



**BANNERUGHATTA
BIOLOGICAL PARK
BENGALURU**



ANNUAL REPORT 2023-24




World Association of
Zoos and Aquariums
WAZA | United for
Conservation



Central Zoo Authority



ZOO AUTHORITY OF KARNATAKA



“The Earth does not belong to us:
we belong to the Earth.”
- Marlee Matlin

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1 Report of the Officer-in-Charge

Bannerghatta Biological Park (BBP) is a sanctuary of biodiversity and natural beauty due to its unique ecological location. BBP is situated adjacent to Bannerghatta National Park which is the northern terminal point of Mysuru Elephant Reserve connecting other National Parks and Wildlife Sanctuaries of South Indian states: Karnataka, Tamil Nadu and Kerala. This contributes to the largest viable elephant habitat in India connecting Eastern Ghats with Western Ghats.

The Park plays a major role in conservation of rich floral and faunal diversity. Our mission is to promote the conservation of wildlife and their habitats through rigorous research, innovative education programs and awareness creation. We are committed to create a harmonious balance between humans and nature, ensuring that our actions today safeguard the planet for future generations.

Our park is home to a rich array of flora and fauna, including some of the endangered species. Our dedicated team work tirelessly to protect and nurture them. Welfare of these captive animals are given utmost priority by designing the new exhibits as per the species requirement aiming to provide them a natural, stress-free environment to live in. Different enrichment activities are carried out throughout the year to ensure the inhabitants are provided an opportunity to exhibit their species-specific behaviour as their wild counter parts.

We aim to uplift the welfare of the rescued and orphaned wild animals by providing them appropriate housing, clinical and management facilities. BBP has a dedicated Rescue Centre which was built for circus rescued animals in 2000. This facility is being upgraded for the current requirement of housing leopards rescued from human animal conflict from different parts of the state. We are housing the highest number of rescued leopards in the state, where most of the animals acquired are abandoned/ orphaned cubs, physically injured due to accidents, sick and old individuals which cannot survive in wild. These animals are taken care by hand rearing, providing appropriate medications and surgeries are performed whenever required to provide these rescued animals a better life.

To support the In-situ Conservation, BBP is initiating a new Conservation Breeding Centre for two species of Vulture (Long-billed Vulture & Oriental White-backed Vulture) which have declined by 99% over years. A separate off-display area inside Bannerghatta National Park is dedicated for Conservation Breeding of Vultures which will be released using soft release method in their natural habitat where small population of wild vultures are observed.

BBP also executed an international exchange program with Singapore Zoo this year and received Hamadryas Baboon to ensure genetic diversity which is crucial for improving the health and sustainability of population in captivity. This exchange program underscores the importance of international collaboration between zoos in achieving shared conservation goals, prevent inbreeding, and ensure that gene pools remain robust and promotes well-being of animals in captivity.

Education is a cornerstone of our efforts at BBP. We believe that fostering a deep connection between people and nature is essential for conservation. Hence, our educational programs are designed to inspire and inform visitors of all ages about the importance and need for conservation of wildlife. From interactive exhibits to guided tours, we aim to provide a comprehensive understanding of the natural world and the challenges it faces.

Over the previous year multiple in-reach and outreach education activities are carried out to spread the message of conservation among public. Under the Wildlife Week theme: Partnership for Wildlife, we have collaborated with educational institutions to enhance the zoo's capacity in research and development towards a modern, naturally immersive experience. Along with this partnership with schools, community groups and other stakeholders have been initiated to promote conservation awareness and foster a sense of stewardship. By involving the community in our efforts, we ensure that conservation is a collective endeavour.

We commit to minimize our ecological footprint while providing an unforgettable experience for our visitors. We constantly explore new ways to enhance our programs and facilities, ensuring that Bannerghatta Biological Park remains a leading institution in wildlife conservation.

A.V. Surya Sen, IFS

Deputy Conservator of Forests and
Executive Director,
Bannerghatta Biological Park





BANNERUGHATTA BIOLOGICAL PARK BENGALURU

Bannerghatta Biological Park (BBP) is located about 22 km from Bengaluru city. It is one among the few places in the world where wilderness is preserved so close to a big city. BBP has its own unique mission and vision for wildlife protection and preservation for the present and future generations to come. The park offers an excellent opportunity for the citizens of the mega city, Bengaluru, to come closer to nature.

BBP was started as a small zoo (picnic corner) in 1974 within Bannerghatta National Park (BNP) mainly for recreation purposes. With changing times the priority has shifted to the welfare of wild animals. Whilst panning the pages of history, one comes across the contributions of Sri Y.M.L Sharma, IFS, the then Chief Conservator of Forests and Head of the Forest Department, who was responsible for identifying the need for a place where Bengalureans could enjoy the solitude of wilderness. He was instrumental in vizualizing and creating the Bannerghatta National Park (BNP). It was his conviction that ensured the notification of land and the creation of a National Park in 1974.

In 2002, Bannerghatta Biological Park (BBP), emerged out as an independent establishment from BNP and was brought under the administrative control of the Zoo Authority of Karnataka (ZAK). The Bannerghatta zoo, various safari units, butterfly park and rescue centre was created within the area of Bannerghatta Biological Park which measures around 731.88 Ha. The management jurisdictions of Bannerghatta Biological Park was brought under ZAK with effect from 01.04.2002.

List of officers who headed Bannerghatta Biological Park after the bifurcation of Bannerghatta National Park and Bannerghatta Biological Park

- 🐾 Sri. B.M.T. Rajeev, IFS (In-charge) : 01/04/2002 to 27/06/2003
- 🐾 Sri N.L. Raghava : 27/06/2003 to 01/07/2003
- 🐾 Sri. K.B.Markandaiah, IFS : 01/07/2003 to 25/06/2006
- 🐾 Smt. Geethanjali, IFS : 25/06/2006 to 08/03/2007
- 🐾 Sri. K.B. Markandaiah, IFS : 08/03/2007 to 05/05/2008
- 🐾 Sri. Millo Tago, IFS : 05/05/2008 to 09/03/2011
- 🐾 Sri Chandrashekar (In-charge) : 09/03/2011 to 29/04/2011
- 🐾 Dr. R Raju, IFS : 29/04/2011 to 06/03/2013
- 🐾 Sri N Devaraju, IFS : 06/03/2013 to 16/09/2013
- 🐾 Sri Range Gowda IFS : 16/09/2013 to 14/09/2015
- 🐾 Sri Santosh Kumar, IFS: 14/09/2015 to 01/11/2017
- 🐾 Sri R Gokul, IFS : 01/11/2017 to 05/09/2018
- 🐾 Dr. Sanjay S Bijjur, IFS : 05/09/2018 to 22/07/2019
- 🐾 Smt Vanashree Vipin Singh, IFS : 22/07/2019 14/02/2022
- 🐾 Dr. Sunil Panwar, IFS : 14/02/2022 to 07/07/2023
- 🐾 Sri. R Ravishankar, IFS : 07/07/2023 to 12/07/2023
- 🐾 Sri. A V Surya Sen, IFS : 12/07/2023 to date

3

Vision

To protect and conserve Wildlife and Environment through Sustainable and Scientific management of zoo.

4

Mission

To Inspire, Inform, Enhance Scientific literacy of citizens to support national effort of Conservation of rich Biodiversity on Earth.

5

Objectives

- ✿ To compliment and strengthen the national efforts in ex-situ Conservation and strengthen the Conservation of the rich Bio- Diversity of the country, particularly the fauna.
- ✿ Supporting the conservation of endangered species by giving species, which have no chance of survival in the wild, a last chance of survival through coordinated breeding under ex- situ condition and raise stocks for rehabilitating them in wild as and when it is appropriate and desirable.
- ✿ To inspire amongst zoo visitors empathy for wild animals, an understanding and awareness about the need for conservation of natural resources and for maintaining the ecological balance.
- ✿ Providing opportunities for scientific studies, research and documentation on conservation and creation of database for sharing between authorities involved in In-Situ and Ex-Situ conservation.
- ✿ Providing dedicated facilities for the rescued and orphaned wild animals through appropriate housing, clinical and management facilities in off display area.
- ✿ To serve as gene pool and germplasm reserve for future biological research on wild animals and to extend facilities for studies on behavior and breeding of different animals.
- ✿ To sustain the founder population and also to augment the depleting populations of Endangered species in the wild.



