ANNUAL ACTIVITY REPORT

2021-22

NANDANKANAN BIOLOGICAL PARK

BHUBANESWAR, ODISHA

CONTENTS

1. **Report of the Officer-in-charge**

Nandankanan Zoological Park is one of the 17 large zoos of the country and the only large zoo of Odisha established on 29th December 1960. With every passing year, Nandankanan has witnessed significant improvements in providing the highest standards in housing, husbandry and health care to its denizens and also a fascinating learning experience to its visitors. Nandankanan, true to its name, is verily a heavenly garden of Gods and its salubrious surroundings are a treat to the eye. Apart from the verdant environs of the zoo, there are two important wetlands here namely Kanjia lake and Kiakani lakes spreading over 66 ha and 25 ha respectively. The former was listed as a Wetland of National importance in 2006 based on its rich biodiversity and important role in wetland education. Nestled alongside the lakes is the State Botanical Garden sprawling over 75 ha of beautifully landscaped grounds, one of the most important plant conservation facilities in the State. It was handed over to Nandankanan Management in August, 2006. The Zoological Park together with the State Botanical Garden, Kanjia lake and Kiakani lake was declared as the Nandankanan Wildlife Sanctuary having an area of 4.37 sq. km. on 3rd August 1979. The natural forest areas of the sanctuary provide a safe home to a rich assemblage of flora and free-living wild fauna. Moreover, it plays the crucial role of being the green lungs of the capital city of Bhubaneswar. With its unique amalgamation of ex-situ and in-situ conservation initiatives, Nandankanan has emerged as a pre-eminent centre for biodiversity conservation and environmental education in the country.

The year 2021-22 was a year of great change and significant challenges, due to the COVID-19 pandemic. The Zoo and State Botanical Garden were closed to visitors from 01st May 2021 to 02nd August, 2021due to 2nd wave of the pandemic. Though we gradually reopened the zoo following all government regulations including weekend shutdowns and social distancing, visitor numbers remained below the average. Again, Zoo and State Botanical Garden were closed to visitors from 30th December 2021 to 02ndJanuary, 2022. During 3rd wave of COVID-19 pandemic strict precaution were taken in January, 2022 and visitors having online tickets were only allowed for entry during 7th January 2022 to 19th February 2022 to lessen contact between visitors. Even then, we received 14,62,474 visitors in the zoo and 56,390 in the State Botanical Garden during the year 2021-22, signifying the deeply felt need among the general public to connect to green spaces and wild nature. Drawing from the lessons learnt from the pandemic, along with the welfare of our animals, staff and visitors, we have made sanitation, hygiene and bio security a priority. Regular screening for COVID-19, provision of personal protective kits and double dose vaccination of our staff with 3rd precautionary dose were carried out to prevent spread of COVID-19 infection. Adapting to the changing times, we too have evolved with the pandemic situation leveraging the use of technology, and could carry out several activities on a virtual mode. Notable among them are state level online quiz competition on the behalf of State Wildlife Headquarters, entry of visitors with online ticket only, online animal adoption programme and various outreach activities. The pandemic has made us revive and pursue the Adopt-an-Animal program to mobilize resources for animal welfare. More than two hundred individuals and two organizations have contributed to the program. High speed free wi-fi service and UPI based transaction in online mode were introduced during the

year to facilitate contact less entry During the year, many enclosures and visitor amenities were renovated and supplemented with enrichments, standoff barriers, signage and landscaping where ever necessary. Among them, thetoy train facility, development of herbivore enclosure inside toy train area, new quarantine house for carnivores, post mortem hall and incinerator complex, renovation of gharial hatchery, tiger safari approach road, service road behind tiger line, three new gardens like waste management garden, vertical garden, hydrophyte garden and Bonsai house at State Botanical Garden were done, which are worth mentioning. During the year, 273 animals including 151 mammals, 108 birds and 14 reptiles were born at the zoo. Among them, birth of Asiatic lion, Tiger, Sloth bear, Chimpanzee, Stump-tailed macaque, Assamese macaque, Gaur, Indian fox, Mouse deer, Swamp deer, Brow-antlered deer, Sambar, Blackbuck, Grey pelican, Common monitor lizard, Mugger crocodile, Indian hare, Jackal, Hippopotamus etc. are noteworthy. The cubs of lioness 'Bijli'- 'Barsa' and 'Kamini' were successfully hand reared after their maternal rejection in the 1st litter in July, 2021 and 2nd litter in March, 2022 respectively. Similarly, the 1st litter cub of white tigress 'Rupa', later named as 'Himanshi', was successfully hand reared by dedicated team following maternal rejection by her mother. Under the animal exchange programme, we have welcomed 10 new animals of 4 species with an objective of infusion of new bloodline to the existing stock and has added 2 new species to the animal collection. However, we said final adieu to some precious animals of our Zoo, notably the tigress 'Renuka', Himalayan black bear 'Motia', Tiger cubs “Bansi” and “Vivek” who were very popular among visitors.

Further, as a commitment to in-situ conservation, during 2021-22, 2 male and 4 female gharials of length 2.3m-3.8m tagged with satellite transmitters were released to the river Mahanadi. The natural breeding of gharial occurred for the 2nd consecutive year at Satkosia gorge, the site of project implementation. On 11th May 2022, 32 gharial hatchlings have hatched at the same nest from the same mother as of previous year. Community awareness activities were prioritized to protect gharials and their hatchlings by the field researchers in addition to daily monitoring of gharials. Recognizing the crucial roles that Nandankanan has to play for fostering the people-nature connect, unprecedented importance has been given to awareness and outreach activities. Several new and innovative Citizen Science activities such as Sunday bird walk, butterfly and moth walk and herp walk were initiated during the 2021-22 and have been enthusiastically received by the citizens. QR-code enabled signages, and self-guided QR-code enabled Tree Walks have been introduced. Further, celebration of different eco-days like World Wetlands Day, World Pangolin Day, World Wildlife Day, World Environment Day, World Crocodile Day, International Tiger Day, International Vulture Awareness Day, Wildlife Week and World Elephant Day etc. were organized during the year. Animal keepers were motivated to share their experience with visitor during Keeper's talk sessions. Highest standards of health care and animal husbandry practices have resulted in a reduced annual death rate during the year 2021-22. This was possible due to sincere efforts by our zoo veterinarians, cooperation from the College of Veterinary Sciences and Animal Husbandry, OUAT, Bhubaneswar, valuable advice and guidance from the Health Committee and

Technical Committee on important health care issues. Research is in the DNA for Nandankanan. Following the long-term commitment toward scientific contribution, eight research papers in various national and international journals and one book were published on various aspects of ex-situ conservation and management of captive wild animals. Therefore, it is heartening that despite disruptive and unexpected changes, the year delivered a number of significant milestones.

Needless to say, all this could not have been achieved but for the sincere efforts of all members of Team Nandankanan, and I would take this opportunity to thank them all – supervisory officers, our dedicated staff including healthcare professionals, members of various technical and advisory committees, senior officers and the previous Directors of the zoo. I am optimistic that with their hard work and sound advice, aided by the constant guidance of the Chief Wildlife Warden, we will continue to build upon our impactful legacy and forge ahead with our vision to place Nandankanan in the list of world-class zoos.

Dr. Manoj V. Nair, IFS
Director, Nandankanan Biological Park

2. History of the Zoo

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

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

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

Nandankanan attained distinction in first ever breeding of the Gharial in captivity in a naturalistic pool created for the purpose, through a full grown male gharial was brought from Frankfurt zoo on breeding loan. This happened on 7th May, 1980 with 24 hatchlings hatched in the gharial pool. In the same year, 2 normal coloured tigers 'Deepak and Ganga' gave birth on the 8th January, 1980 to 3 white off-springs named 'Debabrata', 'Alaka' & 'Nanda' creating history. With this, Nandankanan created its own family of

white tigers and a separate gene pool. The park forged ahead in its developmental activities under the advice & guidance of Nandankanan Development Board to become a leading zoo in the country with wide variety of animals in near natural environment. On 20th Jan 1984, a Lion safari over 20 ha was inaugurated inside the zoo premises. There after the first White Tiger safari spread over 12 ha was also established in the year 1991. Two more safaris namely Herbivore safari (21ha) and Bear safari(5 ha) were established in 2011 and 2012 respectively.

The zoo has bred number of species of animals, birds and reptiles. Many of them are endangered as per the Wildlife Protection Act, 1972. Some of them are tigers (normal colored and white), leopards (black & normal), Asiatic lion, all the 3 Indian crocodiles, Indian tiger, elephant, lion-tailed macaque, Nilgiri Langur, peafowl, Indian pangolin, thamin deer, ratel, black kite, water monitor lizard, gaur, and many others. A toy train has been in operation in the park since 10th August'1971 donated by the Ministry of railways, Government of India. A rope way also links zoological park with the botanical garden since 01.10.1994. An aquarium was dedicated to visitors in 4th February, 2008 by the Honourable Chief Minister, Odisha. Gradually many facilities like electronic entry gate, battery operated vehicles, RO drinking water kiosk, interpretation centre, zoo museum, live feed rearing centre, Baby care house, toy train, Zoo Laboratory, Modular PM hall, Carnivore quarantine ward & Multi level car parking etc. were added or renovated for better management of animals and visitors.

3. Vision:

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

4. 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.

5. Objective

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.

6. About us:

S.No.	Particulars	Information
Basic Information about the Zoo		
1	Name of the Zoo	Nandankanan Zoological Park
2	Year of Establishment	1960
3	Address of the Zoo	Nandankanan Zoological Park, Barang, Bhubaneswar - 754005
4	State	Odisha
5	Telephone Number	+91-674 2547850
6	Fax Number	+91-674 2547840
7	E-mail address	nandankananzoo@yahoo.com
8	Website	www.nandankanan.org
9	Distance from nearest	Airport: 18Km Railway Station: 2Km Bus Stand: 1Km
10	Recognition Valid upto (Date)	19.08.2023
11	Category of zoo	Large
12	Area (in Hectares)	362.1 ha.
13	Number of Visitors (Financial Year)	1518864
14	Visitors' Facilities Available in Zoo	• Multi-Level Car Parking • Drinking water kiosks with RO facility • Free toilets at convenient locations • Special toilets, wheel chairs & ramps for

S.No.	Particulars	Information
		differently abled persons • Rest areas / sit-outs / visitors' shed at various locations. • Tourist cottages • Restaurant Snacks bar &Cafeteria (run by OTDC) • Free cloak room near the entrance gate • Perambulator for children • First-aid (at zoo hospital, observatory & administrative office) • Zoo Library & Digital Hub • Emission free battery operated vehicles • Guide maps • Publications • Nature shop (Souvenir shop) • Children Park • Baby care centre
15	Weekly Closure Day of the Zoo	Monday
Management Personnel of the zoo		
16	Name with designation of the Officer in-charge	Dr Manoj V. Nair, Director
	Name of the Veterinary Officer	Dr Sarat Kumar Mishra
	Name of the Curator	Dr Rashmi Ranjan Swain
	Name of the Biologist	Dr Rajesh Kumar Mohapatra
	Name of the Education Officer	Mr Milan Kumar Panda
	Name of the Compounder	Mr Pradeep Kumar Nandi Mr Beda Prakash Sahoo
Owner / Operator of the Zoo		
17	*Name of the Operator	Government of Odisha, Forests Environment and Climate Change Department

S.No.	Particulars	Information
	Address of the Operator	Additional chief secretary to Govt, Forests Environment and Climate Change Dept, Odisha
19	Contact details/Phone number of Operator	0647-2536822
20	E-mail address of Operator	efsec.od@nic.in

** Rule 2(m) of the Recognition of Zoo Rules, 2009.*

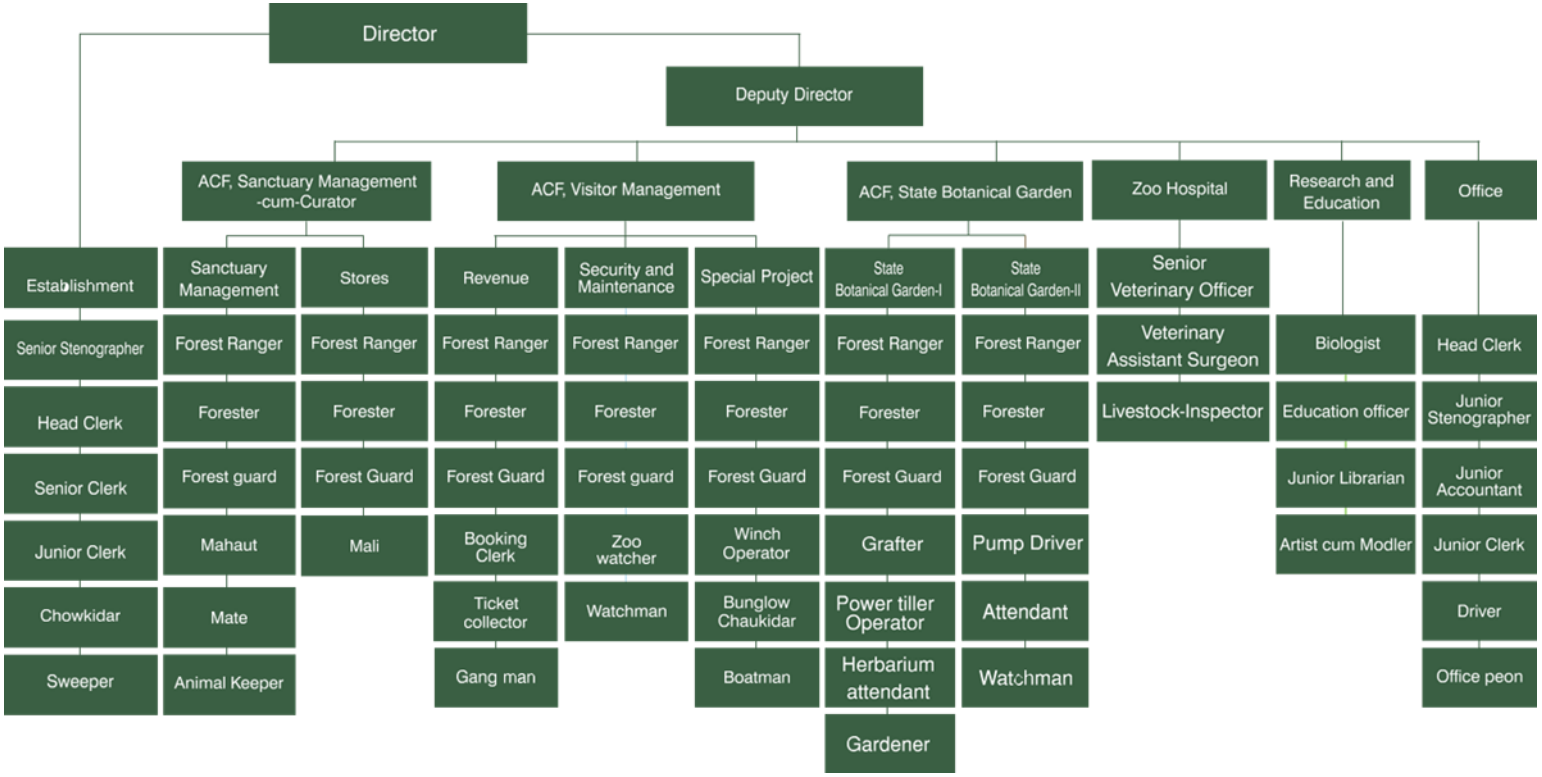
"Zoo Operator" means the person who has ultimate control over the affairs of the zoos provided that_____

I. in the case of a firm or other association of individuals, any one of the individual partners or members thereof; or

II. in the case of a company, any director, manager, secretary or other officer, who is in-charge of and responsible to the company for the affairs of the zoo; or

III. In case of zoo owned or controlled by the Central Government or any State Government or Union Territory Administration or any Trust or Society funded by the Central Government or a State Government or a Union Territory Administration, the Secretary of the concerned Department of that Government, or as the case may be the Union Territory Administration, shall be deemed to be the Zoo Operator.

7. Organizational Chart



8. Human Resources:

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

Sl. No.	Designation	Number of Sanctioned Posts	Number of the incumbent
1	Director	1	1
2	D.C.F.	1	0
3	Senior Stenographer	1	0
4	Senior Assistant	4	4
5	Junior Assistant	4	1
6	Driver	1	0
7	Office Peon	1	1
8	Office Sweeper	1	0
9	Office Chowkidar	1	0
10.	Watchman	1	1
	TOTAL	**16**	**8**

(B) Deputy Director's Office, Nandankanan Zoological Park

Sl. No.	Name of each category of post.	Sanctioned strength.	No. of staff in position.
1	Deputy Director, N.K.Z.P.	1	1
2	Sr. Veterinary Officer	1	1
3	ACF	3	2
4	Vet. Assistant Surgeon.	1	1
5	Forest Ranger	8	4
6	Section Officer	1	0
7	Zoo Biologist	1	1
8	Education Officer	1	1
9.	Dy. Ranger	0	1
10	Fitter-cum-Mechanic	1	0
11	Senior Assistant	5	5
12	Junior Stenographer.	1	1
13	Forester	9	9
14	Driver(H.V)	3	0
15	Driver (L.V.)	4	1

16	Livestock-Inspector.	3	2
17	Projector Operator	1	0
18	Junior Librarian	1	0
19	Artist- cum- Modeler.	1	0
20	Guide	1	0
21	Junior Assistant	5	5
22	Booking Clerk	3	0
23	Welder-cum-Blacksmith	1	0
24	Forest Guard	25	15
25	Mahunta	8	0
26	Mali	5	2
27	Khansama	1	0
28	Mahunta	3	0
29	Asst. Mahunta	8	0
30	Animal Keeper	101	67
31	Office Peon/Attendant	6	5
32	Sweeper	11	5
33	Bungalow Chowkidar	3	0
34	Winch Operator	1	0
35	Ticket Collector	10	7
36	Gangman	1	0
37	Mate	2	1
38	Boat Man	2	0
39	Zoo Watcher	22	11
40	Watchman	26	20
41	Cook-Cum-Animal feed Distributor	2	0
	GRAND TOTAL:	**292**	**169**

9. Capacity Building of zoo personnel:

Dr Sanjeet Kumar, Deputy Director, Nandankanan Zoological Park & Dr Rajesh Kumar Mohapatra, Biologist, Nandankanan Biological Park has attended technical workshop from 20th September to 21st September, 2021 organized by Central Zoo Authority, New Delhi at Vulture Conservation Breeding Centre, Pinjore, Haryana.

