanan	26
16.01.2016	Orientation tour programme of Forest guards of OFRC Angul, Odisha ,	87
02.02.2016	World Wetland Day celebration and quiz competition for school children	50
11.02.2016	Induction training tour of Forest Range Officers of Tamil Nadu Forest Academy, Coimbatore	37
13.02.2016	Exposure visit of IFS Probationer trainees from IGNFA, Dehradun	30
16.02.2016	Orientation tour programme of Forester trainees of OFRC Angul, Odisha ,	130
16.02.2016	Orientation tour programme of Forest guards of FTS, G. Udayagiri, Odisha	60
20.02.2016	Painting competition on occasion of World Pangolin Day	22
21.02.2016	Exposure visit of IAS Officers of ATI, West Bengal	13
01.03.2016	Orientation tour programme of Forest Range Officers, Telengana Forest Academy, Hyderabad	69
03.03.2016	Orientation programme on tranquilization techniques for Veterinary doctor trainees	19


NANDANKANAN
୫୬ତମ ପ୍ରତିଷ୍ଠା ଦିବସ
ନନ୍ଦନକାନନ ପ୍ରାଣୀ ଉଦ୍ୟାନ
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56th FOU DATI DAY
NANDAN ZOOLOG

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 Horticulture Department. The management of the State Botanical Garden was transferred to Nandankanan on 01.08.2006. One would be definitely impressed by the 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 memorable experience to the green enthusiasts. The State Botanical Garden is situated inside Nandankanan wildlife sanctuary. Kiakani lake with an area of about 25 ha. is located inside the State Botanical Garden.

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.

ENTRY FEE & OTHER CHARGES

BOTANICAL GARDEN

Children upto 12 years	- Free
Adult	- Rs.10/-
Two wheeler	- Rs.10/-
Three wheeler	- Rs.20/-
Four wheeler	- Rs. 50/-
Heavy vehicle	- Rs.100/-

Picnic spot

Category-1 (upto 10 persons)	– Rs. 200/-
Category-2 (upto 10-25 persons)	– Rs. 500/-
Category-3 (upto 25-50 persons)	– Rs. 1000/-
Category-4 (upto 50-100 persons)	– Rs. 2000/-

FRH-I- (Suit-I)	-	Rs.1200.00+Service charges
FRH-I-(Suit-II)	-	Rs.1000.00+Service charges
FRH-II	-	Rs.1000.00+Service charges
Holiday Cottage	-	(gr. floor) Rs.1000.00+Service charges
Holiday Cottage	-	(first floor) Rs.1000.00+Service charges

INFRASTRUCTURE

The Botanical Garden covers 21 different theme based satellite gardens which spread over undulating landscapes mixed with natural vegetation and meadows. The following important facilities are available in the State Botanical Garden at Nandankanan.

Glass house

A spacious glass house of 2013 sqft. has been developed for housing succulent plants. A state of art green house of 5200 sqft. houses the cultivars of 60 species of indoor plants like *Aglaonema, Philodendron, Calathea, Cordyline, Diffenbachia, Spathiphyllum, Peperomia, Monstera, Hemigraphis, Asplenium* etc.

The Cacti House

A 1080 sqft polyhouse houses of important species of cacti and succulents and a glass house of 2013 sqft. displays many species of indoor plants.