Basic Information about the Zoo

1. Name of the Zoo : Bannerughatta Biological Park
2. Year of Establishment : 1974
Initially, it was started as a small zoo (picnic corner) in 1974 within Bannerghatta National Park(BNP). In 2002, Bannerughatta Biological Park(BBP), emerged out as an independent establishment from BNP and was brought under the administrative control of the Zoo Authority of Karnataka(ZAK) with effect from 01.04.2002.
3. Address of the Zoo : Bannerughatta Biological Park, Bannerghatta, Bengaluru 560083
4. State : Karnataka
5. Telephone Number : 080-29776466, 29776467
E-mail address : ed@bannerughattabiopark.org
Website : bannerughattabiopark.org
6. Recognition Valid Upto : Evaluation completed by CZA, recognition renewal awaited
7. Category of zoo : Large
8. Area(in hectares) : 731.88 hectares
9. Number of visitors for the year 2023-24 : 22,29,032
10. Visitor's facilities available in Zoo : R O Drinking water, Toll free washrooms, Cloak room, Shelters, Electric Vehicle Service, Library, Wheelchair, First aid, Baby Care Unit, Parking, Children's play area, Signage boards, Animal Adoption,Offline, Online, Kiosk and WhatsApp Ticketing
11. Weekly Closure Day of the Zoo : Tuesday

Management Personnel of the Zoo

- Executive Director & : Sri. A V Surya Sen, IFS
Deputy Conservator of Forests
(Officer in-Charge)
- Deputy Director : Sri. Vishal Patil Hirekudi (In-charge)
- Asst. Executive Engineer : Sri Muralidhar S
- Assistant Director : Dr. Kiran Kumar (In-charge)
(Veterinary Service)
- Range Forest Officers : Sri Dinesha K, Sri K.R. Kulakarni
- Pathologist : Dr. Manjunath V
(WADDL., Supported by IAH & VB)
- Biologist : Smt. Aishwarya Sridhar
- Education Officer : Kum. Amala M Anil
- Public Relation Officer : Sri. Mahadeva K.C
- Lab technician : Smt. Madhuri
(WADDL., Supported by IAH & VB)

Owner/Operator of the Zoo

Dr. Sunil Panwar, IFS

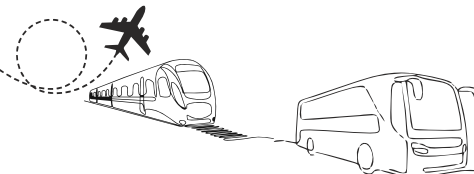
Chief Conservator of Forests & Member Secretary(in-charge)
Zoo Authority of Karnataka, Mysuru - 10

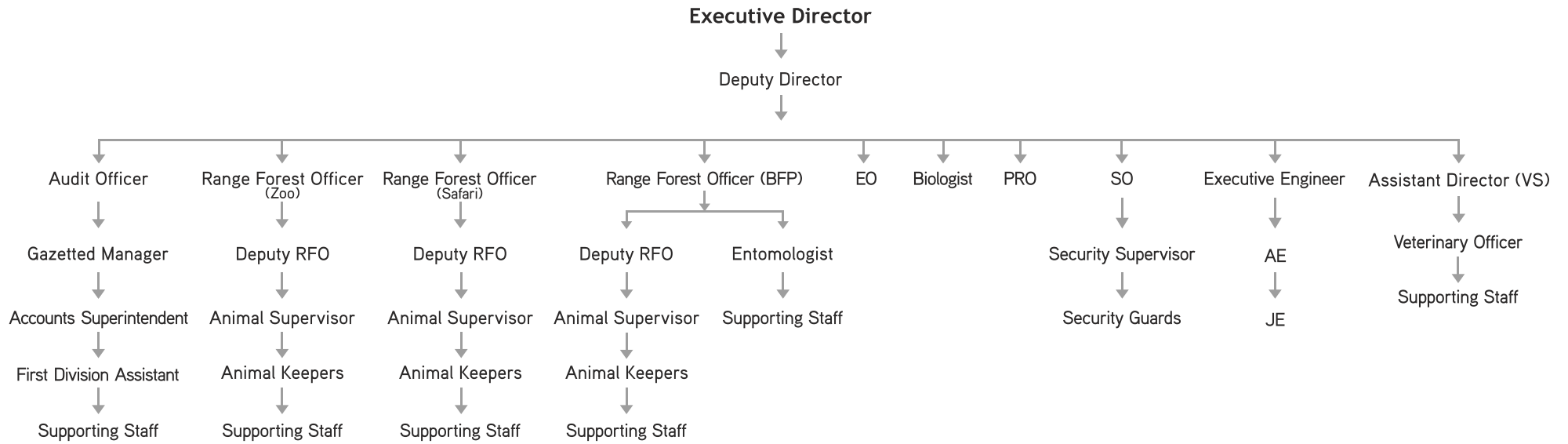
Address of the Operator of the Zoo

Zoo Authority of Karnataka,
Chamundi Rescue and Rehabilitation Centre,
Hunsur - Srirangapatna Road, Koorghally, Mysuru 570018
Phone : 0821-2432881, e-mail : ccfmszak@gmail.com

Distance from nearest :

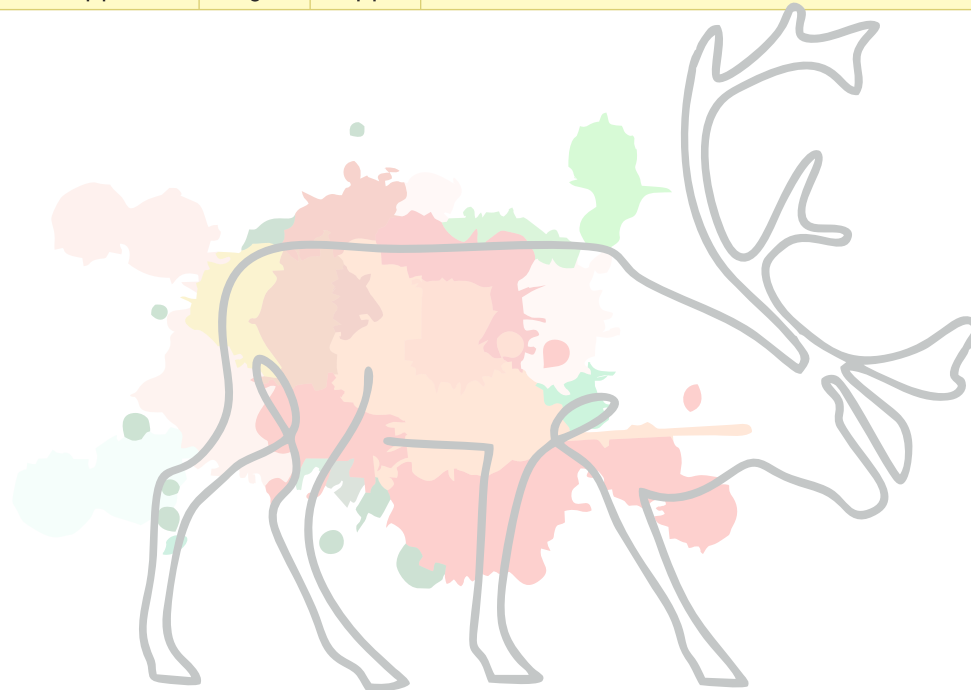
- **Airport:** 59 km from Kempegowda International Airport
- **Railway Station:** 24 km from Majestic Railway Station
- **Bus Stand:** 24 km from Majestic bus station





Sl. No.	Designation	Number of Sanctioned Posts	Working Strength	Vacancy	Names of the incumbent (As on 31-03-2024)
1	Executive Director	1	1	0	Sri. A V Surya Sen, IFS
2	Deputy Director	1	0	1	Sri. Vishal Patil Hirekudi (In-charge)
3	Deputy Director (VS)	1	0	1	
4	Asst. Executive Engineer	1	1	0	Sri Muralidhar
5	Assistant Director(VS)	1	0	1	Dr. Kiran Kumar (In-charge)
6	Veterinary Officer (VO)	1	1	0	Dr. Anand V M
7	Gazetted Manager	1	0	1	
8	Audit Officer	1	0	1	
9	Range Forest Officer (RFO)	3	2	1	Sri Dinesha K, Sri K R Kulakarni
10	Accounts Superintendent	1	0	1	
11	First Division Assistant	1	1	0	Sri. Subba Shastri
12	Deputy Range Forest Officer (DRFO)	4	4	0	Sri Hemanth. K.S , Sri. Ashoka H T, Sri Abhishek B G, Smt. Sushma N
13	Forest Guard	10	0	10	
14	Forest Watcher	10	0	10	
15	Mahout	6	1	5	Sri Mota
16	Kavadi	14	0	14	

No.	Staff	Nos.
1	Permanent Staff	11
2	Kshemabivrudhi Employees	30
Direct Contract		
3	Category staff	126
4	Elephant Assistant	10
5	Biologist	1
6	Education Officer	1
7	Entomologist	1
8	Security Officer	1
Outsource staff		
9	Ex Army (Security Person)	23
10	Security staff from agency	36
11	D-Group outsourced staff from agency	138



9 Capacity Building of the Zoo Personnel

Skill enhancement and knowledge sharing is vital to ensure that the best can be provided to our three stake holders, animals, visitors and staff. Throughout the year, BBP staff attended training in other zoos as well as staff from other institutions were invited for training program held at BBP to assess and effectively manage their respective sections.