Dr Sanjeet Kumar, Deputy Director, Nandankanan Zoological Park & Dr Sarat Kumar Sahu, BVO, Nandankanan Zoological Park has attended National Zoo Director's Conference from 10th& 11th October, 2021 conducted by Sardar Patel Zoological Park, Kevadiya, Gujarat.

10. Zoo Advisory Committee:

Committees constituted by Government of Odisha:

Expert Committee:

Government of Odisha, Forest & Environment Department, vide Office order No FE-WL-WLF-0027-2019/21236/F&E dated 05.11.2019, constituted an 'Expert Committee' under the chairmanship by Shri S. K. Patnaik, IFS (Rtd. PCCF, Wildlife, Odisha and Member CEC) for strengthening healthcare and upkeep of animals of Nandankanan Zoo.

Expanded Technical Committee:

In view of the demise of some of the members of the Technical Committee, and as per current requirements of animal health management, proposal for reconstitution of the Committee is under consideration by the Government.

Health Committee:

Government of Odisha, Forest & Environment Department, vide Office order No FE-WL-WLF-0027-2019/21234/F&E dated 05.11.2019, constituted a Health Committee for strengthening healthcare and upkeep of animals of Nandankanan Zoo, with the following members:

- Professor and Head, Department of Preventive Medicine, CVSc & AH –cum-Project Coordinator, Centre for Wildlife Health, OUAT, Bhubaneswar- Chairman
- Professor and Head, Department of Surgery, CVSc & AH or his Nominee- Member
- Professor and Head, Department of Pathology, CVSc & AH or his Nominee- Member
- Head, Department of Parasitology, CVSc & AH or his Nominee- Member
- HOD, Department of Nutrition, CVSc & AH or his Nominee- Member
- Senior Veterinary Officer/ VAS Nandankanan- Member Convener
- All Veterinary Officers of Nandankanan- Members
- Deputy Director, Nandankanan Zoological Park- Member
- Curator, Nandankanan Zoological Park- Member
- Range Officer, Sanctuary Management Range- Member

Date on which Health Committee visited/meeting held during the year-

11-04-2021, 18-07-2021, 27-08- 2021, 09-09-2021, 05-10-2021, 23-10-2021, 16-11-2021, 07-02-2022, 15-03-2022

12.Statement of income and expenditure of the Zoo

Year	Expenditure & Allotment	Non-Plan/AEOM	State-Plan/PE	Centrally sponsored plan	CZA grant	CAMPA	Society Fund	Eco Tourism	Total
2021-22	Allotment Expenditure	565.46 565.46	1072.39 1072.39	18.04 18.04	18.0 5.37	287.38 287.38	1262.53 715.70	- -	3223.8 2664.34

13. Daily feed Schedule of animals

SL.NO	SPECIES	FOOD ITEM	QTY IN KG/Nos
		BIRDS	
1	BUDGERIGAR	MILLET MIX (COMMON,RED,WHITE) PADDY GREEN SAG EGG (BOILED) (FOR GROUP OF 50 BIRDS) CUTTLE FISH BONE (MONDAYS)	0.020 0.005 0.005 1 No. 0.002
2	COCKATIEL, WHITE/ CINNAMON PEARS PIED	BENGAL GRAM MILLET MIX (COMMON,RED,WHITE) GREEN SAG ONION SEED MIX (SUNFLOWER/SAFFLOWER) EGG BOILED (FOR THE GROUP OF 10) CUTTLE FISH BONE (MONDAYS)	0.010 0.020 0.025 0.010 0.010 1 No. 0.002
3	COCKATOO, LESSER/ SULPHUR CRESTED/ UMBRELLA	APPLE EGG (BOILED) GROUND NUT GRAPE RIPE BANANA BENGAL GRAM SEED MIX (SUNFLOWER/SAFFLOWER) RIPE PAPAYA GREEN MAIZE WITH SPIKE (AUG-SEP) RIPE GUAVA (SEP-OCT)	0.030 ½ No. 0.030 0.030 0.030 0.015 0.020 0.025 0.050 0.050
4	CONURE,BROWN THROATED/ JANDAYA / SUN/PINEAPPLE/ YELLOW SIDED	APPLE BENGAL GRAM GROUND NUT GRAPE GREEN SAG RIPE PAPAYA SEED MIX (SUNFLOWER/SAFFLOWER) GREEN MAIZE WITH SPIKE (AUG-SEP)	0.030 0.005 0.025 0.015 0.025 0.020 0.010 0.050 0.030 0.025

		RIPE GUAVA (SEP-OCT) PINEAPPLE (MAY-JULY)	
5	CRANE, SARUS	KERANDI FISH PULSES & GRAIN FEED BENGAL GRAM	0.250 0.150 0.050
6	DOVE, BARBARY/ LAUGHING/RING NECKED	POULTRY FEED PULSES & GRAIN FEED GREEN SAG BOILED EGG	0.010 0.050 0.010 ¼ No.
7	DOVE, SPOTTED/EMRALD	POULTRY FEED PULSES & GRAIN FEED GREEN SAG BOILED EGG MUSTARD	0.010 0.030 0.010 ½ No. 0.005
8	DOVE, DIAMOND	MILLET MIX (COMMON,RED,WHITE) PADDY PULSES & GRAIN FEED GREEN SAG CUTTLE FISH BONE (MONDAYS)	0.005 0.005 0.020 0.005 0.002
9	DUCK, MANDARIN	GREEN SAG PADDY POULTRY FEED PULSES & GRAIN FEED WHEAT, SOAKED BENGAL GRAM	0.030 0.010 0.050 0.060 0.025 0.025
10	EGRET, LITTLE/MEDIAN/ CATTLE/ LARGE	GADISHA FISH KERANDI FISH	0.200 0.100
11	EMU	BENGAL GRAM CHHATU BENGAL GRAM EGG (BOILED) GARLIC GREEN SAG ONION RIPE BANANA GRAPES	0.200 0.300 1NO 0.010 0.250 0.050 0.200 0.050
12	FINCH (BENGALESE / LONG TAILED /STAR/ZEBRA)	MILLET MIX (COMMON,RED,WHITE) PADDY GREEN SAG EGG (BOILED)	0.010 0.005 0.005 1NO 0.002

		(FOR GROUP OF 50 INDIVIDUALS) CUTTLE FISH BONE (MONDAYS)	
13	HORNBILL, GREY/ ORIENTAL PIED	RIPE BANANA GRAPE BENGAL GRAM CHHATU	0.100 0.050 0.050
14	HERON, GREY/NIGHT	KERANDI FISH	0.100
15	HILL MYNAH	BENGAL GRAM CHHATU RIPE BANANA APPLE GRAPE	0..025 0.050 0.025 0.025
16	IBIS (BLACK/ WHITE)	KERANDI FISH	0.300
17	JUNGLE FOWL, RED	BENGAL GRAM POULTRY FEED PULSES AND GRAIN FEED PADDY GARLIC ONION MEAL WORM BOILED EGG (FOR THE GROUP)	0.050 0.050 0.030 0.020 0.005 0.010 5NO 1NO
18	KITE, BRAHMINY	KERANDI FISH DAY OLD CHICKS/WHITE MICE	0.250 1NO
19	KITE, BLACK	KERANDI FISH BUFFALO MEAT (EXCEPT MONDAY) DAY OLD CHICK/WHITE MICE	0.050 0.200 1No.
20	KOEL	BENGAL GRAM CHHATU RIPE BANANA GRAPE RIPE PAPAYA	0.025 0.050 0.025 0.025
21	LOVE BIRD (FISCHERS/ PEACH-FACED/MASKED)	BENGAL GRAM MILLET MIX (COMMON,RED,WHITE) PADDY GROUND NUT GREEN SAG SEED MIX (SUNFLOWER/SAFFLOWER	0.010 0.020 0.010 0.005 0.030 0.010 0.002

		CUTTLE FISH BONE (MONDAYS)	
22	LORIKEET, BLUE FACED/ SWAINSON' S	APPLE BENGAL GRAM RIPE PAPAYA GRAPE GREEN SAG RIPE BANANA CARROT CUCUMBER RIPE GUAVA (SEPT-OCT) GREEN MAIZE WITH SPIKE (AUG- SEP)	0.050 0.010 0.050 0.025 0.030 0.025 0.025 0.025 0.050 0.050
23	LORRY, YELLOW BACKED / RED CHATTERING	APPLE BENGAL GRAM GRAPE GREEN SAG RIPE BANANA RIPE PAPAYA RIPE GUAVA (SEPT-OCT) GREEN MAIZE WITH SPIKE (AUG-SEP)	0.050 0.010 0.025 0.030 0.050 0.030 0.050 0.050
24	MACAW, GREEN WINGED/ BLUE & YELLOW	APPLE BENGAL GRAM PISTACHIO WITH SHELL GRAPE SEED MIX (SUNFLOWER/SAFFLOWER) RIPE BANANA CARROT CUCUMBER POMEGRANATE GREEN COCONUT AMLA (NOV- DEC) GREEN PEA POD (DEC-FEB) CUSTARD APPLE (SEPT-OCT) GREEN MAIZE WITH SPIKE (AUG-SEP) WATER MELON (APR-MAY) RIPE GUAVA (SEP-OCT)	0.050 0.015 0.010 0.030 0.015 0.025 0.025 0.025 0.025 1 NO (ON MONDAY) 0.010 0.100 0.050 0.050 0.050 0.050

25	MUNIA (RED/BLACKHEAD/SPOTTED/ SCALY BREASTED)	MILLET MIX (COMMON,RED,WHITE) CUTTLE FISH BONE (MONDAYS) PADDY GREEN SAG	0.010 0.002 0.010 0.010
26	OWL (BARN/ ORIENTAL SCOPS)	DAY OLD CHICK	2NO
27	OWL, BROWN FISH	DAY OLD CHICK WHITE MICE KERANDI FISH	2NO 2NO 0.100
28	PARAKEET, (MOUSTACHED/ ROSE RINGED/ BLOSSOM HEADED/ ALEXANDRINE/RING NECKED	BENGAL GRAM SEED MIX (SUNFLOWER/SAFFLOWER) GROUNDNUT APPLE GREEN SAG RIPE BANANA RIPE PAPAYA RED CHILI GREEN MAIZE WITH SPIKE (AUG-SEP) RIPE GUAVA (SEPT-OCT) WATER MELON (APR-MAY) GREEN PEA POD (DEC-FEB)	0.010 0.010 0.010 0.020 0.020 0.015 0.025 0.005 0.025 0.025 0.025 0.010
29	PEAFOWL, INDIAN/ WHITE	BENGAL GRAM GROUND NUT GARLIC GREEN SAG ONION POULTRY FEED PULSES & GRAIN FEED PADDY	0.050 0.050 0.005 0.100 0.050 0.040 0.040 0.050
30	PELICAN, GREY/ROSY	GADISHA FISH	1.000
31	PHEASANT, GOLDEN/ SILVER/ YELLOW GOLDEN/ LADY AMHERST'S /REEV'S / RING NECKED	GARLIC GREEN SAG ONION POULTRY FEED PULSES AND GRAIN FEED BOILED EGG CRICKET WORM/MEAL WORM	0.010 0.050 0.020 0.050 0.050 ½ NO 5NO

32	ROSELLA, EASTERN	APPLE BENGAL GRAM GREEN SAG GROUND NUT RIPE BANANA SEED MIX (SUNFLOWER/SAFFLOWER) RIPE PAPAYA GREEN MAIZE WITH SPIKE (AUG-SEP) RIPE GUAVA (SEPT-OCT) PINE-APPLE (MAY-JULY) WATER MELON (APR-MAY)	0.050 0.010 0.025 0.030 0.050 0.010 0.025 0.050 0.050 0.025 0.050
33	SPARROW, JAVA	MILLET MIX (COMMON,RED,WHITE) PADDY GREEN SAG BOILED EGG (FOR 20 GROUP) CUTTLE FISH BONE (MONDAYS)	0.010 0.010 0.010 1NO 0.005
34	STORK, OPEN BILLED	SNAIL WITH SHELL	0.400
35	STORK, PAINTED	GADISHA FISH	0.300
36	STORK, LESSER ADJUTANT	GADISHA FISH DAY OLD CHICK	0.200 2NO
37	SHIKRA	DAY OLD CHICKS	2NO
38	SWAN, BLACK	BLACK SWAN FEED GREEN SAG BENGAL GRAM CABBAGE DHANIA SAG WHEAT (SOAKED)	0.250 0.250 0.100 0.100 0.100 0.100
39	VULTURE, CINEREOUS	CHICKEN MEAT (EXCEPT MONDAY)	1.000
40	VULTURE, WHITE BACKED/ LONG BILLED	CHICKEN MEAT (EXCEPT MONDAY)	0.500
41	VULTURES, LONG BILLED AT VCBC	BUFFALO MEAT (ON TUESDAY AND SATURDAY)- THE BUFFALO TO BE RETAINED MIN. 7 DAYS BEFORE SLAUGHTER	2.000
42	VULTURE,	CHICKEN MEAT	0.750

	HIMALAYAN GRIFFON	(EXCEPT MONDAY)	
43	OSTRICH	LUCERN GRASS/ DHANIA SAG OSTRICH FEED BOILED EGG (WITH SHELL)	1.500 1.750 2NO
44	PARROT, AFRICAN GREY	APPLE BENGAL GRAM GRAPE GROUND NUT SUNFLOWER SEED RIPE PUMPKIN RIPE PAPAYA RIPE SAPETA (APR-MAY) WATER MELON(APR-MAY)	0.030 0.015 0.030 0.030 0.010 0.050 0.050 0.050 0.050
45	PARROT, MEYER'S/ RED BELLIED	APPLE BENGAL GRAM BEANS GRAPES POMEGRANATE SUNFLOWER SEED RIPE PAPAYA	0.030 0.015 0.030 0.020 0.020 0.010 0.050
46	TURACO, VIOLET/ LIVINGSTONE	APPLE GRAPE TOMATO POMEGRANATE RIPE BANANA RIPE PAPAYA WATERMELON (APR-MAY) RIPE MANGO (APR-MAY)	0.025 0.025 0.050 0.025 0.050 0.050 0.050 0.025
		MAMMALS	
47	ANTELOPE, FOUR HORNED	COMMON GRASS DEER MASH DEER FODDER BENGAL GRAM BIRIDAL RIPE BANANA RIPE PUMPKIN JHUDANGA	1.000 0.500 1.000 0.100 0.100 0.100 0.100 0.100
48	BEAR, HIMALAYAN BLACK	BIRIDAL HONEY	0.100 0.025

		MILK RICE (PAR BOILED) RIPE PUMPKIN RIPE BANANA WATER MELON (APR-MAY) CARROT SWEET POTATO (OCT-MAR) GREEN MAIZE WITH SPIKE (AUG-SEP) BOILED EGG (NOV-FEB)	0.100 0.800 0.350 0.350 0.500 0.100 0.150 0.200 2NO
49	BEAR, SLOTH	BIRIDAL HONEY MILK RICE (PAR BOILED) RIPE PUMPKIN RIPE BANANA WATER MELON (APR-MAY) SWEET POTATO (OCT-MAR) GREEN MAIZE WITH SPIKE (AUG-SEP) CARROT BOILED EGG (NOV- FEB)	0.100 0.025 0.100 0.700 0.300 0.300 0.500 0.100 0.200 0.100 2NO
50	BLACK BUCK	COMMON GRASS DEER MASH DEER FODDER RIPE PUMPKIN JHUDANGA	1.000 0.500 1.000 0.100 0.100
51	BABOON, HAMADRYAS	GROUND NUT APPLE BRINJAL LADIES FINGER EGG (BOILED) BEAN MILK RICE (PAR BOILED) RIPE BANANA GRAPE POMEGRANATE CARROT	0.050 0.200 0.100 0/050 1NO 0.050 0.010 0.050 0.250 0.100 0.150 0.100 0.100 0.025 0.050 0.050 0.100 0.150