Bonsai

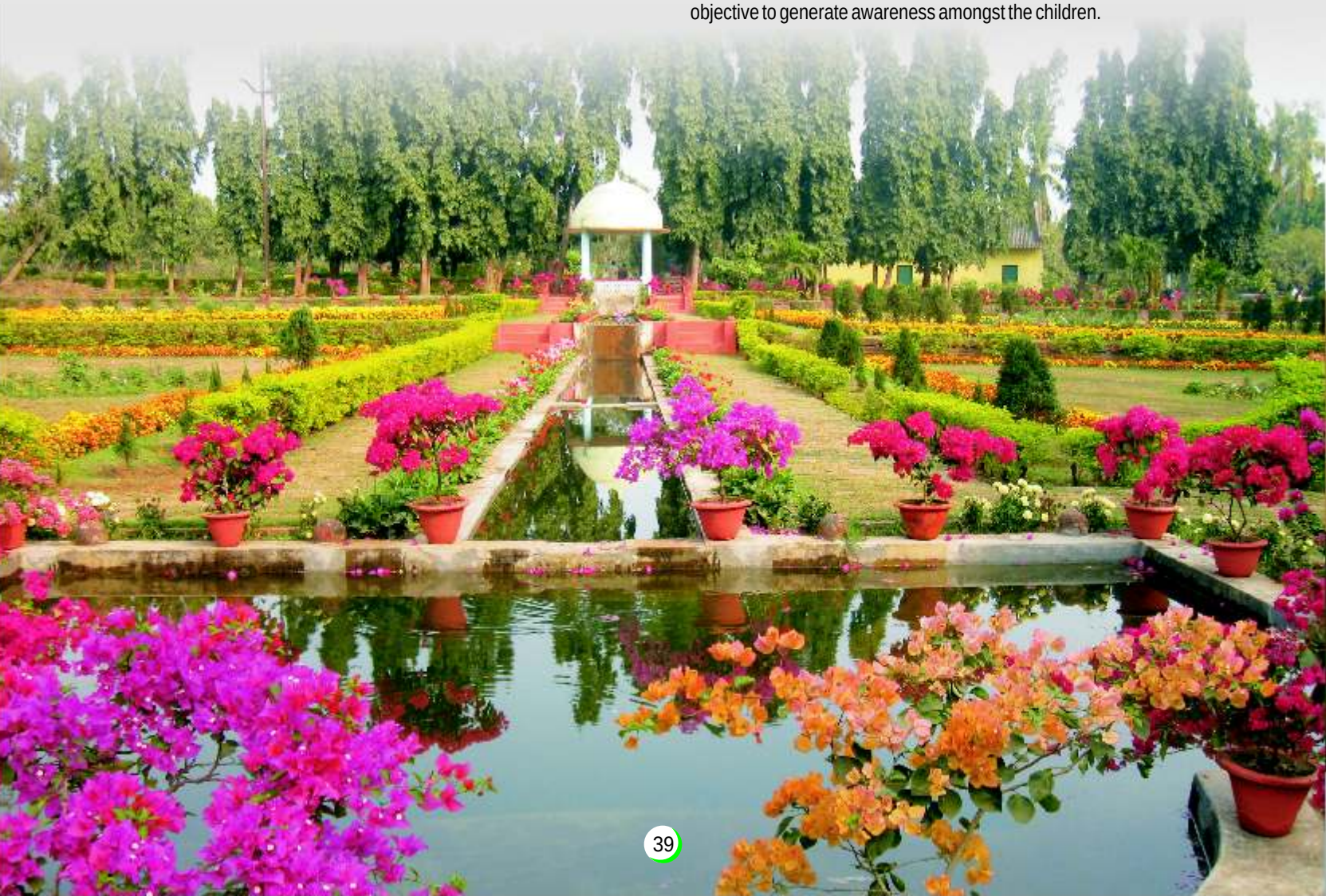
A rich collection of more than 400 Bonsai plants are available adjoining to the Glass house.

Children Park

A niche for the kids has been created within the natural setting by providing swings, merry-go-round, sliding chute etc.

Artificial Zoo

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



Nursery

A well equipped nursery exists in the garden for production of different seedlings and to accommodate the plants for display and sale. It is having a captive vermin compost unit.

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 latest information on various aspects of butterfly. A short documentary about butterfly is an added attraction. The Interpretation centre was opened to the visitors in March, 2015.

Carnivorous plant garden

Nandankanan Biological Park is first to exhibit carnivorous plants among the Indian zoos. This project was started during the month of September, 2015 and completed during the month of March, 2016. The garden has been established to accommodate different species of carnivorous plants (e.g. *Sarracenia, Drosera, Nepenthes, Dionaea)* with provision of naturalistic landscape with appropriate signage. The exhibit will promote education and awareness among the visitors about habitats of carnivorous plants and their conservation.

GARDENS

Rosarium

It is one of the richest collection of 1000 rose plants belonging to 55 varieties, grown over an ara of 1.5 ac. of land.

Medicinal Garden

A well laid medicinal garden spread over an ara of 2.26 ac. which displays rich collection of 200 species of medicinal trees, shrubs and herbs.

Japanese Garden

A state of art Japanese garden in Tsukiyama-niwa style with flowing streams and other typical features is a star attraction.