Dr. Vijay Kumar N, Veterinary Officer and Smt. Aishwarya K S, Biologist, Bannerughatta Biological Park participated in two day "ZAK Workshop on Herpetology" on 29th and 30th, May 2023 at Sri Chamarajendra Zoological Gardens, Mysuru



A. V Surya Sen, Executive Director, Bannerughatta Biological attended "National Zoo Biologists Workshop" as a resource person from 5th - 7th August 2023 at Sanjay Gandhi Biological Park, Patna, Bihar which was attended by Smt. Aishwarya K S, Biologist, Bannerughatta Biological Park.



Devaraju K G and Mohammed Azeem, Accountant Assistant, Bannerughatta Biological Park participated in "Accounts Workshop" held at Sri Chamarajendra Zoological Gardens, Mysuru on 3rd and 4th August 2023.

Bannerughatta Biological Park ground staff C. Munesh, Girisha, Mahesha and Munisha E participated in "Sensitization about basic husbandry practices and hands-on enrichment training" from 6th to 9th November 2023 organised by Life Science Education Trust, Bengaluru



Bannerughatta Biological Park Animal Keepers Ramayya Y and Raghavendra K M participated in “Capacity Building Programme for Zoo Keeper of Southern Region” organised by Sri Venkateswara Zoological Park, Tirupati, Andhra Pradesh in collaboration with Central Zoo Authority, New Delhi from 6th - 8th December 2023.

Dr. Anand V M, Veterinary Officer, Bannerughatta Biological Park participated in Field Course on “Interventions in Wild Animal Health (IWAH 2024)” held at Sariska Tiger Reserve, Rajasthan from 10th to 27th February 2024, jointly organized by Wildlife Institute of India (WII), Zoological Society of London (ZSL), Royal Veterinary College, London, University of Melbourne (UoM) and University of Edinburgh (UoE).

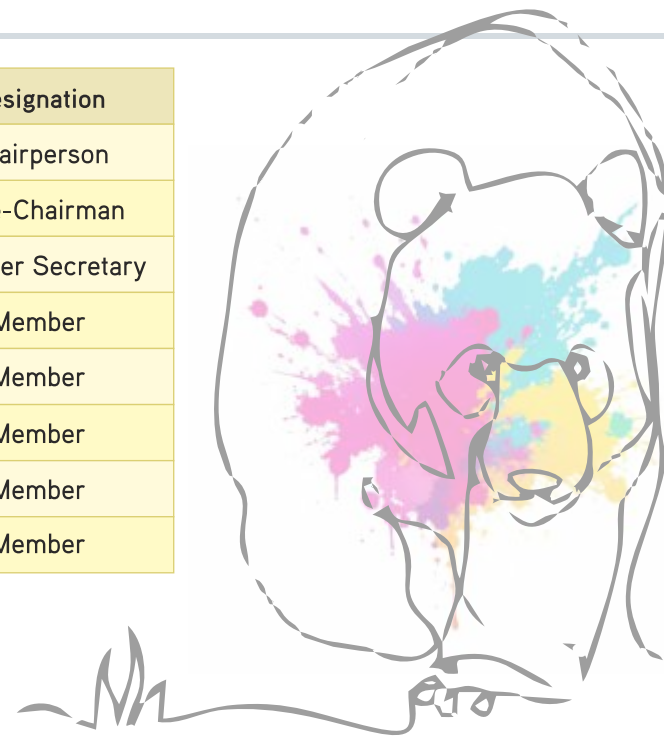


Dinesha K, Range Forest Officer, Aishwarya K S, Biologist and Rajappa M, Animal Keeper, Bannerughatta Biological Park participated in “Hands-on Bird handling and Sexing” workshop held at Bannerughatta Biological Park on 20th February 2024 organised by Life Science Education Trust



Aishwarya K S, Biologist, Rajappa M, Sannahalagegowda, Raghavendra K M, Ramayya Y, K Madesha, Animal Keepers, Bannerughatta Biological Park participated in “Wings of Wisdom - Avian Nutrition and Aviary Management” workshop held at Bannerughatta Biological Park on 15th December 2023 organised by Life Science Education Trust in collaboration with Bannerughatta Biological Park.

Members	Designation
1. Sri. Eshwara B Khandre, Hon'ble Forest, Ecology and Environment Minister	Chairperson
2. Principal Chief Conservator of Forests (Wildlife) and Chief Wildlife Warden	Vice-Chairman
3. Additional Principal Chief Conservator of Forests, Zoo Authority of Karnataka, Mysore	Member Secretary
4. Principal Secretary to Government (Forests), Forest, Environment & Ecology Department, Bengaluru	Member
5. Hon'ble Mayor, Mysore city Corporation, Mysuru	Member
6. Director, Dept. Of Animal Husbandry & Veterinary Services, Vishveshwaraiah Gopura, Bengaluru	Member
7. Director, Institute of Animal Health & Veterinary Biologicals, Hebbal, Bengaluru	Member
8. Special Officer (Banking)/ Deputy Secretary, Finance Dept, Bengaluru	Member



11 Animal Health Advisory Committee

A. Date of constitution :

Government Order No: FEE 2003 FWL 2003, Bengaluru.

Dated: 12/02/2004

B. Members

Members	Designation
1 Executive Director, Bannerughatta Biological Park	Convener
2 Joint Director, Animal Husbandry & Veterinary Sciences, Bengaluru.	Member
3 Head of the Department of Clinical Medicine, Veterinary College, Hebbal	Member
4 Director, Institute of Animal Health & Veterinary Biologicals, Hebbal.	Member
5 Assistant Director (VS), BBP	Member

C. Dates on which Meetings held during the year & Agenda

1) Animal Health Advisory Committee (HAC) meeting was held online on 08-09-2023 with the following agenda

- The outbreak of Feline Panleukopenia in BBP Leopards and measures taken to mitigate Feline Panleukopenia transmission and treatment of infected animals.