		DESI KANKADA (JULY-SEPT) AMLA (NOV-DEC) SWEET POTATO (OCT-MAR) GREEN MANGO (APR-MAY) PINE-APPLE (MAY-JUL) WATER MELON (APR-MAY)	
52	CAPUCHIN, BLACK TUFTED	MILK RICE BOILED EGG APPLE RIPE BANANA CUCUMBER CARROT POMEGRANATE GRAPES RIPE PAPAYA RIPE GUAVA (SEPT-OCT) MEAL WORMS SWEET CORN (BOILED) BENGAL GRAM SUNFLOWER SEEDS CHICKEN MEAT(BOILED) (ON WEDNESDAY)	0.010 0.025 1 ½ No 0.050 0.100 0.100 0.100 0.050 0.050 0.050 0.025 5 Nos 0.025 0.025 0.025 0.100
53	CAT, JUNGLE	CHICKEN DRESSED DAY OLD CHICK	0.400 1 NO
54	CAT, LEOPARD	CHICKEN DRESSED DAY OLD CHICK	0.300 2 NO.S
55	CAT, FISHING	CHICKEN DRESSED KERADI FISH	0.250 0.250
56	CHIMPANZEE	APPLE BENGAL GRAM WHOLE CUCUMBER EGG (BOILED) BEAN GRAPE MILK TOMATO RICE (PAR BOILED) GREEN SAG RIPE BANANA BEDANA HONEY CARROT	0.300 0.100 0.200 1 NO 0.050 0.200 0.150 0.100 0.200 0.200 0.300 0.200 0.025 0.100 0.050 0.100 0.500 0.125 0.050

		KHAJARA PINE-APPLE (MAY-JUL) WATER MELON (APR-MAY) DESI KANKADA (JULY-SEPT) RIPE GUAVA (SEPT-OCT) GREEN COCONUT (APR-JUN) CUSTARD APPLE (SEPT-OCT) RIPE PAPAYA PALANGA SAG (DEC-FEB) ORANGE (NOV-MAR) AMLA (NOV-DEC) GARLIC ONION GREEN MAIZE WITH SPIKE (AUG-SEP GREEN PEA POD (DEC-FEB)	2NO 0.200 0.400 0.100 0.150 0.050 0.010 0.030 0.200 0.100
57	CHIMPANZEE, JUVENILE	APPLE BENGAL GRAM WHOLE CUCUMBER EGG (BOILED) BEAN GRAPE MILK TOMATO RICE (PAR BOILED) GREEN SAG RIPE BANANA BEDANA HONEY CARROT KHAJARA PINE-APPLE (MAY-JUL) WATER MELON (APR-MAY) DESI KANKADA (JULY-SEPT) RIPE GUAVA (SEPT-OCT) GREEN COCONUT (APR-JUN) CUSTARD APPLE (SEPT-OCT) RIPE PAPAYA	0.150 0.025 0.050 1 NO 0.030 0.050 0.100 0.050 0.050 0.050 0.150 0.150 0.025 0.050 0.025 0.050 0.200 0.050 0.020 1NO 0.050 0.100 0.050 0.050 0.025 0.005 0.020 0.050 0.050

		PALANGA SAG (DEC-FEB) ORANGE (NOV-MAR) AMLA (NOV-DEC) GARLIC ONION GREEN MAIZE WITH SPIKE (AUG-SEP) GREEN PEA POD (DEC-FEB)	
58	CHINKARA	DEER MASH BENGAL GRAM (SOAKED) CARROT RIPE PUMPKIN JHUDANGA DEER FODDER	0.500 0.050 0.200 0.200 0.100 1.000
59	CIVET, COMMON PALM	RICE (PAR BOILED) CHICKEN MEAT KIMA MILK APPLE RIPE BANANA RIPE PAPAYA DAY OLD CHICK	0.010 0.100 0.005 0.050 0.250 0.050 1 NO
60	CIVET, SMALL INDIAN	RICE (PAR BOILED) CHICKEN MEAT KIMA MILK KERANDI FISH RIPE BANANA	0.050 0.050 0.005 0.050 0.200
61	BAT, FRUIT	RIPE BANANA APPLE RIPE PAPAYA GRAPE	0.150 0.050 0.100 0.025
62	DEER, BARKING	COMMON GRASS DEER MASH DEER FODDER	1.000 0.500 0.500
63	DEER, MOUSE	RIPE BANANA APPLE GREEN SAG RIPE PUMPKIN LADIES FINGER BEAN DESI KANKADA (JULY-SEPT) CARROT SWEET POTATO (OCT-MAR)	0.250 0.050 0.050 0.050 0.100 0.125 0.025 0.125 0.100

64	DEER, SAMBAR ADULT, 1YR ABOVE	COMMON GRASS DEER MASH RIPE BANANA (FOR THE GROUP) DEER FODDER	12.000 2.500 3.000 2.000
	DEER, SAMBAR SUB-ADULT, 2MONTHS-1 YEAR	COMMON GRASS DEER MASH DEER FODDER	8.000 1.750 1.000
65	DEER, SPOTTED ADULT, 1YR ABOVE	COMMON GRASS DEER MASH DEER FODDER	2.000 1.100 1.000
	DEER, SPOTTED SUB-ADULT 2MONTHS- 1YEAR	DEER MASH COMMON GRASS DEER FODDER	0.750 1.000 1.000
66	DEER,SWAMP ADULT, 1YR ABOVE	BENGAL GRAM, WHOLE COMMON GRASS DEER MASH PARA GRASS CARROT JHUDANGA RIPE PUMPKIN RIPE BANANA (FOR THE GROUP)	0.100 10.000 1.500 3.000 0.100 0.100 0.100 1.000
	DEER, SWAMP SUB-ADULT 2MONTHS-1YR	BENGAL GRAM, WHOLE COMMON GRASS DEER MASH PARA GRASS CARROT JHUDANGA RIPE PUMPKIN	0.050 5.000 1.000 1.500 0.100 0.100 0.100
67	DEER, BROW ANTLERED, MANIPURI	BENGAL GRAM WHOLE DEER FODDER WHEAT BRAN (CHOKAD) NB21 CARROT RIPE BANANA BLACK SALT JHUDANGA	0.600 5.000 1.000 10.000 0.200 0.200 0.020 0.200
68	DEER, HOG	WHEAT BRAN BENGAL GRAM COMMON GRASS DEER FODDER	0.250 0.250 1.000 1.000
69	ELEPHANT (ADULT)	WHEAT COMMON GRASS	6.000 50.000

		ELEPHANT FODDER NB21 PARA GRASS TURMERIC WHOLE MOLASES COMMON SALT COCONUT STRAW CASTOR OIL BAMBOO LEAVES (JULY-OCT) SUGARCANE (MARCH-APRIL) WATER MELON (APR-MAY) RIPE BANANA (FOR GROUP)	50.000 75.000 75.000 0.050 0.300 0.050 1NO 2.000 0.100 10.000 15.000 4.000 2.000
70	ELEPHANT (MAMA)	WHEAT COMMON GRASS ELEPHANT FODDER NB21 PARA GRASS TURMERIC WHOLE MOLASES COMMON SALT COCONUT STRAW CASTOR OIL BAMBOO LEAVES (JULY-OCT) SUGARCANE (MARCH-APRIL) WATER MELON (APR-MAY)	4.000 20.000 20.000 20.000 20.000 0.025 0.150 0.050 1NO 1.000 0.050 5.000 10.000 2.000
71	FOX, INDIAN	BUFFALO MEAT (EXCEPT MONDAY) CHICKEN MEAT BOILED EGG DAY OLD CHICK	0.250 0.250 1 No 1 No
72	GIRAFFE	WHEAT, SOAKED BENGAL GRAM, SOAKED MUNG, SOAKED DEER MASH FRESH RIPE BANANA CUCUMBER TOMATO ONION	1.000 1.000 1.000 1.250 5.000 3.000 0.500 0.250 0.100 30.000

		SALT(powdered free flow) TREE FODDER (OSTA/BARA) NB21 GREEN SAG JHUDANGA RIPE PUMPKIN GARLIC SWEET POTATO (OCT-MAR) CARROT APPLE WATER MELON (APR-MAY) GREEN PEA POD (DEC- FEB)	5.000 2.000 1.500 2.000 0.025 1.000 3.000 2.000 2.000 1.000
73	GAUR	BALCK GRAM, SOAKED WHEAT BRAN DEER MASH MOLASSES PARA GRASS NB21 TREE FODDER (OSTA) RIPE BANANA	0.250 2.000 5.000 0.050 15.000 15.000 5.000 0.500
74	GIANT SUIRREL	BENGAL GRAM APPLE GRAPE RIPE BANANA GREEN PEA POD (DEC-FEB) RIPE GUAVA(SEP-OCT)	0.050 0.050 0.025 0.100 0.050 0.100
75	HARE, INDIAN	DUBA GRASS GREEN SAG PUMPKIN BEAN CARROT APPLE ORANGE (NOV-MAR) GRAPE BENGAL GRAM (SOAKED) SWEET POTATO (OCT-MAR)	0.100 0.100 0.050 0.050 0.050 0.050 0.050 0.025 0.025 0.100 0.100

		PALANGA (DEC-FEB)	
76	HIPPOPOTAMUS ADULT, 2 ½ YRS ABOVE	BENGAL GRAM WHOLE PUMPKIN CARROT GREEN SAG MINERAL MIXTURE CHOKAD (WHEATBRAN) COMMON SALT RIPE BANANA PARA GRASS	1.500 1.500 0.500 1.500 0.100 4.000 0.100 1.000 50.000
	HIPPOPOTAMUS SUB-ADULT 6MONTHS-2 ½ YRS	BENGAL GRAM WHOLE PUMPKIN CARROT GREEN SAG MINERAL MIXTURE CHOKAD (WHEATBRAN) COMMON SALT RIPE BANANA PARA GRASS	0.750 0.750 0.500 1.000 0.050 2.500 0.100 0.500 20.000
77	HYENA, STRIPED	BUFFALO MEAT (MONDAY FASTING)	2.000
78	JACKAL	BUFFALO MEAT (MONDAY FASTING)	1.000
79	LEOPARD, ADULT (ABOVE 1 ½ YEAR)	BUFFALO MEAT (FASTING ON MONDAYS)	4.000
	LEOPARD, SUB-ADULT (1-1½ YEARS)	BUFFALO MEAT (FASTING ON MONDAYS)	3.000
	LEOPARD, JUVENILE (6MONTHS-1 YEAR)	BUFFALO MEAT (FASTING ON MONDAYS)	1.000
80	LION, ASIATIC/HYBRID/AFRICAN ADULT, ABOVE 2 ½ YR	BUFFALO MEAT (FASTING ON MONDAYS)	9.000
	LION, SUB ADULT (1 YEAR – 2 ½ YEARS)	BUFFALO MEAT (FASTING ON MONDAYS)	6.000

	LION, JUVENILE (6 MONTHS – 1 YEAR)	BUFFALO MEAT (FASTING ON MONDAYS)	3.000
	CUB (3 MONTHS TO 6 MONTHS)	CHICKEN (DRESSED, BONE LESS)	1 NO
81	LANGUR, COMMON	BENGAL GRAM WHOLE LADIES FINGER GROUND NUT BEAN MILK RICE (PAR BOILED) RIPE BANANA GREEN PEA POD (DEC-FEB) SWEET POTATO (OCT-MAR) GREEN MANGO (APR-MAY) GREEN MAIZE WITH SPIKE (AUG-SEP) WATER MELON (APR-MAY)	0.020 0.030 0.050 0.050 0.010 0.050 0.250 0.050 0.050 0.050 0.050 0.100
82	MACAQUE,RHESUS/ BONNET ADULT (11/2 YR ABOVE)	BENGAL GRAM WHOLE BRINJAL LADIES FINGER GROUND NUT BEAN MILK RICE (PAR BOILED) RIPE BANANA SWEET POTATO (OCT-MAR) GREEN MAIZE WITH SPIKE (AUG-SEP) WATER MELON (APR-MAY) GREEN PEA POD (DEC-FEB) PINE-APPLE (MAY-JUL) GREEN MANGO (APR-MAY)	0.050 0.100 0.050 0.050 0.050 0.010 0.050 0.250 0.100 0.100 0.150 0.050 0.100 0.050
	SUB-ADULT	BENGAL GRAM WHOLE	0.025 0.050

		BRINJAL LADIES FINGER GROUND NUT BEAN MILK RICE (PAR BOILED) RIPE BANANA GREEN PEA POD (DEC-FEB) SWEET POTATO (OCT-MAR) GREEN MANGO (APR-MAY) GREEN MAIZE WITH SPIKE (AUG-SEP) PINE-APPLE (MAY-JUL) WATER MELON (APR-MAY)	0.025 0.025 0.025 0.005 0.025 0.125 0.025 0.050 0.025 0.050 0.050 0.075
83	MACAQUE,ASSAMESE ADULT (1 ½ YR ABOVE)	BENGAL GRAM WHOLE LADIES FINGER GROUND NUT BEAN MILK RICE (PAR BOILED) RIPE BANANA APPLE POMEGRANATE CARROT EGG, BOILED SWEET POTATO (OCT-MAR) GREEN MAIZE WITH SPIKE (AUG-SEP) WATER MELON (APR-MAY) GREEN PEA POD (DEC-FEB) PINE-APPLE (MAY-JUL) GREEN MANGO (APR-MAY) AMLA (NOV-DEC)	0.050 0.050 0.050 0.050 0.010 0.050 0.250 0.150 0.150 0.100 1 NO 0.100 0.100 0.150 0.050 0.100 0.050 0.025
84	MACAQUE, STUMP TAILED	BENGAL GRAM WHOLE LADIES FINGER	0.050 0.050 0.050

		GROUND NUT BEAN MILK RICE (PAR BOILED) RIPE BANANA APPLE POMEGRANATE CARROT EGG, BOILED SWEET POTATO (OCT-MAR) GREEN MAIZE WITH SPIKE (AUG-SEP) WATER MELON (APR-MAY) GREEN PEA POD (DEC-FEB) PINE-APPLE (MAY-JUL) GREEN MANGO (APR-MAY) AMLA (NOV-DEC)	0.050 0.010 0.050 0.250 0.150 0.150 0.100 1 NO 0.100 0.100 0.150 0.050 0.100 0.050 0.025
85	MEERKAT, SLENDER TAILED	CHICKEN MEAT MEAL WORM CARROT APPLE EGG, BOILED	0.150 0.010 0.070 0.080 1 No (on Wednesday and Sunday)
86	MONGOOSE COMMON	KERANDI FISH	0.150
87	SQUIRREL, MONKEY	MILK RICE BOILED EGG APPLE BANANA CUCUMBER CARROT POMEGRANATE GRAPES RIPE PAPAYA RIPE GUAVA (SEPT-OCT) MEAL WORMS SWEET CORN (BOILED) BENGAL GRAM SUNFLOWER SEEDS CHICKEN MEAT BOILED (ON WEDNESDAY)	0.005 0.010 ½ No 0.025 0.050 0.050 0.025 0.025 0.025 0.025 0.025 5 Nos 0.010 0.010 0.010 0.050
88	RED HAND TAMARIN/ BLACK TUFTED MARMOSET	CERELAC-II BOILED EGG CARROT BEAN	0.020 1/4NO 0.010 0.010 0.020

		RIPE BANANA POMEGRANATE APPLE GRAPE MEAL WORM WATER MELON (APR-MAY) SUGAR CANE (JAN-MAR)	0.010 0.020 0.020 5NO 0.020 0.020
89	NILGAI ADULT, 1YR ABOVE	COMMON GRASS DEER MASH DEER FODDER RIPE BANANA (FOR THE GROUP)	15.000 2.500 3.000 4.000
	SUB ADULT (6 MONTHS – 1 YEAR)	COMMON GRASS DEER MASH DEER FODDER	10.000 2.500 2.000
90	PANGOLIN, INDIAN	RED WEAVER ANT EGGS BOILED EGG	0.600 1 No.
91	PORCUPINE	BENGAL GRAM WHOLE BRINJAL GROUND NUT BEAN GREEN MAIZE WITH SPIKE (AUG-SEP MILK RICE (PAR BOILED) RIPE BANANA RIPE PUMPKIN SWEET PATATO (OCT-MAR)	0.050 0.050 0.100 0.010 0.050 0.010 0.100 0.150 0.050 0.100
92	RATEL	HONEY GOAT MEAT RIPE BANANA BUFFALO MEAT (EXCEPT MONDAY)	0.020 0.250 0.200 0.300
93	TIGER ADULT, 2 ½ YR ABOVE	BUFFALO MEAT (FASTING ON MONDAYS)	10.000
	TIGER, SUB ADULT 1YR-2 ½ YR	BUFFALO MEAT (FASTING ON MONDAYS)	6.000
	TIGER, JUVENILE 6MN- 1YR	BUFFALO MEAT (FASTING ON MONDAYS)	3.000
	TIGER, CUB 3MN-6MN	CHICKEN (DRESSED, BONELESS)	1NO