Landscape Garden

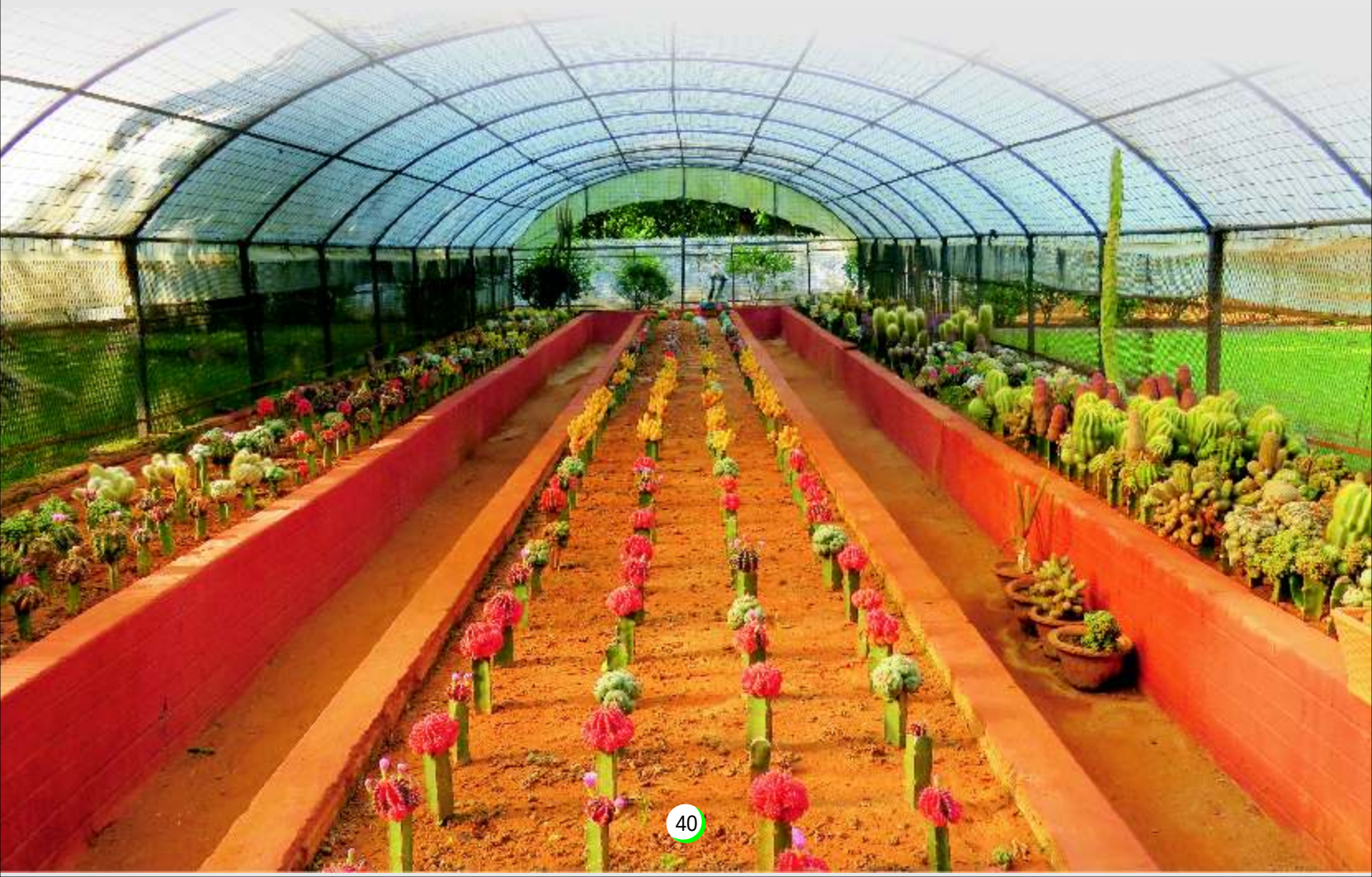
It is a model of landscaping having different elements like lawn, trees and shrubs spread over an area of 11 acres. 1000 trees of different species have been planted to maintain the rhythm.

Orchid House

The largest orchid house of the State spreads over 5000 sqft. and displays more than 1000 orchid plants of 57 varieties belonging to 37 species. One can enjoy the orchids in bloom round the year displaying various colour of nature.

Evolution garden

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



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 side give a look of gardens of mughal era. The garden is liked by mostly the young people and has maximum foot flow during winter.

Arboretum

The arboretum spread over an area of 4 ha., has been established with a collection of more than 200 species (from 49 families of plants) found in the eastern zone forests. A minimum of 10 nos. of each species has been planted with signages displayed. A network of path has been made through the plantation which will be a ideal walkway for botanization for the trainees and students.

Butterfly park

Butterfly park, an interesting option among visitors has been developed over an area of 36,590 sqft. The garden has an unique landscape with 6400 butterfly dependant plants. The garden has one cascading waterfall with 170 rft flowing water channel, fountains and artistic bridges. One can sight more than 42 species of butterflies 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.

Palm garden

Palm garden is an amazing site to see varieties of common and rare palms. A collection of 26 varieties of beautiful palms have been planted over an area of 15,000 sq ft .One designed water body along with 15000 sq ft grass carpets have also been developed inside the palm garden for public amusement. The palm garden has been established in March, 2014.

Bougainvillea garden

One Bougainvillea garden has been developed over an area of 21,400 sq ft inside the State botanical garden. More than 1,000 bougainvillea plants of different colors (7 varieties) have been displayed in the garden. A series of creepers raised on the back of the garden adds beauty to the park which was established in July, 2013.

Dry garden

A garden of xerophytes 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.

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 garden containing six varieties of Tulsi plants with models of monk, live size cow and tribal hut are the attraction of the garden.

Visitor flow & revenue generated during last five years

Year	No. of visitors	Total Revenue collected (Rs. in lakh)
2011-2012	88,148	13.04
2012-2013	1,11,180	16.57
2013-2014	1,32,920	19.45
2014-2015	1,38,681	20.62
2015-2016	1,84,915	35.09

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.

© 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 which 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 White backed vultures.
- Nandankanan has largest enclosures for housing Gharials and Hippopotamus.
- Second largest heronry for open billed storks (more than 12,000) 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 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”.