2) Offline Animal Health Advisory Committee (HAC) meeting was held online on 06-02-2024 with the following agenda

- A final review of Feline Panleukopenia outbreak in BBP
- Herpes viral infection in Herbivores (deer species) and Reptiles of BBP

- Methods to be followed for birth control measures for leopards

- Obesity and infertility problems in big cats (Lion & Tiger) of BBP Review and discussion on existing diet chart and nutritional requirement of captive animals of BBP

12 Statement of Expenditure of the Zoo

Details of Budget Head		Total Budget & APO approved 2023-24 (Rs. in Lakhs)	Actual Expenditure from 01.04.2023 - 31.03.2024 (Rs. in Lakhs)
1	Establishment Charges	1,422.00	1,333.76
2	Staff Advances	2.00	-
3	Office Expenses	18.50	22.60
4	Advertisement and Publicity	20.00	13.65
5	Stores, Tools and Plants	10.00	3.88
6	General Charges	32.00	36.57
7	Zoo Education	11.00	14.43
8	Staff Welfare	160.00	69.59
9	Others (If any)	12.00	11.13
	Total	1,687.50	1,505.61
10	Feed and Fodder	760.00	708.81
11	Hospital /Animal Treatment charges [Vet Care]	65.00	11.21
12	Animal Collection - Handling and transportation charges	10.00	33.40
	Total	75.00	44.61
13	Fixed Assets	50.00	-
14	Garden Development	20.00	24.32
15	Civil Work Development (Zoo, Safari, Butterfly Park & Rescue Center)	2,653.00	11.99
	Total	2,723.00	36.31
16	Maintenance Charges	215.00	215.36
17	Garden Maintenance	15.00	7.83
18	Research and Documentation	5.00	0.60
19	Enrichment of Captive Habitat	5.00	3.58
20	Civil Work Maintenance (Zoo, Safari, Butterfly Park & Rescue center)	891.00	228.00
21	Payment to KSTDC	1,400.00	1,279.36
	Total	2,531.00	1,734.73
	Sub-Total	7,776.50	4,030.37
22	Spill over Works of 2022-23	723.50	510.22
	Grand Total	8,500.00	4,540.29



The Animal Health Monitoring committee regulates the food requirement of the animals, whenever required. The food requirement varies from animal to animal and quantity also varies between age groups and sex. Herbivores are fed twice a day whereas omnivores are fed in the morning hours according to their feed requirements. Carnivores are fed in the evening time, except on Tuesdays, which is a starve day to mimic natural feeding behaviour. Quality and Quantity are monitored by the Assistant Director of Veterinary Services [AD(VS)] and Range Forest Officer respectively.

The daily food supplied by the contractor is first weighed in the weigh bridge in the presence of AD(VS) / RFO / Security Officer or their representatives inside the zoo, where CCTV is installed for monitoring the same. Then it is deposited in the kitchen, where the quality of food is assessed before it is distributed to all the animals and birds as per the feeding schedule. The same is also monitored through CCTV which is installed in the kitchen room.

	Species		Feed item	Frequency
1	Mammals	Herbivores	Vegetables, concentrates, grains, grass	Twice a day
		Carnivores	Beef & chicken	Once in the evening, fasting on Tuesdays.
		Omnivores (Macaques, Toddy cat and Bears)	Fruits, vegetables, grains, chicken and fish	Daily
2	Birds		Seasonal fruits, vegetables, grains, concentrates, & fish	Daily
3	Reptiles	Crocodiles	Fish	Alternate days
		Snakes	Live feed (Mice, rat snake & rabbit)	Once in 7-10 days
		Turtle	Fish	Daily
		Tortoise & Iguana	Fruits, green leaves & vegetables	Daily

Every morning the feed that is supplied to the animals and birds are subjected to quality check. The zoo veterinarians inspect every ingredient of the diet physically to ensure that the type of feed that is fed to the zoo animals are of high quality and nutritious. The diet is formulated by the veterinarians based on the type of species, nutritional requirements and availability of the diet material.

The quantity of feed to a particular animal is decided not only based on its body weight but also on other factors like species of the animal/bird, stage of growth, pregnancy, stage of lactation and activity. It is made sure that the animals are getting all the nutritional supplements for their growth, maintenance, lactation and reproduction. Any deviation in the quality of the feed material will not be accepted and are rejected by the veterinarians. Fruits, vegetables and greens are weighed, washed and chopped accordingly. The meat is weighed in the meat processing unit, later it is hanged for meat inspection. The meat is washed and dirt present on it is cleaned properly. Meat is examined for any severe bruise, cysts, parasites or any deterioration or necrosis. The offal's which are fed are checked before and after the cut. The offal's are examined for any parasites, stones (kidney/bile duct), cysts and necrosis.



14

Vaccination Schedule of Animals

Sl. No.	Species	Disease vaccinated for	Name of the Vaccine and dosage/ quantity used	Periodicity
1.	Tiger, Lion, Leopard, Jungle cat	Feline pan leukopenia, feline calci virus, feline infectious rhinotracheitis	Feligen combined vaccine (Feligen) 1 ml	Annual
2.	Tiger, lion, leopard, jungle cat, wolf, dhole, jackal, hyena, Himalayan Black Bear	Rabies	Rabigen 1 ml	Annual
3.	Wolf, Dhole, Jackal, Hyena, Himalayan Black Bear	Canine parvo virus, canine distemper, ICH, Canine Parainfluenza, Leptospirosis	Canine combined vaccine (Canigen) 1 ml	Annual
4.	Deer and antelopes, Elephant, Giraffe, Gaur	Foot and mouth disease; Haemorrhagic septicaemia	FMD and HS bivalent vaccine	Once in 6 months
5.	Tiger, Lion, Leopard	Trypanosomiasis	Surral 1 mg / kg b.wt	Once in 3 months

15

De-worming Schedule of Animals

Sl.No.	Species	Drug	Used Month
1	All Animals	Oxyclozanide	May
2	All Animals	Albendazole	August
3	All Animals	Fenbendazole	November
4	All Animals	Closantel	February

16

Disinfection Schedule

Sl. No.	Species	Type of enclosure	Disinfectant used and method	Frequency of disinfection
1	All Animals	All holding house, passages	Kohrsalin Th Mopping	Daily
2	All Animals	All holding house, passages	Biokleen Mopping	Daily
3	All Animals	All holding house, passages, visitor entrance	Potassium permanganate foot dip	Daily
4	All Animals	All holding house, passages, exhibit areas	Viracid spray and foot dip	Once a week as prophylactic method.







18 Development works and facilities created



Restructuring of animal holding houses in RC (L-5,L-6,L-7 & L-8):

The rescue centre is an off display unit in BBP where rescued, orphaned, injured wild animals are housed for life time care. The centre was constructed in 1999 within an area of around 18 ha to house circus rescued tigers and lions. Two blocks - L Block & T Block, were constructed with 12 and 5 holding houses respectively each with a kraal area of around 1500 sq mts with a total carrying capacity to house 102 animals.

Over the years, as the circus rescued animals died due to old age, the infrastructure is being used to house leopards rescued from increasing human animal conflict in different parts of the state. The structure built is not suitable to house leopards, hence 4 enclosures (L-5,L-6,L-7 & L-8) are restructured with the financial assistance of KFD under MAC fund.

Quarantine enclosure for baboons in RC (Singapore zoo acquisition)

BBP acquired Hamadryas Baboon from Singapore Zoological Gardens under animal exchange program. As per the protocol mentioned by the Animal Husbandry Department, these imported primates were to be housed in a quarantine area until quarantine clearance is received. To facilitate housing these animals a quarantine area was constructed near Rescue center away from other animals housed in the premises.



Underground storage sump for BWSSB water

To provide fresh water to animals, employees and visitors who visit BBP, arrangements are made to procure Cauvery water from BWSSB. To store this water an underground water storage unit of 1 lakh litre is constructed at the host plant garden.

Upgrading Elephant Weaning Center

BBP has the highest number of elephants in captivity with 26 elephants of sex ratio of 11:15, majority being born in the zoo. Calves around 3 years are separated from their mother for weaning and trained in a small centre inside herbivore safari. Throughout the year, minimum a calf or two is shifted to the weaning center for training where special care by mahouts and kavadi round the clock is necessary.

A basic infrastructure and facility which is crucial for both elephants and mahouts & kavadi to train the calves was created. In addition to the existing single room, additionally a small kraal is constructed for free movement of calves and a room was also constructed for the kavadi above the existing elephant building to keep vigil on calves round the clock.



Solar fencing & periphery road inside leopard safari

Leopard safari is an upcoming safari where 20 ha area is demarcated and fenced between bear and lion safari. Holding house and main safari roads are constructed and the perimeter of the chain link mesh for the safari is about 1.8 Km.

Land identified for leopard safari is undulating with rocky hill crops and having thick undergrowth. To start an efficient safari unit exhibiting leopards which are highly elusive in nature additional managerial practices were initiated. 4 acres of land was further separated using a solar fence to release the animals in the safari area. For managerial practices a periphery road was established all around the leopard safari.

Construction of Pheasant enclosure in zoo

As per BBP's approved Master Layout Plan animal enclosures at zoos are upgraded as per the species requirement in a phased manner. The pheasant enclosure in the zoo was constructed decades ago which did not provide enough space for the birds housed as per the CZA guidelines. Accordingly, a new naturally immersive exhibit for pheasants is being initiated during the year 2023-24 and the work is under progress



Bicycle for general public in Zoo

Bicycles which are a sustainable mode of transport, were introduced within the zoo for visitors to enhance their experience while promoting eco-friendly practices. Using a bicycle helps in reducing carbon footprint while promoting healthy, active lifestyle among visitors. This also allows visitors to explore zoo at their own pace.