94	WILD BOAR	WILD BOAR MASH RIPE PUMPKIN SWEET POTATO (OCT-MAR)	1.000 0.500 0.250
95	WILD DOG	BUFFALO MEAT (FASTING ON MONDAYS) CHICKEN MEAT	0.500 0.750
96	WOLF, INDIAN	BUFFALO MEAT (FASTING ON MONDAYS) CHICKEN MEAT	0.500 1.000
		REPTILES	
97	ANACONDA, YELLOW ADULT	WHITE MICE (ON SUNDAY & WEDNESDAY)	4 NO
	SNAKELETS	PINKY MICE (ON SUNDAY & WEDNESDAY)	3 NO
98	BOA RED SAND / BOA COMMON SAND	WHITE MICE /RAT . (ON MONDAYS)	2NO
99	CROCODILE, MORLETE	ROHI FISH BUFFALO MEAT (FASTING ON MONDAYS)	0.500 1.000
100	CROCODILE, NILE	CHICKEN MEAT (ON MONDAYS)	0.500
101	CROCODILE, SIAMESE	ROHI FISH BUFFALO MEAT (FASTING ON MONDAYS)	0.500 1.000
102	CROCODILE, LONG SNOUTED/GHARIAL ADULT(5 YEARS ABOVE)	ROHI FISH (FASTING ON MONDAYS)	1.000
	SUB-ADULT (2- 5 YEARS)	FISH FINGERLING-LIVE ABOUT 6” (FASTING ON MONDAYS)	0.800
103	CROCODILE, MUGGER	ROHI FISH (FASTING ON MONDAYS)	1.000
	SUB-ADULT (2- 5 YEARS)	KERANDI FISH GADISHA	0.250 0.250
104	CROCODILE, DWARF CAIMON	FISH FINGERLINGS (LIVE) (ON TUESDAY, THURSDAY, SATURDAY OF EVERY WEEK)	0.250
105	CROCODILE, SALT WATER	BUFFALO MEAT (FASTING ON MONDAYS)	1.000
106	COBRA, KING	RAT SNAKE (MONDAY)	1NO
107	COBRA, MONOCELLATE/ BINOCELLATE	RAT (MONDAY) DAY OLD CHICK (MONDAY) GADISHA FISH	1NO 1NO 0.050

108	IGUANA	LEUTIA SAG PALANG SAG(DEC-FEB) FENUGREEK LEAVES (DEC-FEB) DRUMDTICK LEAVES CORIANDER LEAVES APPLE BANANA RIPE PAPAYA POMEGRANATE RIDGE GOURD CAPSICUM CUCUMBER LADIES FINGER BOILED EGG	0.020 0.020 0.020 0.020 0.020 0.010 0.010 0.010 0.010 0.020 0.020 0.010 0.010 1 NO (FOR THE GROUP)
109	KRAIT, BANDED	RAT SNAKE OR RAT/MICE	1 NO. 2NO
110	KRAIT, COMMON INDIAN	RAT/MICE	1NO
111	MONITOR LIZARD, COMMON	KERANDI FISH/ROHI FISH	0.250
112	MONITOR LIZARD, WATER	GADISHA FISH ROHI FISH	0.200 0.200
113	PYTHON, INDIAN ROCK/ BURMESE ROCK , ADULT	CHICKEN (MONDAY)	1 NO
	SUB ADULT	GUINEA PIG/RAT (MONDAY)	2 NO
114	PYTHON, RETICULATED ADULT	CHICKEN (MONDAY)	1 NO
	SUB-ADULT	GUINEA PIG (ON MONDAY)	2 NO
115	SNAKE, RAT	RAT (MONDAY)	1 NO
116	VIPER RUSSEL'S	RAT/DAY OLD CHICK (MONDAY)	2 NO
117	TORTOISE, STAR INDIAN	GREEN SAG RIPE BANANA LADIES FINGER JHUDANG/BEAN CUCUMBER PUMPKIN TAMATO PALANG SAG (DEC-FEB)	0.015 0.025 0.030 0.020 0.050 0.050 0.050 0.025
118	TORTOISE, ASIAN BROWN	GREEN SAG RIPE BANANA	0.030 0.050

		LADIES FINGER JHUDANG/BEAN CUCUMBER PUMPKIN TAMATO PALANG SAG (DEC-FEB)	0.060 0.040 0.100 0.100 0.050 0.050
119	TURTLE, FRESH WATER/ INDIAN FLAP-SHELLED/ GANGES SOFT-SHELLED/ INDIAN TENT TURTLE	GREEN SAG KERANDI FISH CABBAGE	0.010 0.050 0.010
120	TURTLE, CHITRA	GREEN SAG PUMPKIN KERANDI FISH CABBAGE	0.025 0.050 0.100 0.025

14. Vaccination Schedule of animals:

VACCINATION SCHEDULE

Sl.No.	Species	Vaccine against	Schedule
1	Felids (tiger, lion, leopard, leopard cat, fishing cat, jungle cat)	Feline pan leucopenia Calici Disease Rhinotracheitis	Feligen-CRP/felocell-3 8, 12, 16 wk and Annually
2	Hyenas, jackals, wolf, wild dog	Distemper, Parvo, hepatitis, LeptospiraParainfluenza	Nobivac- DHPPi (Multivalent vaccine) Annually
		Rabies	Annually
3	Sloth bear and Himalayan Black bear	Distemper, Parvo, hepatitis, LeptospiraParainfluenza	Nobivac- DHPPi (Multivalent vaccine) Annually
4	Elephant	Haemorrhagic septicaemia	Half yearly
		Tetanus	Half Yearly
		Rabies	Annually

		Anthrax	Annually
5	Gaurs	HS, BQ, FMD	Raksha- Triovac Annually
6	Birds	New Castle disease	During winter (LaSota vaccine in every two months in in drinking water)

CHEMOPROPHYLAXIS SCHEDULE

Sl. No.	Species	Chemoprophylaxis against	Schedule
1	Carnivores (Felids-tiger, lion, leopard) (Canids- Wolf, Jackal, wild dog) (Hyenids)	Trypanosomiasis	Triquin- (every four months) December April August
2	Birds	Coccidiosis	Sulfquinoxaline / Coccidiostats (during monsoon)

ROUTINE FECAL SAMPLE EXAMINATION & DEWORMING SCHEDULE

Sl. No.	**Type of animal**	**Enclosure number**	**Period (month)**
1	CARNIVORES (at 4 months interval) Or whenever required	30,31,32,33 and tiger safari, lion safari (tiger section)	FEBRUARY
			JUNE
			OCTOBER
		18,19,20,21,22,23,24,25,26,27 28,29,90,91.(tigers, lions, Jackal, leopards)	FEBRUARY
			JUNE

		bear safari sloth and Himalayan bears	OCTOBER
		small cats, small mammal house,	FEBRUARY
		mouse deer, Indian hare, giant	JUNE
		squirrel, nocturnal house,	OCTOBER
2	HERBIVORES (at 4 months interval) Or whenever required	Herbivore safari, spotted deer, Elephants	MARCH
			JULY
			NOVEMBER
		Rhinoceros, hippopotamus, giraffe, zebra	MARCH
		Manipuri deer, barking deer	JULY
			NOVEMBER
		Sambar, swamp deer, spotted deer, nilgai, hog deer, black buck, white buck, four horned antelope, primates including chimps.	MARCH
			JULY
			NOVEMBER
3	BIRDS (at 4 months interval) Or whenever required	Enclosures 1 to 13, enclosures inside the children park	FEBRUARY
			JUNE
			OCTOBER
		emu, cassowary, aquatic bird	FEBRUARY
		peacock, lesser adjutant stork, open bill stork, saras crane, black swan,	JUNE
		mandarin duck, rose ringed parakeet, brahminy kite	OCTOBER
4	REPTILES (at 4 months interval)	All snakes	MARCH
		Star tortoise, monitor lizard	JULY
			NOVEMBER

	Or whenever required		
5	Indian Pangolins (at 4 months interval) Or whenever required	At Pangolin conservation breeding centre	FEBRUARY
			JUNE
			OCTOBER

DISINFECTION SCHEDULE

Ideal upkeep of captive animals in the zoo principally depends on general hygiene and sanitation of the enclosures, captive animals and their handlers. The following regimen of cleaning and disinfection is carried out routinely in Nandankanan Zoological Park.

a. Daily (1) Removal of fecal matter, leftover bone from carnivore enclosures, cleaning of the floors of feeding cubicles, kraal, corridor, passage and exhibit area.

(2) Removal of left over fodder, fecal matter from herbivore enclosures and cleaning.

(3) Cleaning of the feed trough and water trough etc. with scrubber.

(4) Cleaning of drains with diluted phenyl.

(5) Removal of plastic, polythene and unwanted materials from exhibit area and moats.

b. Weekly (1) Pest control measures are taken in and around feeding cubicle.

(2) Deweeding is carried out in and around enclosures.

(3) Keeping the exhibit area and moat free from debris.

(4) The feeding place and water trough etc. are cleaned with bleaching powder.

(5) Drains are treated with lime and bleaching powder.

(6) Feeding cubicles are cleaned with potassium permanganate.

c. Monthly- (1) Leftover bones in bone pits are lifted and the bone pits are treated with acaricide.

(2) Acaricide (cypermethrin etc.) is sprayed on the bodies of the big cats as well as the enclosures during vector abundance season.

(3) All debris in exhibit/display area are burnt on a monthly basis. Liming is carried out in and around the enclosures.

(4) All water storing areas are treated with water purifier i.e. Sokrena WS

d. Bi-monthly-(1) Kohrsolin is sprayed on the ground in and around the enclosures after deweeding.

(2) Acaricide spray (Cypermethrin etc.), simultaneously on the enclosure ground and on the body of the big cats

(3) All wet moat water is pumped out, desilted, lime washed and then replaced with fresh water.

e. Half yearly-(1) All feeding and drinking troughs are white washed.

(2) All floors, walls, roofs of feeding cells, transporting cages, netting, rods are flame sterilized (March & November every year).

f. Annually- (1) Removal of top soil up to 6" in all kraals and intensively used pacing areas and refilling with fresh sand and soil.

(2) All walls and roof tops, both inside and outside, are lime washed.

(3) All chain-link mesh, angles of enclosures and animal cages, sliding doors, squeeze cages etc. are painted.

17. Health Check-up of employees for zoonotic diseases:

No health check-up of employees for zoonotic diseases was carried out during the year 2021-22 due to COVID-19 pandemic.

18. Development Works carried out in the zoo during the year:

. During the year, many enclosures and visitor amenities were renovated and supplemented with enclosure enrichments, standoff barrier, signage and landscaping where ever necessary. Out of which Toy train facility with safari beautification work, New Quarantine house for carnivores, Post mortem hall, Incinerator house, Tiger safari approach road, service road, modification of gharial hatchery.

19. Education and Awareness programmes during the year:

Citizen Science & Community Engagement

With the changing time to cope with COVID-19 pandemic situations, we have progressed with our virtual presence and conducted several activities. Online Animal Adoption programmes, online zoo education programmes like online quiz, painting, photography, sharing memories of visitors of Nandankanan are worth mentioning. We had the privilege to organize Quiz Competition on behalf of State Wildlife Headquarter to celebrate Wildlife Week 2022. Nandankanan also organised different citizen science programme like Sunday Bird Walk, Butterfly

and Moth walk, Herping and Nature trail to facilitate opportunity to the nature lovers for exploring Nandankanan.

DATE	PROGRAMME/EVENT	NO. PARTICIPANTS
27.04.2021	Induction training of East India Tour for FROs from CASFOS, Burnihat (Virtually)	44
05.06.2021	World Environment Day (Virtually)	>200
12.07.2021 to 18.07.2021	Azadi Ka Amrut Mahotsav Conducted outreach activities virtually	>500
29.07.2021	International Tiger Day (Virtually)	>500
12.08.2021	World Elephant Day (Virtually)	>300
04.09.2021	International Vulture Awareness Day (Virtually)	>200
03.10.2021 to 08.10.2021	Wildlife Week	>500
09.11.2021	Field visit of Foresters from G. Udaygiri	31
08.01.2022	Study tour of Foresters trainees from FTS, Ghatikia	44
11.01.2022	Study tour of Forest Guard trainees from NFTS, Champua	42
17.01.2022	Orientation programme of trainees from IIFM	12
02.02.2022	World Wetland Day	>300
02.02.2022	Induction training course of Forest Range Officers from Tamil Nadu Forest Academy, Coimbatore	48
07.02.2022	Tour Programme of FROs Trainees from CASFOS, Burnihat	28
08.02. 2022	Visit Programme of IFS officers from WII, Dehradun	12
19.02.2022	World Pangolin Day	>200
03.03.2022	World Wildlife Day	>200
08.03.2022	Visit Programme of FROs trainees from TSFA, Dulapally, Hyderabad	66
08.03.2022	Orientation programme of Girls students from Self Defense Training of Utkal Karate School, Bhubaneswar	116
10.03.2022	Visit Programme of SFS Officers trainees from CASFOS, Coimbatore	44
11.03.2022	Tour Programme of Forester trainees from FTS, G. Udaygiri	33
13.03.2022	Orientation programme of trainees from Gopabandhu Academy of Administration, Bhubaneswar	33

20. Important Events and happenings:

C0VID-19 Management

Nandankanan Zoological Park is being properly managed during COVID-19 pandemic following Central Zoo Authority recommendations and government guidelines. The zoo was opened to public on 03.08.2021 following proper COVID-19 guidelines for safety of visitors, employees and animals.

Azadi Ka Amrut Mahotsav

Central Zoo Authority (CZA) under MOEF & CC, Government of India, New Delhi is organised the "Azadi Ka Amrut Mahotsav" (Celebration of 75th Anniversary of India's Independence) for 75 weeks taking 75 selected zoos to highlight 75 animal species. Nandankanan Zoological Park, Bhubaneswar is assigned with celebration of the state event highlighting "Indian Pangolin" as the species on focus from 12th- 18th July, 2021. For the stated celebration Nandankanan organizing virtual conference involving national and international experts to share their knowledge and experience on dealing with Indian pangolins. Other than this Nandankanan also organised different outreach programmes to aware the people about this important species. Finally, a book was published on this titled "Hand Book on Rehabilitation of Indian Pangolin" by Nandankanan with collaboration with Central Zoo Authority, New Delhi.

Regional Level Zoo Keepers Training Programme

Regional Zoo Keepers Training Programme for eastern zone was conducted at Nandankanan Zoological Park from 24th to 26th November, 2021. It was conducted in Hybrid mode in collaboration with the Central Zoo Authority, New Delhi. In this training programme 24 zoos across 5 states and one UT (Andaman &Nicobar) have been invited to send 1-2 zoo keepers out of which 16 zoos of 5 states has been participated i.e, Bihar, Jharkhand, Chhattisgarh, West Bengal and Odisha. The objective of this training program to improve Animal keeper's knowledge and skills about the animals and their management, to develop better interaction and coordination between Animal keepers and management and to develop some interaction between keepers and visitors.

Adopt-an-Animal Programme

The Animal Adoption Programme at Nandankanan Zoological Park encourages public involvement in the conservation of endangered species. Through this initiative, individuals, organizations, and corporations can adopt animals by contributing to their feed, housing, and healthcare costs. The pandemic has made us to revive and pursue Adopt-an-Animal programme to mobilize resources for animal welfare. 221 individuals and organizations like IPICOL and MGM, Minerals Limited have adopted animals of Nandankanan pledging an amount of Rs. 18, 21,400. Contributions towards animal adoption are exempt from tax under section 80G of the Income Tax Act, 1961.

21. Seasonal special arrangements for upkeep of animals:

The following summer, monsoon and winter care arrangements are made at Nandankanan Zoological Park during the year.

SUMMER CARE MANAGEMENT

1. **Carnivore enclosures:**
    - All water pools in the exhibit area and back kraals are repaired for any possible cracks and water is filled up alternatively.
    - Water in the pools is kept in running condition during peak hours of the day.
    - The shutter of the feeding cell is kept open throughout the day to allow the animal to take rest inside the feeding cell, if it so desires.
    - Water from all moats is pumped out, followed by cleaning, disinfection and refilling (wherever possible).
    - Provision of shed above the water pools has been made to prevent water from getting heated.
    - Feeding cells are made straw thatched to keep the cells cool.
    - Sprinklers are made available and operational in all carnivore enclosures, including Jackal, hyena, wolf, wild dog and Indian fox.

2. Herbivore enclosures:

- All Sprinklers are made operational.
- Wallowing tank of sambar enclosure is cleaned and provision of running water is made in wallowing tank.
- Water accumulation is not allowed inside the enclosure.
- Water in the pools is kept in running condition during peak hours of the day.
- Left over stems of fodders accumulated in the moat area is cleaned.
- Top soil is removed and enclosure is cleaned.
- Sprinklers are made available and operational in all enclosures including giraffe.

3. Herbivore Safari:

- Sufficient number of sprinklers are made available and operational at different strategic locations inside the herbivore safari
- Arrangements have been put in place for proper drainage of both the large water pools to ensure that silt does not accumulate on the floor. The water pools are cleaned and disinfected every week.
- All the water troughs are repaired, lime washed and covered with overhead bamboo tatis to avoid heating.
- Artificial sheds made of bamboo tati are provided at different locations to allow the deer take rest underneath.

1. **Primate enclosures:**
    - Provision of air coolers is made to chimpanzee and exotic primates wherever necessary.
    - Benachera mats are hanged at the windows of the feeding cells in the chimpanzee enclosure.
    - Roof thatching with provision of cantilever is made in the chimpanzee enclosure to provide shade on the feeding cell wall.
    - Exhibit area of Assamese macaque, Capuchin, Tamarin and Squirrel monkey enclosures are covered with bamboo tati.
    - Chimpanzees are not allowed into the exhibit area in case the temperature rises to more than 40˚C.
    - Provision of shed is ensured in the exhibit areas of all primate enclosures.
2. **Reptile park:**
    - In crocodile and water turtle enclosures, water in the pool is kept in running condition during peak hours of the day.
    - Sheds are provided at all crocodile and turtle enclosures so that water does not get heated.
    - Snake enclosures are covered with bamboo tati.
    - Bamboo tatis have been provided on roof top of the Iguana and yellow anaconda enclosures.

3. **Bird enclosures**:
    - Provision of side wall curtains is made during day time (10 AM to 4 PM) to protect them from hot blowing wind.
    - Water is sprinkled on side wall curtains, floors and roof tops by 8 AM every day.
    - The grass lawn passage situated between bird enclosures (Enclosure 1 to 10) is flooded with water before 8 AM every day.
    - Cinereous Vulture:- Water tank is kept filled with water. Water is sprayed over the bird and inside the enclosure in case the temperature goes beyond 40°C.
    - Silver pheasant/ Golden pheasant enclosure/ring neck pheasant/lorikeet enclosures: - gunny bags/ benachera are hanged up to half of the chain link mesh and water is sprinkled over it 2-3 times a day.
    - Emu and ostrich are given bath by spraying water on them during the early part of the day (i.e. before 10AM).

- Large earthen water pots are provided in all bird enclosures to keep the drinking water cool.

4. Bear Enclosures:

- All bear enclosures (enclosure 15 and 16) are provided with two sheds, each thatched with straw or bamboo. Bears are kept confined in the feeding cell during 10AM to 4PM on days when the temperature goes beyond 40°C.
- Moats are cleaned, disinfected and refilled with fresh water. Water moats are topped with fresh water daily.
- Back-kraals of bear safari are provided with bamboo tati on the chain-link mesh roof top.

5. General considerations:

- All enclosures have wall hanging thermometers to record maximum/ minimum temperature of the day
- Staff of animal section remain vigilant during peak hours of the day and inform Zoo Veterinary Hospital in case any behavioural change is noticed. A special squad is constituted to remain vigilant during peak hot hours of the day.
- Anti-stress medicines, multivitamins and electrolytes are supplemented in feed/ drinking water as and when required.

MONSOON CARE MANAGEMENT

1. Lime spreading, in all herbivore enclosures, is done every month.
2. Leaking roof tops of different animal enclosures, especially birds and reptiles, are properly sealed to avoid soiling of litter/substrate which can be a source of infection.
3. Old and rough drinking water pots are replaced with new and clean ones to facilitate clean water supply.
4. Water pools of the carnivore enclosures are lime washed every month.
5. To protect the animals from water borne infections, stagnant water in all water moats is removed and the moat cleaned thoroughly and treated with lime.
6. Pruning of bushes and weeds inside and surrounding the carnivore enclosures are done every fortnight to protect the animals from predators and ecto-parasite infection. To avoid tick infestation, acaricide is sprayed after every deweeding.
7. To check waterborne diseases, sensitive animals like Chimpanzee, exotic primates, Assamese macaque and other delicate small mammals and birds are provided with clean and potable drinking water every day.

8. Roofing over the feeding troughs is ensured to prevent the food items getting wet.
9. Cleanliness and hygiene measures are taken sincerely at the slaughter house and feed receiving centre. Floor washing with bleaching powder and antiseptic foot bath is ensured at feed distribution centres and slaughter houses.
10. Vegetables, fruits and greens are washed with 0.1% potassium permanganate solution prior to processing at feed distribution centre.
11. Containers, tins and carry bags used for transporting feed are properly cleaned and washed daily.
12. Potassium permanganate solution/lime foot bath at the entrance of all herbivore, carnivore and bird enclosures is strictly maintained.
13. Dumping pit of scat and excreta from carnivore enclosure are covered with earth. Bone pits are cleaned every month.

WINTER CARE MANAGEMENT

1. **Birds housed in Enclosure no 1 to 13, 81 and inside Children Park:**
   - Drapes of agro net or clean gunny bag are spread around the wire mesh from outside during night time.
   - Lighting with 40W electric bulbs protected with a metallic frame is provided in each enclosure and is switched on during night time for warmth.
   - As the breeding season for most birds coincides with the end of winter, provision of sufficient nest boxes and other nesting facilities are made in each enclosure according to the requirement of the species after meticulous observation.

2. **Chimpanzee and other exotic primates:**
   - The windows of the feeding cell are covered with drapes during night time but at a distance so that it can't be pulled out or damaged. The existing window shutters are used during the night time.
   - Medicines to improve immunity are supplemented in the diet.
   - Room heaters are kept in readiness for their use in extreme cold conditions.
   - When needed, plywood sheets are spread on the floor of the night shelter of chimpanzee to keep the floor warm.
3. **Snakes:**
   - Clean fresh straw wrapped in gunny bags is provided inside each enclosure

- A 40W electric bulb is provided in the den to provide warmth
- Provisions of UV bulbs, IR bulbs and room heaters have been made for reptile use.
- Provision of direct sunlight into the enclosure has been made by pruning obstructing tree branches.

4. **Crocodiles:**
   - To allow day time basking, overhead branches of shady trees are pruned and fresh sand beds are spread in the basking zone. In extreme cold conditions, thatched sheds with straw underneath are provided in each enclosure to help crocs taking shelter at night.
5. **Tiger and other carnivore enclosures:**
   - Stagnant/accumulated rain water is pumped out from all water moats since it may act as a source of gastrointestinal infection. Silt accumulated inside moat is removed and the moat is treated with lime and is kept dry.
   - The top soil of tiger and lion enclosures/ back kraals (frequently used areas) are removed and replaced with fresh sand after sprinkling of lime.
   - Lime washing of walls of feeding cells is done every winter.
   - The water pools inside the enclosures/back-kraals are inspected and repaired wherever required.
6. **Herbivore enclosures:**
   - All lake side herbivore enclosures are sprinkled with lime. Stagnant water and mud in enclosures are cleaned and replaced with fresh soil immediately.
   - Top soil removal in all herbivore enclosures start during winter so that it can be completed before the arrival of the hot and humid climate
7. **General consideration-**
   - Annual lime washing of all wall structures of feeding cells, exhibit area, back-kraals and painting of chain-link mesh, squeeze/ transportation cages, angles, iron structures is done during winter.

22. Research Work carried out and publications:

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 organizations was given priority. The research teams include in house staff/officer, and other collaborative work with Orissa Veterinary College, zoo vets, 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. Some of the studies are published in national and international journals which are mentioned below.

Publications

1. Sahoo, N., Sahu S K, Das AK, Mohapatra D, Panda SK, Gupta SK, Behera BK, Pahari A, Dash M (2021). Elephant Endotheliotropic Herpesvirus Haemorrhagic Disease Outbreak in An Indian Zoo. Journal of Zoo and Wildlife Medicine, 52(4), 1286-1297
2. Sahu S. K., Sahoo, N., Panda S. K. & Mohapatra, D. (2021) Cytauxzoonosis in a Bengal tiger (Panthera tigris tigris) at Nandankanan Zoological Park, Odisha. Indian Zoo Year Book. Vol. IX: 1-5.
3. Mohapatra. R. K., Sahu. S. K., Kumar. S & Mahapatra, M (2021) Hand rearing of Hyena cubs at Nandankanan Zoological Park, Odisha. Indian Zoo Year Book. Vol. IX: 1-5.
4. Dash, M., Sahu, S.K., Gupta, S.K., Sahoo, N. and Mohapatra, D (2022). Trypanosoma evansi infection in a captive Indian Wolf Canis lupus pallipes – molecular diagnosis and therapy. Journal of Threatened Taxa 14(1): 20494–20499
5. Panda, B. P., Purohit, S., Parida, S. P., Dash, A. K., Mohapatra, R. K., and Pradhan, A. (2022). Noise pollution effect on composition of avian structure in different urban gradients. Materials Today: Proceedings.
6. Maharana S. and Mohapatra, R.K. (2021) Revival of natural breeding of gharial (Gavialis gangeticus Gmelin, 1789). IUCN SSC Crocodile Specialist Group Newsletter. 41(2):8-9.
7. Sagar, V., Kaelin, C.B., Natesh, M., Reddy, P.A., Mohapatra, R.K., Chhattani, H., Thatte, P., Vaidyanathan, S., Biswas, S., Bhatt, S., Paul S., Jhala, Y.V., Vermal, M.M., Pandav, B., Mondol, S., Barsh, G.S., Swain, D. and Ramakrishnan, U. (2021) High frequency of an otherwise rare phenotype in a small and isolated tiger population. Proceedings of the National Academy of Sciences. 118(39)
8. Mohapatra, R. K., Maharana, S. and Khan, P. (2021) Behavioural study of zoo animals. Indian Zoo Year Book. Vol. IX, pp. 125-134.

Books

1. Mohapatra, R.K., Sahu, S. K., Joshi, A., Vanjari, C. D., Bhandari, B., Thakur, M., Perera, P., Mendis, A., Aditya, V., Sharma, G., Katdare, B., Chaudhuri, A., Mahapatra, M. Maharana, S., Kumar, S. and Nair, M.V.N. (2022) Field guide for rehabilitation of Indian pangolin. Second Edition. Nandankanan Biological Park, Bhubaneswar and Central Zoo Authority, New Delhi. pp: 1-41.

Ongoing research projects

(A) Species Recovery of Gharial (***Gavialis gangeticus***) in river Mahanadi

Species Recovery of Gharial in river Mahanadi' is being implemented since 2019 by rehabilitating zoo born gharials of Nandankanan Zoological Park to establish a sustainable population of critical endangered gharials in the river Mahanadi. Under this project, total 19 gharials were released since July 2019

including 7 males and 12 females. During 2021-22, 2 male and 4 female gharials of length
2.3m-3.8m tagged with satellite transmitters were released to river. Out of which one is died due to blasting in non-protected area after 15 days of release. The remaining are being tracked to understand their ecology, behaviour, movement pattern, habitat preferences and survival rate. The released gharials showed exploratory behaviour and seasonal movement. At four instances, the released gharials found with torn fishing net wrapped around their snout. They are successfully rescued, freed from entanglement and released back in the river.
The natural breeding of gharial occurred for the 2nd consecutive year at Satkosia gorge. On 11th May 2022, 32 gharial hatchlings have hatched at the same nest from the same mother as of previous year. Community awareness activities were prioritized to protect gharials and their hatchlings. In addition to day-to-day monitoring of the transmitter tagged gharials by 3 post- graduate research scholars, association of 14 Divisional Forest Officers on either side of the river Mahanadi from Hirakud dam to Bay of Bengal for rigid protection, implementation of 'No Fishing Zone' in 10 kms of main gharial habitat in the Satkosia gorge, provision of compensation for the damaged fishing net and reward of Rs 1000/- for releasing live gharial and mugger caught in the fishing net were carried out to ensure their survival and future propagation.

23. Conservation Breeding Programme of the Zoo:

Nandankanan Biological Park demonstrates a steadfast commitment to advancing research in biodiversity conservation, wildlife management, and animal health. Emphasizing collaborative efforts, the park actively engages in-house staff, zoo veterinarians, and experts from prestigious institutions such as Odisha Veterinary College, OUAT, and Centurion University, alongside graduate, Master's, and Ph.D. students. These partnerships ensure innovative and impactful outcomes in research. Sustained by funding from the Central Zoo Authority (CZA), New Delhi, and the Wildlife Wing, Forest, Environment, and Climate Change Department, Odisha, the park's research initiatives contribute significantly to enhancing expertise in captive animal management. Findings from these projects are shared through publications in esteemed international journals, highlighting Nandankanan's role in advancing global knowledge in wildlife conservation and management.

Conservation Breeding Programme

(A) Indian Pangolin Conservation Breeding Programme:

Nandankanan Zoological Park has the only Conservation Breeding Centre for Indian pangolins in the world. The research on conservation breeding of Indian pangolin is actively going on in the centre established in 2008. Monitoring through the infrared sensitive CCTV cameras unfolds the secrets of the life of the

pangolins. Research at the centre has helped to develop proper housing, husbandry and conservation breeding protocols for this endangered species. The centre has successfully bred 14 Indian pangolins in captivity. Presently there are 27 (11M:15FM:1US) pangolins. Initiatives are taken for collaboration with other pangolin facilities of South East Asia for mutual learning of best management practices including development of artificial diet, health care management, breeding and release protocols through Central Zoo Authority, New Delhi.

(B) Conservation Breeding of Long billed vultures:

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

(C) Conservation Breeding of Indian tiger

Nandankanan Zoological Park is breeding tigers since 1966 and is a participating zoo for conservation breeding of Indian tiger since 2009. There are 350 births since 1966, including 34 birth under the conservation breeding programme i.e., after 2009. The zoo has sent tigers to the coordinating zoo Nehru Zoological Park, Hyderabad in 2016, and received wild tigress from Nandanvan Zoo, Bhopal in 2009 and a zoo bred tiger with 33% wild gene from Nehru Zoological Park, Hyderabad in 2016 to infuse new blood line and increase heterozygosity. Presently the zoo is having 25tigers (16:9) and going ahead with conservation breeding programme.

(D) Conservation Breeding of Mouse deer

Nandankanan Zoological Park is breeding mouse deer since 1971 and is a participating zoo for conservation breeding of mouse deer since 2009. There has been 36 mouse deer in captivity since 1971 including 23 birth under the conservation breeding programme, i.e., after 2009. The zoo has sent mouse deer to the coordinating zoo Nehru Zoological Park, Hyderabad in 2013 and 2016, to Sri Chamarajendra Zoological Garden, Mysore in 2018 and received mouse deer from Nehru Zoological Park, Hyderabad in 2016 to infuse new blood line and

increase heterozygosity. Presently the zoo is having 30 mouse deer (13:10:7) and going ahead with conservation breeding programme.

24. Animal acquisition / transfer / exchange during the year:

Sl no.	Species Received	Sex (M:F:U)	Zoo Name	Date of arrival
1	Indian wolf	1:1:0	Nahargarh Biological Park, Jaipur	09.10.2021
2	Leopard	1:1:0	Nahargarh Biological Park, Jaipur	09.10.2021
3	Gharial	2:2:0	Nahargarh Biological Park, Jaipur	09.10.2021
4	Chinkara	2:0:0	Nahargarh Biological Park, Jaipur	09.10.2021

25. Rescue and Rehabilitation of wild animals carried out by the Zoo:

Sl.No.	Date of Received at Nandankanan	Species with number of animals rescued with their sex (M: F:U:T)	Received from	Date of Submission of Report to the CWLW / CZA	Action taken	
					Date and Place of rehabilitation in their habitat	Reasons for housing in the zoo, if not released in their habitat
Mammals (Sch I & II)						
1.	17-04-2021	Indian Pangolin *(Manis crassicaudata)*	Athagarh forest Division	2133 dt.17.04.2021 DFO, Athgarh Division communicated to PCCF(WL)		Housed in zoo for use in conservation breeding programme founder stock
2.	31-08-2021	Indian Pangolin *(Manis crassicaudata)*	DFO, Balliguda Forest Division	5230 dt.01.09.2021 of DFO, Balliguda Forest Division, communicated to PCCF (WL)		Housed in zoo for use in conservation breeding programme founder stock
3.	17-11-2021	Indian Pangolin *(Manis crassicaudata*	DFO, Balliguda Forest Division	6715/5F dt.23.11.2021 of DFO, Balliguda Forest		Housed in zoo for use in conservation breeding programme

		)		Division, communicated to PCCF(WL)		founder stock
4.	27-01-2022	Ratel (*Mellivora capensis*)	Jaypur Forest Division	310/4WL(Misc)/2021 dated 27.01.2022 of DFO, Keonjar Wildlife Division communicated to PPCF(WL)		Facture in mandible, unable to survive in wild, could be used for captive breeding
5.	27-03-2022	Fishing Cat (*Prionailurus viverrinus*)	DFO, Chilika Wildlife Division	1631/05WL-16/2022 dated.28.03.2022 of DFO, Chilika Wildlife Division communicated to PCCF (WL)		Not suitable for release due to prolonged human association, may be allowed to keep as per proposed collection plan

26. Annual Inventory of animals:

ANNUAL ANIMAL INVENTORY (FROM 1ST APRIL-2021 to 31ST MAR -2022)

	SCH-I, II, III & IV (Wildlife Protection Act)							**During the Month**														
				Stock as on 01 .04.2021				**Births**			**Acquisitions**			**Disposals**			**Deaths**			**Stock as on Dt-28.02.2022**			
Sl. No	**Species**	**Scientific name**	**SCH**	**M**	**F**	**U**	**T**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**T**
	SCH-I , SCH-II BIRDS		-																				
1	MYNAH HILL	*Gracula religiosa*	I	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
2	A. PEAFOWL, INDIAN	*Pavo cristatus*	I	3	3	9	15	0	0	3	0	0	0	0	0	0	0	0	0	3	3	12	18
	B. PEAFOWL, INDIAN WHITE	*Pavo cristatus*	I	2	4	1	7	0	0	0	0	0	0	0	0	0	0	1	0	2	3	1	6
3	SPOONBILL, WHITE EURASIAN	*Platalea leucorodia*	I	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4	VULTURE CINEREOUS	*Aegypius monachus*	I	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
5	VULTURE, LONG BILLED	*Gyps indicus*	I	2	3	8	13	0	0	0	0	0	0	0	0	0	0	1	0	2	2	8	12
6	VULTURE, WHITE BACKED	*Gyps bengalensis*	I	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7	KITE, BRAMHINY	*Haliastur indus*	I	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8	KITE, BLACK	*Milvus migrans*	I	3	3	4	10	0	0	1	0	0	0	0	0	0	0	0	1	3	3	4	10
9	SHIKRA	*Accipiter badius*	I	0	0	2	2	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2	2
10	HORNBILL GREY	*Ocyceros birostris*	I	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1