Initiating ticket booking through Whatsapp and Kiosk

BBP has both an online and offline ticketing system to help visitors to purchase tickets. During summer vacations and other government holidays visitor footfall increases causing visitors to wait in queue for a long period of time to purchase tickets. To facilitate faster ticket booking self-service kiosks are installed at strategic places outside the zoo. A Whatsapp ticketing system is also initiated to allow visitors to book tickets easily.



Painting Battery Operated Vehicles in Zoo

Around 15 Battery operated vehicles are available in the zoo for visitors to go around the zoo. To enhance the visual appeal of the vehicles to the zoo's theme and also use them as an educative tool to create awareness among visitors by adding an element of fun and creativity helping in enhancing the visitor experience.

GI chain link fencing around host plant garden

Bannerughatta Biological Park has India's first Butterfly Park where the butterflies are reared in the lab and released to the conservatory dome to create awareness about these winged jewels to the general public. To enhance the growth rate of caterpillars appropriate host plants as per the species requirement are planted and maintained at the Host plant garden. To protect these saplings from free ranging herbivores, this area is protected by the chain link fence made of GI to increase the durability of the barricade.

Renovation of Museum and Auditorium

The Auditorium and Museum at BBP were constructed decades ago to create awareness among visitors about the importance of wildlife to the ecosystem. Due to years of wear and tear, flooring and ceiling inside the museum and auditorium were dilapidated. Hence, renovation of the area including painting, wood work, electrical and plumbing works were carried out.



Compound wall barricade in Herbivore safari

Herbivore safari is spread over an area of 150 acres housing more than 1000 herbivores mainly Spotted deer, Sambar deer, Nilgai and Gaur. The 4 km long enclosure barricade was built around 20 years ago using rubble stone wall with a trapezoidal cross section and solar fence above it to restrict the movement of animals and avoid the wild animals entering into the enclosure. Additionally, a trench was also constructed along the stone wall to restrict wild elephants entry into the safari area.

The rubble stone wall was constructed without any binding materials, which results in wall collapse during monsoons and the trench gets filled with silt every year which leads to wild leopards entering the safari area and preying on herbivores.

In order to protect the animals inside the safari area, a compound wall is being constructed with existing stones and cement mortar as binding agents along with a solar fence above it.

Two Bolero Jeep donated by Bank of Baroda under CSR

Bannerughatta Biological Park provides a unique experience of observing wildlife in the midst of the natural habitat while visitors are secured in a vehicle. Safari is operated with AC and Non-AC bus, Jeeps, Innova and Xylo with a fixed carrying capacity of approximately 7000 visitors/ day. To increase the opportunity of observing animals from upclose for more visitors, additional vehicles were donated by Bank of Baroda under CSR to join hands in spreading awareness on conservation and importance of wildlife.



Solar Panels for borewell at Elephant Care Center by Gowramma Thimmareddy Foundation under CSR

Borewell near Elephant Care Center was re-bored to increase water yield providing continuous fresh water access for elephants. Solar panels were installed under CSR by Gowramma Thimmareddy Foundation to pump borewell water which offers a sustainable, environment friendly and cost-effective solution to extract groundwater from borewells in safari areas where conventional grid-based electricity is not available.

De-silting Benakanakunte inside Zoo by United Way, Bengaluru under CSR

Natural water body Benakanakunte inside the zoo premises had silt accumulation degrading water quality, diminishing natural habitat and decreasing the quantity of water storage. This water body was de-silted, removing sediment accumulated at the bottom of the lake using hydraulic excavation by United Way, Bengaluru under CSR. This is aimed to restore the natural capacity of the waterbody without widening or deepening the pond and increasing the storage capacity of the water body

Rain water harvesting unit at Zoo Ticket counter by ICICI Foundation under CSR

Rainwater harvesting which is an old practice of collecting and storing rainwater which can be later used for various purposes. With growing concerns about water scarcity and environmental sustainability, a rainwater harvesting unit was installed by ICICI Foundation under CSR at the ticket counter which collects all the rainwater falling on the roof. Collected water is directed to a storage tank after passing through a filtration unit to filter out debris after which it is used for gardening and other purposes helping in reduced water requirement stress.

Renovation and upgrading Baby Care Unit at BFP

The Baby Care Unit built at Butterfly Park was renovated and upgraded with better amenities to create a comfortable, safe and convenient environment for families. The unit is made accessible to visitors with wheelchairs, nursing cubicles for breastfeeding, drinking water unit and an attached bathroom was constructed with diaper changing tables.



Construction of Gazebo for visitors and staff.

Gazebo's were constructed in different locations to create a shaded and comfortable area for staff and visitors to relax, eat and for information sharing. Gazebo was designed to blend with the zoo's environment and enhance the overall aesthetics using cement fiber boards and shingle roofings. To ensure the space is functional for both dining and discussions, adequate amenities were added such as chairs and tables.



19 Education and Awareness Programmes

1. Animal & Environment Days:

Endangered Species Day (May 19) & World Crocodile Day (June 17)

An online quiz was conducted on Endangered Species Day & World Crocodile Day to create an interest and awareness about the behaviour, biology and conservation significance of the species in focus.



ಅಳಿವಿನಂಚಿನಲ್ಲಿರುವ ಜಾತಿಗಳ ದಿನಾಚರಣೆ ರಸಪ್ರಶ್ನೆ ಸ್ಪರ್ಧೆಯ ವಿಜೇತರಿಗೆ ಅಭಿನಂದನೆಗಳು
 Congratulations to the Winners of Endangered Species Day Quiz



Tansy S	Avantika.J	Shreya Deshpande	Nirupama Jaisingh
Aadith Ehaskar	Erish Anand	Arush	Rajesh Kumar
Dhwani Prabhakar	Kruthi Mukundan Vinjamur	Ashrith G S	Chaitanya
Lakshith Adithya J	Lyra Ehaskar	Gowtham E M	Josh Edison Alcanther
Surya Saravanan	Sunedha Deshpande	Anurag Gowda B R	Sunil Babu
Raaghav S	Vibhu Ram	Chethan K V	Venu H N
Ananya Vishweah	Adithi Sudheendra	Naveen Kumar R	Vani H N
Chetna Sathish	Mahesh	Nakul	Rarasimhamurthy L P
Harshith R Pandian	Anirudh Mukundan Vinjamur	Praneet Ezekiel	Aarthi
Saarang Melkote	Kushaan A Kabeerasagar	Sony	Mukund Sunderraman
Sumant N	Siri	Neethashree	Aditya Anand
Abhirama Nadiga N.R	Prarthana	Richard Gomes	Rsvya T N

Van Mahotsav (July 1)

Awareness session was conducted in the butterfly park for visitors on common host plants and nectar plants which they can grow at home to make their garden wildlife friendly as well as support the different stages of a butterfly life cycle by planting common species such as curry leaf and citrus.



Bannerghatta Biological Park
 1d · 🌐

Happy World Crocodile Daytest your knowledge through this quiz



docs.google.com
Bannerghatta Biological Park Crocodile Quiz!

Bannerghatta Biological Park Crocodile
 Questions Responses 204 5(Total points: 10)



World Environment Day (June 5)



Along the theme "Beat Plastic Pollution" stalls and games were organized on topics such as waste segregation, ring game to identifying single use and reusable items, musical chairs with waste material and skit on ill effects of plastics, in association with Circular Waste Solutions and Saahas. A wildlife rally, awareness program through skit, signature campaign and planting with 320 Students from Sree Sai Sadhbhavana and BGS National Public School. Also, students and staff from ISBR Law College donated education material for some of our staff children and had an interaction about Wildlife Law and Conservation with our Executive Director. Students and staff from Sri Venkateshwara First Grade College and BBP staff, planted around 40 butterfly host plant saplings in the parking and host plant garden area. Plastic Bottle crushing machine was installed by Coco Cola where the crushed bottles will be collected by them to make items such as t shirts, shoes, etc. In continuation, Outreach Awareness Session was conducted on nature and wildlife conservation with Ishrae Foundation, Bangalore Chapter in GLPS Sampigehalli. Also, a Presentation on Climate Change was organized for Bannerghatta Zoo Staff.