	SCH-I &II Birds - TOTAL			**12**	**14**	**28**	**54**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**12**	**12**	**31**	**55**
	SCH-I , SCH-II MAMMALS																						
Sl. No	Species	Scientific name		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
1	ANTELOPE, FOUR HORNED/ CHOWSINGHA	*Tetraceros quadricomis*	I	1	1	1	3	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2
2	BEAR, HIMALAYAN BLACK	*Selenarctos thibetanus*	II	3	3	0	6	0	0	0	0	0	0	0	0	0	1	0	0	2	3	0	5
3	BEAR, SLOTH	*Melursus ursinus*	I	1	1	1	3	0	0	1	2	5	0	0	0	0	0	0	1	3	6	1	10
4	BLACKBUCK / KRISHNA MRIG	*Antilope cervicapra*	I	18	24	5	47	0	0	11	0	0	0	0	0	0	0	0	0	18	24	16	58
5	CAT, JUNGLE	*Felis chaus*	II	3	2	2	7	0	0	2	0	0	0	0	0	0	0	0	0	3	2	4	9
6	CIVET, COMMON PALM / CAT TODDY	*Paradoxurus hermaphroditus*	II	3	3	9	15	0	0	0	0	0	0	0	0	0	0	0	0	3	3	9	15
7	CIVET, SMALL INDIAN	*Viverricula indica*	II	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8	DEER, BROW ANTLERED / SANGAI	*Cervus eldi*	I	6	5	6	17	0	0	4	0	0	0	0	0	0	0	0	1	6	5	9	20
9	DEER, MOUSE	*Tragulus memmina*	I	6	6	12	24	0	0	6	0	0	0	0	0	0	0	3	1	6	3	17	26
10	DEER, SWAMP / BRASINGHA	*Cervus duvauceli*	I	5	5	2	12	0	0	2	0	0	0	0	0	0	0	1	1	5	4	3	12
11	ELEPHANT, INDIAN	*Elephas maximus*	I	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
12	GAUR	*Bos Gaurus*	I	3	2	0	5	0	2	0	0	0	0	0	0	0	0	0	0	3	4	0	7
13	JACKAL	*Canis aureus*	II	3	7	4	14	0	0	2	0	0	0	0	0	0	0	0	0	3	7	6	16

14	LEOPARD / PANTHER	*Panthera pardus*	I	1	2	0	3	0	0	0	1	1	0	0	0	0	0	0	0	2	3	0	5
15	LION, ASIATIC	*Pantera leo persica*	I	4	3	0	7	1	1	1	0	0	0	0	0	0	1	0	1	4	4	0	8
16	MACAQUE, BONNET	*Macaca radiata*	II	2	6	0	8	0	0	1	0	0	0	0	0	0	1	0	1	1	6	0	7
17	MACAQUE, RHESUS	*Macaca mulatta*	II	4	4	0	8	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	8
18	PANGOLIN, INDIAN	*Manis crassicaudata*	I	4	5	1	10	0	0	1	0	0	0	0	0	0	0	0	1	4	5	1	10
19	RATEL	*Mellivora capensis*	I	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3
20	SQUIRREL, GIANT	*Ratufa indica*	II	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
21	MANGOOSE, COMMON	*Herpestes edwardsi*	II	2	2	0	4	0	0	4	0	0	0	0	0	0	0	0	0	2	2	4	8
22	A. TIGER, BENGAL	*Panthera tigris tigris*	I	7	6	3	16	0	0	3	0	0	0	0	0	0	1	1	0	6	5	6	17
	B. TIGER, BENGAL (WHITE)	*Panthera tigris tigris*	I	2	5	0	7	0	0	0	0	0	0	0	1	0	0	0	0	2	4	0	6
	C. TIGER, BENGAL (MELANISTIC)	*Panthera tigris tigris*	I	4	0	0	4	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	3
23	WILD DOG, AISATIC	*Cuon alpinus*	II	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
24	MACAQUE, ASSAMESE	*Macaca assamensis*	II	2	3	1	6	0	0	2	0	0	0	0	0	0	0	0	0	2	3	3	8
25	MACAQUE, STUMP TAILED	*Macaca arctoides*	II	3	3	1	7	0	0	0	0	0	0	0	0	0	0	0	0	3	3	1	7
26	WOLF, INDIAN GREY	*Canis lupus pallipes*	I	2	1	0	3	0	0	0	1	2	0	0	0	0	0	0	0	3	3	0	6
27	FOX, INDIAN	*Vulpes bengalensis*	II	2	3	4	9	0	0	2	0	0	0	0	0	0	0	0	0	2	3	6	11
SCH-I &II Mammals - TOTAL				**95**	**108**	**52**	**255**	**1**	**3**	**42**	**4**	**8**	**0**	**1**	**1**	**0**	**5**	**5**	**7**	**94**	**113**	**87**	**294**
	SCH-I & SCH-II REPTILES		-	**Stock as on 01**				**Births**			**Acquisitio**			**Disposals**			**Deaths**			**Stock as on Dt-**			

				.04.2021							ns									28.02.2022			
	Species	Scientific name		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
1	COBRA, KING	*Ophiophagus hannah*	II	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
2	COBRA, MONOCELLATE	*Naja naja kouthia*	II	1	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3
3	COBRA, BINOCELLATE	*Naja naja*	II	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
4	CROCODILE, LONG SNOUTED / GHARIAL	*Gavialis gangeticus*	I	21	83	9	113	0	0	0	2	0	0	3	4	0	0	0	0	20	79	9	108
5	CROCODILE, MUGGER	*Crocodilus palustris*	I	4	6	11	21	0	0	11	0	0	0	0	0	0	0	0	0	4	6	22	32
6	CROCODILE, SALT WATER	*Crocodylus porosus*	I	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7	MONITOR LIZARD, COMMON INDIAN	*Varanus bengalensis*	I	1	1	0	2	0	0	3	0	0	0	0	0	0	0	0	0	1	1	3	5
8	MONITOR LIZARD, WATER	*Varanus salvator*	I	1	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3
9	PYTHON, BURMESE ROCK	*Python molurus bivistatus*	I	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
10	PYTHON, INDIAN ROCK	*Python molurus molurus*	I	1	1	4	6	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4	6
11	PYTHON, RETICULATED	*Python reticulatus*	I	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
12	SNAKE, RAT	*Ptyas mucosus*	II	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
13	TURTLE, FRESH WATER / INDIAN FLAP -SHELL	*Lissemys punctata punctata*	I	28	36	0	64	0	0	0	0	0	0	0	0	0	0	0	0	28	36	0	64

14	TURTLE, GANGES SOFT SHELL	*Trionyx gangeticus*	I	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
15	VIPER, RUSSEL'S	*Vipera ruselli*	II	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
16	CHAMELEON, INDIAN	*Chameleon zeylanicus*	II	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
17	TURTEL, INDIAN TENT	*Pangshura tentoria*	I	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
SCH-I &II Reptiles - TOTAL				**62**	**132**	**34**	**228**	**0**	**0**	**14**	**2**	**0**	**0**	**3**	**4**	**0**	**0**	**0**	**0**	**61**	**128**	**48**	**237**
	SCH-III , SCH-IV BIRDS			**Stock as on 01 .04.2021**				**Births**			**Acquisitions**			**Disposals**			**Deaths**			**Stock as on Dt-28.02.2022**			
1	CRANE SARUS	*Grus antigone*	IV	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
2	DOVE, EMERALD	*Chalcophaps indica*	IV	2	2	1	5	0	0	1	0	0	0	0	0	0	0	0	1	2	2	1	5
3	DOVE, SPOTTED	*Spilopelia chinesis*	IV	1	1	6	8	0	0	0	0	0	0	0	0	0	0	0	0	1	1	6	8
4	EGRET, CATTEL	*Bubulcus ibis*	IV	1	2	3	6	0	0	2	0	0	0	0	0	0	0	0	0	1	2	5	8
5	EGRET, LARGE	*Cosmerodius albus*	IV	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
6	EGRET, LITTLE	*Egretta garzetta*	IV	1	1	4	6	0	0	2	0	0	0	0	0	0	0	0	0	1	1	6	8
7	EGRET, MEDIAN	*Egretta intermedia*	IV	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
8	HERON, GREY	*Ardea cinerea*	IV	3	7	2	12	0	0	0	0	0	0	0	0	0	0	0	0	3	7	2	12
9	HERON, NIGHT	*Nycticorax nycticorax*	IV	33	36	28	97	0	0	0	0	0	0	0	0	0	0	0	0	33	36	28	97
10	IBIS, ORIENTAL WHITE	*Threskiornis melanocephalus*	IV	50	81	54	185	0	0	0	0	0	0	0	0	0	0	0	0	50	81	54	185
11	KOEL	*Eudynamys scolopacea*	IV	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
12	MUNIA, RED	*Estrilda amandava*	IV	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
13	MUNIA, BLACKHEADED	*Lonchura malacca*	IV	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
14	MUNIA, SPOTTED / NUTMEG MANNIKIN	*Lonchura punctulata*	IV	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1

15	OWL, BARN	*Tyto alba*	IV	2	2	6	10	0	0	0	0	0	0	0	0	0	0	1	3	2	1	3	6
16	OWL, BROWN FISH	*Bubo zeylonesis*	IV	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
17	OWL, ORIENTAL SCOPS	*Outs sunia*	IV	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
18	PARAKEET, ALEXANDRINE	*Psittacula eupatria*	IV	9	7	0	16	0	0	0	0	0	0	0	0	0	1	0	0	8	7	0	15
19	PARAKEET, BLOSSOM HEADED	*Psittacula cyanocephala*	IV	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
20	PARAKEET, ROSE RING	*Psittacula krameri manillensis*	IV	8	15	2	25	0	0	0	0	0	0	0	0	0	0	0	2	8	15	0	23
21	PELICAN, GREY/SPOT BILLED	*Pelecanus philippensis*	IV	5	5	8	18	0	0	2	0	0	0	0	0	0	0	0	0	5	5	10	20
22	PELICAN, ROSY/WHITE	*Pelecanus onocrotalus*	IV	1	1	3	5	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	5
23	STORK, LESSER ADJUTANT	*Leptoptilos javanicus*	IV	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
24	STORK, PAINTED	*Mycteria leucocephala*	IV	6	6	17	29	0	0	3	0	0	0	0	0	0	0	0	0	6	6	20	32
25	STORK, OPEN BILLED	*Anastomus oscitans*	IV	2	2	6	10	0	0	0	0	0	0	0	0	0	0	0	0	2	2	6	10
26	RED JUNGLE FOWL	*Gallus gallus*	IV	3	2	3	8	0	0	0	0	0	0	0	0	0	0	0	0	3	2	3	8
	TOTAL SCH III & IV Birds			**132**	**172**	**151**	**455**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**6**	**131**	**171**	**155**	**457**
	SCH-III , SCH-IV MAMMALS			**Stock as on 01 .04.2021**				**Births**			**Acquisitions**			**Disposals**			**Deaths**			**Stock as on Dt-28.02.2022**			

1	DEER, BARKING-MUNTJAC (KAKKAR)	*Muntiacus muntjak*	III	24	44	6	74	0	0	2	0	0	0	0	0	0	1	0	0	23	44	8	75
2	DEER, HOG	*Axis porcinus*	III	14	16	18	48	0	0	6	0	0	0	0	0	0	1	2	0	23	23	5	51
3	DEER, SAMBAR	*Cervus unicolor*	III	7	12	0	19	0	1	1	0	0	0	0	0	0	1	2	0	6	11	1	18
4	A. DEER, SPOTTED/ CHITAL(ZOO)	*Axis axis*	III	347	380	13	740	12	13	11	0	0	0	0	0	0	0	0	0	359	393	24	776
	B. DEER, SPOTTED/CHITAL(RBD)	*Axis axis*	III	319	182	0	501	15	10	0	0	0	0	0	0	0	2	3	0	332	189	0	521
5	CHINKARA	*Gazella bennetti*	III	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	1	0	0	1
6	HARE, INDIAN	*Lepus nigricollis*	IV	1	1	1	3	0	0	1	0	0	0	0	0	0	0	0	0	1	1	2	4
7	HYAENA, STRIPED	*Hyaena hyaena*	III	2	4	0	6	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	6
8	BAT, GIANT FRUIT	*Pteropus giganteus*	IV	1	1	1	3	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2
9	NILGAI-BLUE BULL	*Boselaphus tragocamelus*	III	3	11	1	15	0	0	1	0	0	0	0	0	0	0	1	1	3	10	1	14
10	PIG WILD/WILD BOAR	*Sus scrofa*	III	2	1	0	3	0	0	1	0	0	0	0	0	0	0	0	0	2	1	1	4
11	PORCUPINE, INDIAN	*Hystrix indica*	IV	2	1	1	4	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	2
	TOTAL SCH-III , SCH-IV Mammals			**722**	**653**	**41**	**1416**	**27**	**24**	**23**	**2**	**0**	**0**	**0**	**0**	**0**	**8**	**9**	**1**	**753**	**677**	**44**	**1474**
	SCH-III & SCH-IV REPTILES			**Stock as on 01.04.2021**				**Births**			**Acquisitions**			**Disposals**			**Deaths**			**Stock as on Dt-28.02.2022**			
1	BOA, COMMON SAND	*Eryx johnii*	IV	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3

2	BOA, RED SAND	*Eryx conicus*	IV	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
3	TURTLE, CHITRA	*Chitra indica*	IV	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
4	KRAIT, BANDED	*Bungarus fasciatus*	IV	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
5	KRAIT, COMMON INDIAN	*Bungarus caeruleus*	IV	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
6	TORTOISE, ASIAN BROWN	*Manouria emys*	IV	3	3	0	6	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	6
7	TORTOISE, STAR INDIAN	*Geochelone elegans*	IV	7	5	1	13	0	0	0	0	0	0	0	0	0	0	0	0	7	5	1	13
	SCH-III & SCH-IV Reptils - TOTAL			**12**	**11**	**8**	**31**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**11**	**8**	**31**
	EXOTIC BIRDS																						
1	BUDGERIGAR	*Melopsittacus undulatus*	E	188	292	71	551	0	0	5	0	0	0	0	0	0	0	0	0	188	292	76	556
2	COCKATIEL, WHITE/ CINAMON PEARS PIED	*Nymphicus hollandicus*	E	21	28	50	99	0	0	0	0	0	0	0	0	0	0	0	0	21	28	50	99
3	COCKATOO, LESSER SULPHUR CRESTED	*Cacatua slphurea*	E	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4	COCKATOO, UMBRELLA SULPHUR CRESTED	*Cacatua slphurea*	E	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5	CONNURE, BROWN THROATED	*Eupsittula pertinax*	E	1	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3
6	CONNURE, JANDAYA	*Aratinga jandaya*	E	1	2	18	21	0	0	0	0	0	0	0	0	0	0	0	0	1	2	18	21
7	CONURE, SUN	*Aratinga solstitialis*	E	4	4	27	35	0	0	0	0	0	0	0	0	0	0	0	2	4	4	25	33

8	CONURE, PINE APPLE	*Pyrrhura molinae molinae*	E	10	9	0	19	0	0	0	0	0	0	0	0	0	7	1	0	3	8	0	11
9	CONURE, YELLOW SIDED	*Pyrrhura molinae sordida*	E	14	14	0	28	0	0	0	0	0	0	0	0	0	3	2	0	11	12	0	23
10	DOVE, BARBARY	*Streptopelia risoria*	E	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
11	DOVE, DIAMOND	*Geopelia cuneata*	E	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
12	DOVE, LAUGHING	*Spilopelia senegalnesis*	E	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
13	DOVE, RING NECKED	*Streptopelia capicola*	E	1	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3
14	DUCK, MANDARIN	*Aix galericulata*	E	5	6	1	12	0	0	0	0	0	0	0	0	0	0	1	0	5	5	1	11
15	EMU	*Dromaius novaehollandiae*	E	2	3	6	11	0	0	0	0	0	0	0	0	0	0	0	0	2	3	6	11
16	FINCH, BENGALESE/ SOCIETY	*Lonchura striata*	E	6	11	7	24	0	0	0	0	0	0	0	0	0	0	0	0	6	11	7	24
17	FINCH, LONG TAILED	*Poephila cincta*	E	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
18	FINCH, STAR	*Poephila ruficauda*	E	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
19	FINCH, ZEBRA	*Poephila guttata*	E	66	76	61	203	0	0	5	0	0	0	0	0	0	0	0	0	66	76	66	208
20	LORIKEET, BLUE FACED	*Trichoglossus haematodus enetermedius*	E	1	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3
21	LORIKEET, SWAINSON'S	*Trichoglossus haematodus moluccanus*	E	1	0	4	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	5