World Snake Day (July 16)

World Snake Day celebration was conducted in association with Bannerghatta National Park. The inauguration was conducted by our Executive Director amidst other officials, staff, students and zoo visitors. This was followed by a presentation by Mr. Vivek Urs, Wildlife Conservationist on snake behavior, biology, identification and snake bite management along with an interactive quiz throughout the session. The students were also taken on a snake park guided walk and an educative talk was conducted for zoo visitors along the same lines with a clay model of snake created by our elephant kavadis to make the session more insightful especially into unique facts and adaptation of snake along with an on-spot quiz. An immersive experience was created to public and school children through snake quiz, species crossword and solving snake theme puzzles which were part of the escape room.



International Tiger Day (July 29)

Various activities were conducted to create awareness about these endangered big cats. Awareness session on tiger conservation for Government High School, Srirampura and volunteers from WWF India. Painting, short story and poster competition was organized for school and college students and over 120 entries were received for the competitions. Food enrichment was given to the zoo tigers Anushka and Mithun and a Biologist Talk was attended by Students from SOS Children Village along with various Lion Clubs. An on-spot drawing competition, silent march was conducted in the zoo premises. Conservation selfie boards were installed to create further awareness and outreach in schools on tiger conservation was conducted by our Zoo club members.



Tiger Day
Poster
Competition Winners

1st : Kcerthana S
Blooming Flower School

2nd : Niranjana P
Om Sai Vidya Mandir

3rd : Bhoomika
Sri Marudhi Proudashale

4th : Harinitha S
Endeavour Academy

Tiger Day
Short Story
Competition
Winners

1st : Dia Rajeev
Sherwood High

2nd : Sinchana N
Om Sai Vidya Mandir

3rd : Gaargi Singh
Sherwood High

TIGER DAY
PAINTING COMPETITION WINNERS

Category 2: Role of Tigers in the Ecosystem

1st : Banu Priya S, Blooming Flower School
2nd : Sai Bobby, Dayananda Sagar Business Academy
3rd : Shashwathi K, Sri Sai Sadhabhavana School

TIGER DAY
PAINTING COMPETITION WINNERS

Category 1: Conserving Tiger & its Habitat

1st : Siddantha, Endeavour Academy
2nd : Tushitha S M, Sri Sai Sadhabhavana School
3rd : Md. Sofyan, Raintree School, Jayanagar
4th : Schar Farhana, Raintree School, Mysore Road

World Lion Day (August 10)

Awareness session for zoo visitors on lion adaptations, behaviour, threats and need to conserve them was conducted by our intern and students from Gubbachi foundation participated in lion nature art competition by making a lion out of leaves, twigs and stones which they found around the zoo.



World Elephant Day (August 12)

Our elephants were provided with various forms of enrichment such as scatter feed of ground nuts, tube feeding, hanging feeders as well as scratch posts to enhance their natural behaviour which visitors could observe. Along with the enrichment, awareness session for zoo visitors on elephant species and sub species, behaviour, biology, ecological significance, threats and conservation initiatives was conducted and Elephant craft was also done by visitors using paper which they could take back home as a memento



International Vulture Awareness Day (September 2)

Outreach awareness was conducted in local schools, GLPS Sampigehalli, Shree Sai Sadhbhaavana School and Shree Champakadhama High School for over 300 students. The session included conservation movie on vultures in kannada along with a presentation and discussion with the students about vulture biology, behaviour and adaptations. The threats they face and conservation efforts to revive the species as well as support from the local community were shared with the students to conserve these lesser known ecologically significant species. The students also took the wildlife pledge to enhance their fundamental duty as per article 51A of the Constitution of India.



World Tourism Day (September 27)

World Tourism Day was celebrated in collaboration with the Department of Tourism. A cleanliness drive was organized by the staff of the Tourism Department at the Bannerghatta Biological Park along with a street play, learning exhibition of decorative art made of leaves and other natural waste material was organized for school children. In addition, about 250 students and teachers from Ponnappa Park and Chamarajpet Government Schools under BBMP and Bannerghatta Government Higher Primary School participated in this program.



Swachhata Hi Sewa (October 1)

All India “Swachhata Hi Sewa” campaign through clean up drives to support the theme of Garbage Free India was also conducted on 1st October at Bannerghatta Biological Park along with NSS volunteers from AMC Engineering College



Pet Day (February 23)

Outreach awareness was conducted at Endeavour Academy on the occasion of Pet Day. Responsible pet ownership along with understanding the behaviour of their pets and maintaining their health were discussed. The negative impact pets would have on wildlife, the ecosystem and food web as invasive species, was also discussed and ways to prevent spread of zoonotic diseases. The students also took the wildlife pledge to reinforce their fundamental duty as per Article 51(A) of the Constitution of India to have compassion for living organisms as well as to protect natural environment.



Hippo Day (February 15)

Hippos were provided with summer enrichment such as watermelons, muskmelons and an assortment of green leaves. Our volunteers conducted interactive awareness session about these mega herbivores and unique facts as well as their conservation significance was shared with zoo visitors.



World Wildlife Day (March 3)

Along the theme: "Connecting People and Planet: Exploring Digital Innovation in Wildlife Conservation", Awareness session was conducted by our Volunteers for Zoo Visitors through an interactive touch table to highlight trends in use of technology in Wildlife Conservation such as Camera traps, biodiversity documentation apps to promote citizen science as well as an online quiz. Winners received our educational Augmented reality postcards and visitors also had the opportunity to purchase vermi compost which was created from wet waste such as leaf litter and elephant dung from the park.

Activities conducted by Bannerghatta Bear Rescue Centre

- Art competition at Shyendra Doddi Government school
- One Week Internship for Veterinary Students from Mumbai Veterinary
- Educational talk about Dancing Bear Project for students From Valustus international School
- Volunteers from Atlassian helping with upkeep of the centre and enrichment



Outreach Awareness for Youth Club students at Mysuru Zoo

An interactive session on urban wildlife, their behaviour and ways to coexist was conducted at Mysuru Zoo for members of Youth Club. The students got an insight into in-situ and ex-situ conservation practices at Bannerughatta Biological Park, ways they could have an impact on conserving wildlife and this was reinforced through the wildlife pledge



2. Touch Table

Touch tables are conducted with our Zoo Volunteers and interns on a regular basis to create awareness for Zoo Visitors on various topics to make their Zoo visit educational, such as :

- Animal identification and adaptations for Asian and African Elephant; Leopard, Jaguar and Cheetah; Macaque and Langur; Tortoise and Turtle; Deer and Antelope.
- Big cats foot print and stripe pattern identification.
- Deer species identification: physical differences and faecal samples
- Foot print identification with POP castings & body pattern identification of various species
- Ecological significance of Monkeys and their adaptations
- On spot quiz, drawing competition
- Big 4 snakes identification along with snake bite mitigation and first aid.
- Snake behaviour and biology.
- Demo of upscaling waste products as well as waste segregation game



3. Summer Camp

Three day summer camp was held in 3 batches for students between 10 to 18 years and a total of 167 students attended the camp

Day 1:

- Pre survey to understand their prior knowledge on wildlife and nature as well as to gather their expectations from the camp.
- Self introduction of members
- Zoo treasure hunt by identifying the animals based on the clues provided. The students were given topics such as Primates, Big Cats, Snakes, Turtles, Flightless birds and Pheasants, based on which they gathered information and created a poster for education.

Day 2:

- Nature walk to identify local flora and fauna.
- Visit to animal kitchen and discussion about nutrition requirement of various species housed in the zoo.
- A talk about enrichment and display of a few enrichment devices for the members to further create designs of enrichment.
- Preparation of kusre for zoo elephants
- Interaction with veterinary team
- Education session was conducted for zoo visitors by members

Day 3:

- Guided tour of Safari
- Visit to Butterfly Park
- Convocation





4. Zoo Club

A 15 week awareness program, conducted on Sundays for 60 students between the age of 10 to 18 years, from 10 am to 1 pm, with the aim of training them as Junior Wildlife Ambassadors . Different topics related to conservation of nature and wildlife management are organised with in-house and guest resource persons to inspire the Zoo Club members to have compassion for all living creatures and to create a sense of empathy and passion towards protection and conservation of biodiversity.