22	LORRY, YELLOW BACKED	*Lorius garrulus flavopalliatus*	E	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
23	LOVE BIRD, FISCHERS	*Agapornis fischeri*	E	11	10	13	34	0	0	0	0	0	0	0	0	0	0	0	0	11	10	13	34
24	LOVE BIRD, PEACH-FACED	*Agapornis roseicollis*	E	4	6	2	12	0	0	0	0	0	0	0	0	0	0	0	0	4	6	2	12
25	LOVE BIRD, MASKED	*Agapornis personatus*	E	1	2	1	4	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	4
26	MACAW, GREEN WINGED	*Ara chloroptera*	E	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
27	OSTRICH	*Struthio camelus*	E	2	2	0	4	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	2
28	PARROT, AFRICAN GREY	*Psittacus erithacus*	E	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
29	PHEASANT, GOLDEN	*Chrysolophus pictus*	E	4	7	14	25	0	0	8	0	0	0	2	2	0	1	2	1	5	15	5	25
30	PHEASANT, LADY AMHERST'S	*Chrysolophus amherstiae*	E	1	3	8	12	0	0	0	0	0	0	0	0	0	0	1	0	1	2	8	11
31	PHEASANT, REEV'S	*Syrmaticus reevesii*	E	1	1	4	6	0	0	0	0	0	0	0	0	0	1	0	1	0	1	3	4
32	PHEASANT, SILVER	*Lophura nycthemera*	E	11	18	4	33	0	0	2	0	0	0	2	2	0	0	0	0	9	16	6	31
33	PHEASANT, YELLOW GOLDEN	*Chrysolophus pictus mut.*	E	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
34	ROSELLA, EASTERN	*Platycercus eximius*	E	1	2	1	4	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	3
35	SPARROW, JAVA	*Padda oryzivora*	E	11	23	58	92	0	0	0	0	0	0	0	0	0	0	0	0	11	23	58	92
36	SWAN, BLACK	*Cygnus atratus*	E	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2

37	PARROT, MEYER'S	*Poicephalus meyeri*	E	2	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4
38	PARROT, RED BELLIED	*Pionus sordidus*	E	2	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	5
39	PARAKEET, RINGED NECKED A. Lutino Mutation	*Psittacula krameri krameri*	E	2	2	3	7	0	0	2	0	0	0	0	0	0	0	0	0	2	2	5	9
	B. Albino Mutation	*Psittacula krameri krameri*	E	2	2	3	7	0	0	0	0	0	0	0	0	0	0	0	0	2	2	3	7
40	TURACO, VIOLET	*Musophaga violacca*	E	1	1	2	4	0	0	1	0	0	0	0	0	0	0	1	0	1	0	3	4
41	TURACO, LIVING STONE'S	*Turaco living stonii*	E	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
TOTAL EXOTIC BIRDS				**386**	**541**	**363**	**1290**	**0**	**0**	**23**	**0**	**0**	**0**	**4**	**4**	**0**	**12**	**11**	**4**	**374**	**538**	**366**	**1278**
	EXOTIC MAMMALS																						
1	BABOON, HAMADRYAS	*Papio hamadryas*	E	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
2	CHIMPANZEE	*Pan troglodytes*	E	2	5	0	7	0	1	0	0	0	0	0	0	0	0	0	0	2	6	0	8
3	GIRAFFE	*Giraffa camelopardalis*	E	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4	HIPPOPOTAMUS	*Hippopotamus amphibius*	E	1	2	8	11	0	0	1	0	0	0	0	0	0	0	0	0	4	7	1	12
5	LION, HYBRID	*Panthera leo*	E	4	3	0	7	0	0	0	0	0	0	0	0	0	0	0	0	4	3	0	7
6	LION, AFRICAN	*Panthera leo*	E	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
7	MARMOSET, BLACK-TUFTED	*Callithrix penicillata*	E	3	1	1	5	0	0	2	0	0	0	0	0	0	0	0	0	3	1	3	7

8	TAMARIN, RED-HANDED	*Saguinus midas*	E	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
9	CAPUCHIN, TUFTED	*Sapajus apella*	E	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
10	COMMON SQUIRREL MONKEY	*Saimiri sciureus*	E	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
TOTAL EXOTIC MAMMALS				**13**	**18**	**9**	**40**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**15**	**24**	**4**	**43**
	EXOTIC REPTILES																						
1	CROCODILE, MORELET'S	*Crocodylus moreletii*	E	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
2	CROCODILE, SIAMESE	*Crocodylus siamensis*	E	3	12	3	18	0	0	0	0	0	0	0	0	0	0	0	0	3	12	3	18
3	CUVIERS DWARF CAIMAN	*Paleosuchus Palpebrosus*	E	2	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	5
4	A. IGUANA, GREEN	*Iguana iguana*	E	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
	B. IGUANA, RED	*Iguana iguana*	E	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
5	CROCODILE, NILE	*Crocodylus niloticus*	E	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
6	ANACONDA, YELLOW	*Eunectes notaeus*	E	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
TOTAL EXOTIC REPTILES				**6**	**20**	**11**	**37**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**5**	**20**	**11**	**36**
				Stock as on 01 .04.2021				**Births**			**Acquisitions**			**Disposals**			**Deaths**			**Stock as on Dt-28.02.2022**			
SL	Species			M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T

	AMPHIBIANS																						
1	FROG, INDIAN BULL	*Hoplobatrachus tigerinus*	IV	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
2	FROG, GREEN POND	*Euphlyctis hexadactyla*	IV	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
3	FROG, INDIAN SKIPPER	*Euphlyctis cyanophlyctis*	IV	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
4	FROG, COMMON INDIAN TREE	*Polypedates maculatus*	IV	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
5	TOAD, ASIAN COMMON	*Duttaphrynus melanostictus*	IV	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
6	TOAD, MARBLED	*Bufo stamaticus*	IV	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
	TOTAL AMPHIBIANS	-	-	**0**	**0**	**21**	**21**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**21**	**21**
				Stock as on 01 .04.2021																**Stock as on Dt-28.02.2022**			
				M	**F**	**U**	**T**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**T**
	Birds			530	727	542	1799	0	0	38	0	0	0	4	4	0	13	14	12	517	721	552	1790
	Mammal			830	779	102	1711	28	28	68	6	8	0	1	1	0	14	14	8	862	814	135	1811
	Reptiles			80	163	53	296	0	0	14	2	0	0	3	4	0	1	0	0	78	159	67	304
	Amphibians			0	0	21	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	21
	TOTAL			**1440**	**1669**	**718**	**3827**	**28**	**28**	**120**	**8**	**8**	**0**	**8**	**9**	**0**	**28**	**28**	**20**	**1457**	**1694**	**775**	**3926**
				No. of Individuals				No.of species									No. of species			No. of Individuals			

	BIRDS - SCH I&II			**12**	**14**	**28**	**54**		**10**									**10**		**12**	**12**	**31**	**55**
	-SCH III & IV			**132**	**172**	**151**	**455**		**26**									**26**		**131**	**171**	**155**	**457**
	-EXOTIC			**386**	**541**	**363**	**1290**		**41**									**41**		**374**	**538**	**366**	**1278**
	MAMMAL - SCH I& II			**95**	**108**	**52**	**255**		**25**									**27**		**94**	**113**	**87**	**294**
	-SCH III & IV			**722**	**653**	**41**	**1416**		**10**									**11**		**753**	**677**	**44**	**1474**
	-EXOTIC			**13**	**18**	**9**	**40**		**10**									**10**		**15**	**24**	**4**	**43**
	REPTILE - SCH I & II			**62**	**132**	**34**	**228**		**17**									**17**		**61**	**128**	**48**	**237**
	-SCH III & IV			**12**	**11**	**8**	**31**		**6**									**7**		**12**	**11**	**8**	**31**
	-EXOTIC			**6**	**20**	**11**	**37**		**6**									**6**		**5**	**20**	**11**	**36**
	AMPHIBIANS SCH I &II			**0**	**0**	**0**	**0**		**0**									**0**		**0**	**0**	**0**	**0**
	-SCH IV			**0**	**0**	**21**	**21**		**6**									**6**		**0**	**0**	**21**	**21**
	TOTAL			**1440**	**1669**	**718**	**3827**		**157**									**161**		**1457**	**1694**	**775**	**3926**

27. Mortality of animals:

ANNUAL REPORT ON DEATH OF CAPTIVE ANIMALS AT NANDANKANAN ZOOLOGICAL PARK (FROM 01.04.2021 TO 31.03.2022)

Sl.	DATE	ANIMAL	AGE	SEX	CAUSE OF DEATH
1	05.04.21	F H Antelope	About 2yrs	M	Internal haemorrhage & hypovolumic shock
2	08.04.21	Porcupine	About 16 yrs	M	Pneumonia associated with old age
3	21.04.21	Tiger	About 13 yrs	F	Cystic tumour in liver
4	23.04.21	Spotted deer	Adult	F	Infighting
5	20.05.21	Mouse deer	2 days	M	Trampling
6	28.05.21	Giant Fruit Bat	Adult	M	Pneumonia
7	03.06.21	Barking deer	Adult	M	Septicaemia
8	19.06.21	Mouse deer	About 6 months	F	Pneumonia
9	21.07.21	Hog deer	Adult	M	Internal haemorrhage due to infighting
10	21.07.21	Asiatic lion cub	----	M	Still birth
11	23.07.21	Asiatic lion cub	2 days	M	Septicaemia
12	18.08.21	Spotted deer	Adult	M	Infighting
13	20.08.21	Spotted deer	Adult	F	Infighting
14	06.09.21	Swamp deer	About 2 months	M	Puncture wound and blood loss
15	26.09.21	Bonnet macaque	Adult	M	Cardiac failure and pulmonary edema with stiffness of muscles
16	02.10.21	Tufted Capuchin	Adult	M	Acute hepatitis and pneumonia
17	22.10.21	Spotted deer	Adult	M	Infighting
18	23.10.21	Black Bear	Adult	M	Gluteal abscess associated with old age
19	03.11.21	Hog deer	Sub-adult	F	Pneumonia associated with anaemia
20	18.11.21	Manipuri deer	23 days	F	Pneumonia
21	24.11.21	Chinkara	Adult	M	Internal haemorrhage and hypovolumic shock
22	01.12.21	Sambar	Adult	F	Internal haemorrhage and shock
23	08.12.21	Sloth bear	7 days old	F	Trampling
24	13.12.21	Swamp deer	Adult	F	Internal haemorrhage and hypo-volumic shock
25	16.12.21	Hog deer	Adult	F	Enteritis
26	23.12.21	Mouse deer	Adult	F	Pneumonia
27	24.12.21	Sambar	Adult	M	Septicaemia
28	24.12.21	Nilgai	1 day	F	Septicaemia
29	09.01.22	Mouse deer	About 2 months	F	Pneumonia
30	10.01.22	Indian Pangolin	2 days	M	Cause of death couldn't ascertain due to advanced putrefaction of the carcass
31	13.01.22	Nilgai	Adult	F	Internal haemorrhage and pneumonia
32	25.01.22	Spotted deer	Adult	F	Infighting
33	02.02.22	Tiger	About 10 months	M	Canine parvo virus infection
34	03.02.22	Sambar	Adult	F	Nasal tumour
35	16.02.22	Porcupine	Adult	F	Pneumonia
36	27.02.22	Bonnet Macaque	4 days	M	Pneumonia
37	02.03.22	Giant Fruit Bat	Adult	F	Pneumonia
38	20.03.22	White Tiger Cub	9 days	M	Aspiration pneumonia
39	24.03.22	Barking deer	Adult	M	Infighting injury leading to septicaemia

BIRDS

Sl.	DATE	ANIMAL	AGE	SEX	CAUSE OF DEATH
1	02.04.21	Rose Ring Parakeet	Adult	M	Enteritis
2	03.04.21	Rose Ring Parakeet	Adult	M	Parasitic enteritis
3	03.04.21	Golden Pheasant	Adult	F	Salpingitis
4	14.04.21	Ostrich	8 yr 6 months	F	Necrotic hepatitis & peritonitis
5	27.04.21	Alexandrine Parakeet	Adult	M	Hepatitis and pneumonia
6	08.05.21	Shikra	Adult	F	Hepatitis & Enteritis
7	09.05.21	Golden Pheasant	Adult	M	Pneumonia
8	15.05.21	Eastern Rosella	About 4 yrs	F	Egg peritonitis
9	21.05.21	Long Billed Vulture	Adult	F	Airsacculitis & necrotic hepatitis
10	12.06.21	Yellow sided Conure	About 2 yrs	M	Pneumonia
11	15.06.21	White Peafowl	About 6 yrs	F	Hepatitis
12	17.06.21	Pine apple Conure	About 2 yrs	M	Hepatitis & Enteritis
13	26.06.21	Pine apple Conure	About 2 yrs	M	Hepatitis and nephritis
14	30.06.21	Reeve's Pheasant	About 5 ½ yrs	M	Visceral gout
15	07.07.21	Pine apple Conure	Adult	M	Cause of death could not be ascertained
16	08.07.21	Barn Owl	Adult	F	Infighting
17	19.07.21	Golden Pheasant	Adult	F	Infighting
18	24.07.21	Pine apple Conure	Adult	M	Enteritis
19	29.07.21	Sun Conure	Adult		Cause of death could not be ascertained
20	09.08.21	Yellow sided Conure	Adult	F	Enteritis
21	01.09.21	Pine apple Conure	Adult	F	Enteritis
22	09.10.21	Ostrich	About 9 years	F	Fracture of upper cranium bones of the skull with haemorrhages of the brain
23	09.11.21	Yellow sided Conure	Adult	M	Hepatitis and enteritis
24	11.11.21	Pine apple Conure	Adult	F	Salpingitis
25	13.11.21	Mandarin duck	Adult	F	Tumour in the abdomen
26	20.11.21	Yellow sided Conure	Adult	F	Enteritis
27	28.11.21	Black Kite	Adult	F	Visceral gout debility and old age
28	20.12.21	Pine apple Conure	Adult	M	Parasitic enteritis
29	24.12.21	Pine apple Conure	Adult	M	Pneumo-enteritis
30	02.01.22	Violet Turaco	Adult	F	Hepatitis and infighting injuries
31	05.01.22	Barn Owl	Adult	M	Pneumonia
32	07.01.22	Barn Owl	Adult	F	Pneumonia
33	07.01.22	Barn Owl	Adult	F	Pneumo-enteritis
34	08.01.22	Yellow Sided Conure	Adult	M	Hepatitis and nephritis
35	27.01.22	Reeve's Pheasant	About 1 year	F	Newcastle Disease
36	27.01.22	Golden Pheasant	About 1 year	F	Newcastle Disease
37	28.01.22	Lady Amherst's Pheasant	About 1 year	F	Necrotic enteritis

38	28.01.22	Emerald Dove	About 1 year	F	Hepatitis and pneumonia
39	15.02.22	Sun Conure	Adult	M	Pneumonitis
40	06.03.22	Rosy Pelican	About 30 yrs	M	Hepatitis and old age
41	11.03.22	Violet Turaco	Adult	M	Hepatitis and enteritis
42	11.03.22	Swainson's Lorikeet	Adult	M	Pneumoenteritis
43	11.03.22	Swainson's Lorikeet	About 3 years	F	Enteritis
44	11.03.22	Rose Ring Parakeet	Adult	M	Parasitic enteritis
45	11.03.22	Yellow Golden Pheasant	About 3 years	F	Infighting Injury into skull and shock
46	19.03.22	Long Billed Vulture	Adult	M	Hepatitis, nephritis and enteritis
47	27.03.22	Golden pheasant	Adult	F	Peritonitis and airsacculitis

REPTILES

1	22.12.21	Red Iguana	Adult	M	Pneumonia
2	08.03.22	King Cobra	20 yrs	M	Pneumonia associated with old age

ABSTRACT

Mammals	Birds	Reptiles	Total
39	47	02	88

28. Compliance with conditions stipulated by the Central Zoo Authority:

Sl.No.	Norm under RZR, 2009	Particulars of suggestion/ recommendation	Time period to comply	Compliance report
	1. General requirements			
1.	10.1(4)& 10.1(9)	Security at gate required to be made more vigilant to check the entrance of stray dogs.	Immediately	Complied
2.	10.1(5)	a. There is a thoroughfare inside the zoo which connects two adjacent villages namely Raghunathpur and Daruthenga. This is a security hazard as the villagers entre the campus without ticket. This issue should be amicably settled. b. The road leading to State Botanical Garden is passing in front of the zoo gate and creating congestion and problem to visitor's entry into the zoo. Hence, It should be closed for the public use and alternate arrangement should be made for construction of separate approach road to State Botanical Garden.	Six months One year	Action is being taken for the above purpose An area of Ac.0.673 is being acquired for a new approach road to State Botanical Garden from Bhubaneswar Trisulia Main Road
3.	10.1(7)	The solid wastes should be disposed off at the earmarked place within the campus. In order to dispose off liquid waste the authority should go for STP. The waste material (solid or liquid) should never be released in the Kanjia lake.	One year	Partly complied
	2. Administrative & Staffing Pattern			
4.	10.2(1)	The Deputy Director should be delegated adequate financial and administrative power to run the zoo smoothly. The authority should expedite the proposal to construct the administrative building including the chamber of the Director inside the zoo campus.	Six months	Funds to the tune of Rs.2.00 Crores have been placed with BSNL Civil Constructions Wing. Attempts are on to remove the bottleneck and commence construction of building.
5.	10.2(2)	Full time Curator having Master's Degree in Wildlife Science/Zoology should be recruited.	One year	Under active consideration. Present Curator having a decade long association in Zoo Management is quite competent.
	3. Development and Planning			
6.	10.3(1)	a. The duration of present Master Plan will end on 31.03.2020. New Master Plan must be prepared and submitted to CZA for approval b. The incomplete service road to	Three months Six months	Master Plan already submitted to CZA Under progress, delayed due to COVID related financial hardship will be

		distribute food must be completed		over by 30.06.2021
7.	10.3(5)	The quarantine ward should be constructed at earliest.	Six months	Under progress, delayed due to COVID related financial hardship and will be completed by 31.03.2021.
	4. Animal Housing, Display of Animals & Animal Enclosures			
8.	10.4(2)	There are a number of enclosures where the space is still inadequate as per CZA norms e.g. cobras, banded krait, vipers, boa etc. The authority should take action to increase the size of the enclosure.	One year	One enclosure renovated. Others are under progress, delayed due to COVID related financial constraint
9.	10.4(2)	The enrichment of the enclosures of rhesus monkey and bonnet monkey and Hamadryads baboon should be increased.	Six months	Complied
10.	10.4(3),(4)&(5)	Renovation of EN 45 series of Reptile Park and bird enclosure EN 3ABC, 7ABC, 8ABC, 4 and 6 to provide appropriate space for movement and expression of natural behaviour and to maintain safe distance.	One year	Provision made in the new Master Plan, delayed due to COVID related financial hardship
11.	10.4(6)	A number of trees and plants have uprooted and fallen due to cyclone 'PHANI' in all the safaris. As a result they are hindering the animal sighting.	Six months	Complied. 1000 tall tree plantation carried out. Similar activities also continuing at suitable locations.
12.	10.4(8)	Extension of Bear Safari, Tiger safari and Herbivore safari need to be done as per CZA norms. The present area is 4.1ha.	One year	Provision made in the new Master Plan, delayed due to COVID related financial constraint. Timeline may be extended.
13.	10.4(9)	a. There are number of enclosures where height of stand-off barrier is not as per CZA norms. It should be reduced in phase manner. b. Damaged pillar of stand-off barrier must be repaired or replaced.	One year Immediately	Work under progress to replace the standoff barrier gradually, delayed due to COVID related financial hardship. Complied
14.	10.4(10)	The signage in nocturnal house should be fixed at appropriate place so that the visitor could see it well.	One month	Complied
	5. Upkeep and Healthcare of Animals			
15.	10.5(1)	Efforts must be made to make pair of Giraffe, Asiatic lion, African lion, hill mynah, spoonbill, Ganges soft shell turtle. The green dirty water of hippo enclosure should be treated through STP and re-circulate.	One year One year	Asiatic lion already paired, animal exchange proposal initiated for the remaining species. Plan estimate already made and tender process being initiated.

16.	10.5(2)	Keeping in view the large number of animals the storage facility for keeping required food is inadequate. Therefore, additional food storage godown is required.	Six month	Feed Go down of 2000 Sq. Feet is being contemplated
	6. Veterinary and Infrastructure Facilities			
17.	10.6(1)	The zoo hospital should have one portable x-ray unit, gaseous anaesthesia apparatus, separate operation theatre, more number In-Patient Ward units and a mini conference hall to increase its efficiency.	One and half year	One movable x-ray unit procured. The existing quarantine ward will be shifted to new location away from animal exhibit area. This will be used as inpatient ward where 3 new kraals have been added. Construction of Air conditioned isolation room and an additional Operation theatre with modern facilities is in progress. Steps are being taken for procurement of gaseous anaesthesia and construction of mini conference hall.
	9. Acquisition and Breeding of animals			
18.	10.9(4)	Efforts should be make pair of the species like Hill Myna, White Spoonbill, White Backed Vulture, Indian Small Civet, Salt Water Crocodile, two species of Python, Rat Snake, Ganges Soft-shelled Turtle, Russell's Viper, Sarus Crane, Large Egret, Median Egret, Black Headed Munia, Spotted Munia, Oriental Scoops Owl, Blossom Headed Parakeet, Adjutant Stork (lesser), White Neck Stork, Indian Porcupine, Lesser Sulphur Crested Cockatoo, White Cockatoo, Star Finch, Yellow Backed Lorry, Giraffe.	One year	Animal exchange proposal initiated and followed up for these species.
19.	10.9(6)	The CZA has assigned the conservation breeding of Indian pangolin since 2009. This zoo has shown good result by breeding this endangered species in captivity. This project should continue by financial assistance from CZA.		The zoo has not reached surplus stock to release to wild. It will be released after proper evaluation of suitable release site. Financial assistance from CZA is very much needed to continue the conservation breeding and species recovery programme.
20.	10.9(9)	The authorities now should try to send the excess Spotted deer, Sambar, Blackbuck, common palm civet, gharial, mugger population to different wildlife protected area in consultation with the concerned authorities	One year	169 spotted deer already translocated Chandaka-Dampara Sanctuary. Similar plans are prepared for other surplus species. Liaison with local forest divisions going on for release of stock.
21.	10.9(12)	Efforts should be made to phase out hybrid lion	One year	Under consideration

	12. Visitor Facilities			
22.	10.12(1)	The under construction parking must be completed so that the temporary parking which is inadequate may be discontinued	One year	Complied. Construction of new parking facility completed.
23.	10.12(1)	The vendors in front of the Main gate give shabby look and create hazard for the vehicles as well as visitors, which should be trans-located	One year	Complied. Vendors in front of Main gate were evacuated, beautification work of the place in progress.
		It is observed that the Safari Bus Stop is situated within the main zoo area near Reptile Park which is dangerous for the visitors as it intercepts visitor circulation path. The zoo has already taken steps to relocate the safari bus stop to outside main zoo area, which should be completed immediately to avoid plying of bus in zoo visitors route.	Three months	Complied.
		It is observed that the BOVs are moving in zigzag manner though there are earmarked stoppages for the BOVs. Hence the zoo-in-charge should give attention that the BOVs must move in tracks dedicated for the purpose	Immediately	Complied.
		There should be separate exit path for the visitors to avoid congestion and rush. The zoo authorities have already taken steps to make separate exit path for the visitors. It should be completed immediately	Three months	Complied.
24.	10.12(1)	There is an eatery complex near reptile park where majority of the visitors congregate to take snacks, thereby polluting the space with leftover foods which attracts many free living animals like rodents, cats and crows which may lead to hazardous effect on captive animals. Therefore, this particular eatery complex should be relocated to the place far away from enclosures.	Six months	The eatery complex near reptile park will be shifted to Cafeteria of Safari Bus stand. Steps are being taken.
		The frontage gate of the restaurant run by OTDC (near FRH) should be shifted to outside the zoo premises.	Six months	Official communication initiated with OTDC for shifting of entry gate outside of Zoo premises.

29. List of free living wild animals within the zoo premises:

MAMMALS OF NANDANKANAN

Sl. No.	Common Name	Scientific name	Status
1	Wild Boar	*Sus scrofa*	R
2	Spotted Deer	*Axis axis*	VC
3	Ratel	*Mellivora capensis*	R
4	Common mongoose	*Herpestes edwardsi*	VC
5	Indian Poprcupine	*Hystrix indica*	R
6	Mouse Deer or Indian Chevrotain	*Tragulus meminna*	R
7	Common palm civet	*Paradoxurus hermaphrodites*	R
8	Jackal	*Canis aureus*	R
9	Indian fox	*Vulpes bengalensis*	VR
10	Common Langur	*Presbytis entellus*	VC
11	Rhesus Macaque	*Macaca mulatta*	VC
12	Jungle Cat	*Felis chaus*	R
13	Pangolin	*Manis crassicaudata*	VR
14	Indian hare	*Lepus nigricollis*	C
15	Small Indian civet	*Viverricula indica*	R
16	Striped hyena	*Hyaena hyaena*	R
17	Three striped palm squirrel	*Funambulus palmarium*	VC
18	Rat	*Rattus rattus*	VC
19	Indian flying fox	*Pteropus giganteus*	R
20	Horse shoe bat	*Rhinolophus lepidus*	VC

BIRDS OF NANDANKANAN

Sl. No.	Common Name	Scientific Name	Status
PHASIANIDAE			
1	Grey Patridge	*Francolinus pondicerianus*	C
2	Common Peafowl	*Pavo cristatus*	VC
3	Red Jungle fowl	*Gallus gallus murghi*	R
4	Red Spurfowl	*Galloperdix spadicea*	R
DENDROCYGNIDAE			
5	Lesser Whistling Teal	*Dendrocygna javanica*	VR
ANATIDAE			
6	Cotton pigmy goose	*Nettapus coromandelianus*	VR
7	Common Teal	*Anas crecca*	R
8	Spot-billed Duck	*Anas poecilorhyncha*	VR
9	Gadwall	*Anas strepera*	R
10	Northern Pintail	*Anas acuta*	R
11	Brahminy Duck	*Tadorna ferruginea*	VR
TURNICIDAE			
12	Barred Buttonquail	*Turnix suscitator*	R

PICIDAE			
13	Yellow fronted Pied or Mahratta Woodpecker	*Dendrocopos mahrattensis*	R
14	Larger Golden backed Woodpecker	*Chrysocolaptes lucidus*	C
15	Black-rumped flameback	*Dinopium benghalense*	VR
MEGALAIMIDAE			
16	Small Green Barbet	*Megalaima viridis*	R
17	Copper-smith Barbet	*Megalaima haemacephala*	R
18	Brown-headed Barbet	*Megalaima zeylanica*	R
UPUPIDAE			
19	Common Hoopoe	*Upupa epops*	R
CORACIIDAE			
20	Indian Roller or Blue Jay	*Coracias benghalensis*	C
ALCEDINIDAE			
21	Indian Small Blue Kingfisher	*Alcedo atthis bengalensis*	VR
DACELONIDAE			
22	White breasted Kingfisher	*Halcyon smyrnensis perpulchra*	C
CERYLIDAE			
23	Lesser Pied Kingfisher	*Ceryle rudis*	VR
MEROPIDAE			
24	Indian Small Green Bee-eater	*Merops orientalis*	C
25	Blue Bee-eater	*Merops philippinus*	R
CUCULIDAE			
26	Indian Koel	*Eudynamys scolopacea*	VC
27	Pied Cuckoo	*Clamator jacobinus*	R
28	Common hawk Cuckoo	*Hierococcyx varius*	VR
29	Plaintive Cuckoo	*Cacomantis merulinus*	VR
30	Blue faced Malkoha	*Phaenicophaeus viridirostris*	VR
CENTROPODIDAE			
31	Crow-pheasant or Coucal	*Centropus sinensis*	VC
PSITTACIDAE			
32	Rose-ringed Parakeet	*Psittacula krameri*	VR
33	Alexandrine Parakeet	*Psittacula eupatria*	R
APODIDAE			
34	Asian palm swift	*Cypsiurus balasiensis*	C
TYTONIDAE			
35	Barn Owl	*Tyto alba*	VC
STRIGIDAE			
36	Eastern Spotted Scops Owl	*Otus spiloephalus*	VR
37	Spotted Owlet	*Athene brama*	C
CAPRIMULGIDAE			
38	Indian Jungle Nightjar	*Caprimulgus indicus*	C
COLUMBIDAE			

39	Indian Blue Rock Pigeon	*Columba livia intermedia*	C
40	Indian Spotted Dove	*Streptopelia chinensis*	VC
41	Emrald Dove	*Chalcophaps indica*	VR
RALLIDAE			
42	Purple Moorhen	*Porphyrio porphyrio*	R
43	Water cock	*Gallicrex cinerea*	R
44	Common moorhen	*Gallinula chloropus*	C
45	White breasted Waterhen	*Amaurornis phoenicurus boliocephalus*	C
SCOLOPACIDAE			
46	Eurasian Curlew	*Numenius arquata*	VR
47	Common snipe	*Gallinago gallinago*	R
48	Wood Sandpiper	*Tringa glareola*	R
49	Indian Stone Curlew	*Burhinus oedicnemus indicus*	VR
JACANIDAE			
50	Bronze winged Jacana	*Metopidius indicus*	C
51	Pheasant-tailed Jacana	*Hydrophasianus chirurgus*	R
CHARADRIIDAE			
52	Red-wattled Lapwing	*Vanellus indicus*	C
53	Yellow wattled Lapwing	*Vanellus malabaricus*	C
ACCIPITRIDAE			
54	Pariah Kite	*Milvus migrans govinda*	VR
55	Shikra	*Accipiter badius dussdumderi*	R
56	Osprey	*Pandion haliaetus*	R
57	Crested Serpent eagle	*Spilornis cheela*	R
ANHINGIDAE			
58	Darter or Snake-bird	*Anhinga melanogaster*	C
PHALACROCORACIDAE			
59	Little Cormorant	*Phalacrocorax niger*	VC
ARDEIDAE			
60	Pond Heron	*Ardeola grayii*	C
61	Purple Heron	*Ardea purpurea*	VR
62	Grey Heron	*Ardea cinerea*	VR
63	Cattle Egret	*Bubulcus ibis coromandus*	VC
64	Little Egret	*Egretta garzetta*	VC
65	Median Egret	*Mesophoyx intermedia*	R
66	Great Egret	*Casmerodius albus*	R
67	Night Heron	*Nycticorax nycticorax*	C
68	Great Bittern	*Botaurus stellaris*	VR
69	Black Bittern	*Dupetor flavicollis*	VR
70	Yellow Bittern	*Ixobrychus sinensis*	VR
71	Cinnamon Bittern	*Ixobrychus cinnamomeus*	R
CICONIDAE			
72	Painted Stork	*Mycteria leucocephala*	VR
73	Openbill Stork	*Anastomus oscitans*	VC

74	Wooly-necked Stork	*Ciconia episcopus*	R
THRESKIORNITHIDAE			
75	Oriental White Ibis	*Threskiornis aethiopica melanocephala*	R
LANIDAE			
76	Large Cuckoo-shrike	*Coracina novaehollandiae*	R
77	Brown Shrike	*Lanius cristatus*	R
CORVIDAE			
78	Northeastern Tree Pie	*Dendrocitta vagabunda*	VC
79	Indian House Crow	*Corvus splendens*	VC
80	Indian Jungle Crow	*Corvus macrorhynchos culminates*	VR
81	Indian Paradise Flycatcher	*Terpsiphone paradisi*	R
82	Indian Black Drongo	*Dicrurus macrocercus*	VC
83	Indian white-bellied Drongo	*Dicrurus caerulescens*	R
84	Black-naped Monarch	*Hypothymis azurea*	VR
85	Indian Golden Oriole	*Oriolus oriolus kundoo*	C
86	Indian Black headed Oriole	*Oriolus xanthornus*	C
87	Black headed Cuckoo-shrike	*Coracina melanoptera*	VR
88	Common Iora	*Aegithina tiphia*	R
MUSCICAPIDAE			
89	Oriental Magpie Robin	*Copsychus saularis*	C
90	Indian Robin	*Saxicoloides fulicata*	C
91	Orange headed thrush	*Zoothera citrina*	VR
92	Red-throated flycatcher	*Ficedula parva*	R
STURNIDAE			
93	Indian Pied Myna	*Sturnus contra*	C
94	Common Myna	*Acridotheres tristis*	VC
95	Jungle Myna	*Acridotheres fuscus*	C
96	Brahminy Starling	*Sturnus pagodarum*	C
PYCNONOTIDAE			
97	Red whiskered Bulbul	*Pycnonotus jocosus*	R
98	Red vented Bulbul	*Pycnonotus cafer*	C
99	White-browed Bulbul	*Pycnonotus luteolus*	R
CISTICOLIDAE			
100	Plain Prinia	*Prinia inornata*	R
101	Streaked Fantail Warbler	*Cisticola juncidis*	VR
ZOSTEROPIDAE			
102	Oriental White-eye	*Zosterops palpebrosa*	R
SYLVIDAE			
103	Indian Rufous Babbler	*Turdoides subrufus*	R
104	Jungle Babbler	*Turdoides striatus*	VC
105	Puff-throated Babbler	*Pellorneum ruficeps*	R
106	Yellow Browed Warbler	*Phylloscopus inornatus*	R

107	Greenish Warbler	*Phylloscopus trochiloides*	R
108	Common Tailor Bird	*Orthotomus sutorius*	VR
ALAUDIDAE			
109	Red-winged Bush-lark	*Mirafra erythroptera*	VR
NECTARINIDAE			
110	Purple-rumped Sunbird	*Nectarinia zeylonica*	C
111	Purple Sunbird	*Nectarinia asiatica*	VC
112	Loten's Sunbird	*Nectarinia lotenia*	R
PASSERIDAE			
113	White Wagtail	*Motacilla alba*	R
114	White-browed Wagtail	*Motacilla maderaspatensis*	R
115	Forest Wagtail	*Dendronanthus indicus*	R
116	House Sparrow	*Passer domesticus*	R
117	Paddy field Pipit	*Anthus rufulus*	C
118	Indian Baya	*Ploceus philippinus*	VR
119	Black-headed Munia	*Lonchura malacca*	R
120	Red Avadavat	*Amandava amandava*	R
HALCYONIDAE			
121	Stork-billed kingfisher	*Pelargopsis capensis*	R

REPTILES OF NANDANKANAN

Sl.no.	Common Name	Scientific Name	Status
1	Land Monitor lizard	*Varanus bengalensis*	VC
2	Indian Python	*Phython molurus*	VC
3	Yellow monitor lizard	*Varanus falvescens*	R
4	Russels Viper	*Daboia russelli*	C
5	Banded krait	*Bungarus fasciatus*	R
6	Common Indian Krait	*Bungarus caeruleus*	VC
7	Indian Cobra Binocellate	*Naja naja naja*	VC
8	Cobra Monocellate	*Naja naja kaouthia*	C
9	Rat Snake	*Ptyas mucosus*	VC
10	Common Indian Broze back or tree snake	*Dendrelaphis tristis*	C
11	Checkered keel back	*Xenochrophis piscator*	R
12	Chameleon	*Chameleon zeylanicus*	C
13	Common Green Whip Snake	*Ahaetulla nasuta*	R
14	Earth Boa	*Eryx johnii*	VR
15	Garden lizard	*Calotes verricolor*	VR

STATUS

VR- Very Rare, R- Rare, VC- Very Common, C- Common