Sessions included:

- Zoo Club introduction & ice breaker
- Zoo Animals Introduction
- Animal Adaptations
- Identifying local Biodiversity
- Butterfly behaviour and biology
- Animal Behaviour observations
- Communication & Presentation
- “Make your Zoo”
- Enrichment
- Rescue and Rehabilitation
- Animal Care and Management
- Animal Nutrition
- Safari Visit
- Enrichment making
- Presentation by Zoo Club members
- Safari guided tour
- Nature Walk
- Convocation



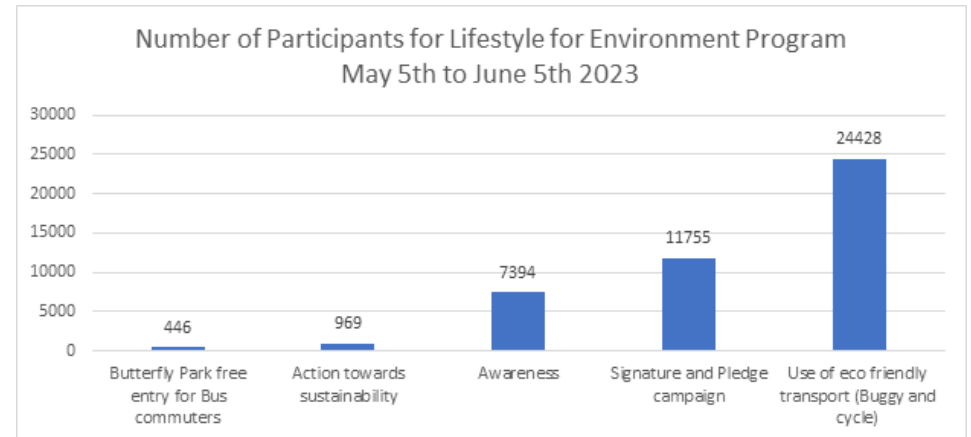
5. Mission LiFE

Lifestyle for Environment (Mission LiFE) is an India-led global mass movement to nudge individuals and community action to protect and preserve the environment. In the Phase 1, the aim is to “Change in Demand” by encouraging a sustainable lifestyle to deal with climate change, 75 actions were recommended which every individual can adopt in his daily life under seven different themes

- 1) Save water
- 2) Save energy
- 3) Reduce waste
- 4) Say no to single use plastics
- 5) Adopt sustainable food practices
- 6) Adopt healthy lifestyle
- 7) Reduce e waste



Accordingly various activities, awareness programs were conducted to support Mission LiFE along with highlighting the sustainable practices already in place. Summary of the outreach of the month long program is as below with total participation of 44992 individuals:



Some of the activities conducted are:

Free Entry to Butterfly Park on Mondays

To encourage visitors to use public transport as an initiative to reduce Air Pollution and to Save Energy, visitors who used public transport of BMTC and KSRTC buses were provided free entry to Butterfly Park on Mondays, for five weeks. A total of 446 visitors availed free entry.

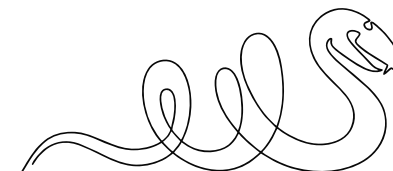
Awareness Session

- An interactive education session was conducted for visitors of all age groups on few ways as to how we could alter our lifestyle for environment was explained and a game on waste segregation was conducted so that visitors could get hands on experience.
- Awareness session by Range Forest Officers on Lifestyle for Environment for staff, to contribute towards the LIFE goals and to spread the message to visitors
- Awareness session on LiFE conducted in association with Pollution Board staff for zoo visitors and staff
- Awareness session was conducted on Illegal Wildlife Trade and threat to wildlife along the theme of "Adopt healthy lifestyle". Also a signature campaign was initiated for visitors to take a pledge to adopt environmentally friendly habits
- Awareness session based on Best Out Of Waste where items created from plastic bottles, cardboard boxes, hand-made paper with seeds and old ice cream sticks were displayed to the public so that they can implement the same with the dry waste which is generated at their homes.
- Endangered Species Day online quiz
- Awareness session and drawing for students from Ammana Madidilu Orphanage where they took a pledge to adopt lifestyle for environment
- Circular Waste Solutions Awareness on waste segregation and musical chairs game, ring game to select single use plastics, memory game to identify single use and reusable items as well as skit on negative impact of plastic
- Awareness For Law Students from ISBR Law College on Environment and Wildlife Law
- Skit on harmful effects of plastic and Wildlife Rally by students of Shree Sai Sadhbavana School
- Outreach Awareness Session by Bannerghatta Zoo's Deputy Director at Loyola PU College, Bangalore



Action towards sustainability

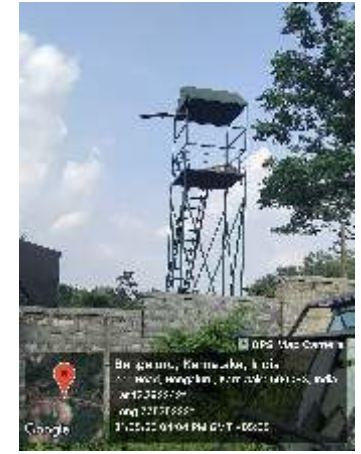
- Plastic drive and planting of butterfly host plant by volunteer.
- As part of the Lifestyle For Environment Campaign, 60 Staff participated in a plastic clean up drive
- Due to heavy rains and winds, a few tree branches fell. One of the species was crocodile bark tree which is a palatable species hence this was provided to deer species housed in the zoo as browse enrichment
- Adopted sustainable food systems by fodder harvesting in Rescue Center by staff for herbivores in zoo and safari sections
- Plants grown by staff in old jars and cans in Rescue Centre
- Vermicomposting using leaf litter and elephant dung
- Rain Water Harvesting through bore well recharge, installation of water meter and through Roof Top Rain Water Harvesting in existing infrastructure by ICICI Foundation
- Harvesting Solar Energy for street lights to prevent Human Animal Conflict
- Up-skilling of staff family to reuse old saree's to make dresses
- Installation of plastic bottle crushing unit
- Using rechargeable batteries for camera trapping
- Planting by students from Sri Venkateshwara First Grade College in Bannerughatta zoo
- Planting of nerium saplings, which is a host plant for butterflies by BBP staff



- Signature campaign



- Pledge



- Audit of Battery Operated Vehicle usage



- Audit of Cycle usage



6. Awareness for Academic Institutions and Companies visiting the park

Tailor-made awareness session is conducted for academic institutions visiting from within and outside Karnataka, including Tamil Nadu & Maharashtra to bridge the gap between their theoretical knowledge and practical experience of learning about nature and wildlife during their visit at the zoo.



Eco Activities by Donors and specialized interaction

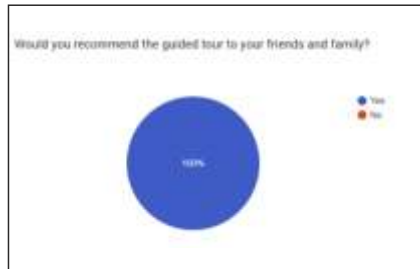
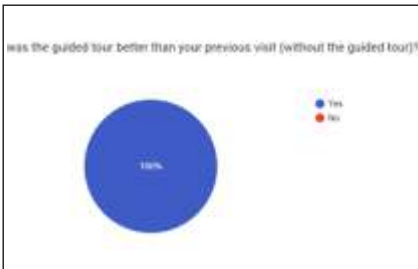
Various organizations support green initiatives at the park through planting, plastic drive and animal adoption, a specialized session on awareness is organised for our donors to give them an insight into the management and conservation at Bannerughatta Biological Park as well as ways they can contribute towards conservation.

- Plastic Clean up drive
- Planting of Host Plant in Butterfly Park
- Visit to Animal Feeding Unit to explain feeding process
- Interaction with Executive Director



7. Specialized Guided Tour:

A specialized guided tour was organised for visitors to Bannerughatta Biological Park during Christmas Holidays from 23rd December 2023 to 1st January 2024. This included a guided tour by a specialized Educator, for a group of maximum 18 persons per slot, of the Zoo, Safari and Butterfly Park. Two slots were conducted per day and a total of 155 people availed this opportunity to gain an insight into the lives of the resident animals of the Zoo, Safari and Butterfly Park. Animal biology, behaviour, feeding habits, adaptations, their management was explained along with highlighting the role of Zoos in Conservation. Visitors got a sneak peak at the new borns such as Elephant Calf, Zebra Foal, Hanuman Langur baby; visit to the elephant kitchen and release of butterflies in the dome area of the butterfly park were some of the highlights of the guided tour.



8. Chinnara Mrugalaya Darshana

This is a day long sponsored educational visit for Government School Children and Under-privileged children to the Zoo and Butterfly Park along with lunch at Hill View Restaurant. Over 13,000 students and staff from around 200 schools and institutes have benefitted from this program since its launch in November 2017. From 01/04/2023 until 31/03/2024, 4103 students and staff from 55 schools and organizations visited Bannerughatta Biological Park as part of Chinnara Mrugalaya Darshana.

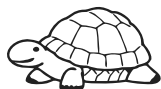


9. Wildlife Week

Wildlife Week 2023 was celebrated from 2nd to 8th October along the theme "Partnerships for Wildlife Conservation". As a way to connect citizens to nature and urban wildlife, Guided Nature Walk was organised with experts from the field who shared the importance of how our ecosystem functions with the role of the minutest ant to the larger well known mammals as well as the role of every individual in supporting them. The week long program was launched by our Chief Guest, Sri Vasu Dixit, Renowned Musician, Composer and Filmmaker and Sri. K Ranjith Kumar, IPoS, SSPOs Bengaluru East Division, Department of Posts and Sri Surya Sen, IFS Deputy Conservator of Forests & Executive Director, Bannerughatta Biological Park. To enhance the brand image of the park, a new logo was launched by the delegates along with merchandise with the zoo branding as well as Wild Blossom, the park's own vermicompost from wet waste collected from the park including elephant dung as its major component. A conservation sing along was also part of the inauguration and headed by Sri. John Devaraj and our elephant mahout's children. A week long Wildlife Art Gallery was set up with contributions from different artists showcasing their wildlife paintings, photographs as well as a philately exhibition organised in Association with India Post, Bengaluru East Division and the same was also inaugurated.

To involve public involvement in taking the conservation role of the zoo forward, a volunteer selection program was conducted to invite citizens to share their interests and ways they would support the park based on which they were selected for the Volunteer Training Program. An interactive session on urban human animal conflict was conducted by staff of WRRC followed by a snake park guided tour. In association with Arocha India, our elephant mahouts conducted an awareness session on the ecological importance of Asian Elephants. Other keeper talks included talk on the endangered Lion Tailed Macaque, Gharial and also a stall set up by Wildlife SOS to share the conservation story of sloth bears along with an informative talk by our bear keeper on Himalayan Black Bear.

October 4 is celebrated as International Zoo Keepers Day worldwide and animal keepers and mahouts from different sections of BBP were honoured for their outstanding work in animal care and management. As a token of thanks to all staff bag, t shirt were distributed as a memento.

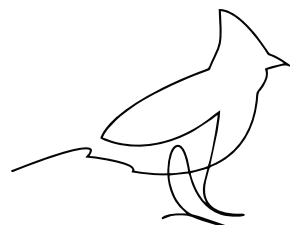


A Zoo Treasure Hunt was organised for zoo visiting citizens as a fun way to learn about the various species housed in the zoo as well as their importance through this fun task. WWF India also organised nature and wildlife games to share the message of impact of plastic on the environment and wildlife as well as how people can adopt sustainable methods in their daily life. For school, college students as well as for general public, a conservation talk on public partnership for big cat conservation was conducted by renowned Wildlife Biologist Sri. Sanjay Gubbi. An interschool quiz was conducted as part of the celebrations and included rounds such as the guess the animal sounds, animal mimicry, guess the foot print and body pattern along with questions on biodiversity conservation.

Throughout the week a butterfly park guided tour was conducted for people to learn how they could make their own gardens wildlife friendly and support the different life stages of butterflies and other lesser known insects to support their role in ecological balance and enhancement. A cheela mela was organised in association with Circular Waste Solutions and Saahas where public could get their old clothes stitched into a carry bag as an alternative for single use plastic shopping bags along with awareness stalls and games.

To enhance the zoo's capacity in research and development towards a modern, naturally immersive experience an MOU was signed between BBP and RV University's School of Design as well as Maharani Lakshmi Ammanni College for Women. This opportunity provides for knowledge exchange between BBP and the university as well as opportunity for the students to conduct internships to enhance their work based skills as well as for BBP to gain projects to help with the design aspect as well as research and education.

The Wildlife Week Convocation with Sri. Ashwini Kumar Singh, IFS, Member Secretary, Zoo Authority of Karnataka as the Chief Guest, was held to honour the contribution of different people including resource persons, winners and participants in making the program a success along with honouring health care staff from Bannerghatta Primary Health Care Centre to highlight the Partnership of citizens from all walks of life for Wildlife Conservation.





Release of BBP's Special Cover at Karnapex-2024, 13th State Level Philately Exhibition



Sri Nagendrappa, Executive Engineer - Send Off



Sri Rajanna, Account Superintendent - Send Off



Honouring Smt. Savithamma, Animal keeper



Independence Day Celebration

21 Enrichment Activities

In wild, animals are exposed to different sets of stimuli which keeps them mentally and physically active. In captivity, animal enrichment is practiced which is a crucial aspect of modern animal care, aiming to enhance the well-being of captive animals by stimulating their natural behaviors, providing mental and physical challenges and providing them an opportunity to choose and have control over their environment.

Enrichment is a continuous and routine process which plays an important role in satisfying both the physical and psychological needs of an animal by stimulating them to exhibit species-specific behaviour. Enrichments are changed periodically to avoid behavioral habituation leading to boredom and stereotypic behaviour in animals due to lack of stimuli. Animal enrichment is divided into five categories: Environmental, Food, Sensory, Cognitive and Social enrichments. Following are the enrichments carried out to enhance the life of zoo inhabitants.

Environmental Enrichment: Animal's physical habitat plays an important role in its welfare providing species appropriate challenges, opportunities and stimulation. An enriched environment mimicking their natural habitat promotes a range of normal behaviour that animals find rewarding, allowing them to respond positively to potential stressors. Periodically changing the environmental dynamics creates a novel experience for the animals in captivity and provides a positive environment for the animal to live in.

Giraffe Enclosure – Palm trees are planted inside the enclosure to create the savanna-type habitat for the species to mimic their natural habitat. Long wooden poles covered with coir rope are placed in the enclosure to provide these tallest land mammals an opportunity to scratch all parts of their body.



Ostriches are housed in one part of their enclosure as mixed species exhibit which stimulates the senses of both the species and provide them an opportunity to interact safely



Zebra Enclosure – Coir rope scratch posts are created in different parts of the enclosure to allow them to scratch every part of their body. The metal structures used for the shelters inside the enclosures were all covered with coir rope to improve the aesthetics and to act as scratch posts.



Ostrich Enclosure – Thatched shelter is created inside the enclosure to provide an opportunity for the birds to choose during extreme weather conditions. A shallow depression with soft substrate such as sand is created to aid sand bath for the birds to keep their feathers clean and provide a nesting site for the females to lay eggs and incubate during breeding season. Shallow water pond is created to provide access to fresh water, as well as provide an opportunity for the birds to cool themselves during hot weather. Palm tree is planted inside the enclosure to create the natural habitat of the species in captivity.



Jackal Enclosure – Water pond is created in the enclosure for jackals using natural boulders to provide a fresh water source for the animals. This also creates a natural feature in their landscape mimicking their natural habitat and encouraging natural behaviours such as drinking, bathing and foraging. The pond also helps jackals to cool themselves during hot weather, aiding in thermoregulation.



Primate Enclosures – Water pond in primate enclosures were re-designed with appropriate depth and masked with natural boulders and logs to create a close to nature waterbody encouraging natural behavior such as drinking, foraging, swimming and playing. Boulders and logs also provide a varied textures which stimulates exploration and play, crucial for cognitive and physical development of the young individuals. The pond also provides a reliable source of water for drinking and cooling themselves during hot time of the year.



Herbivore Enclosures – Existing saplings inside the enclosure were wrapped with coir rope to prevent de-barking by deer and to be used as a scratch post to rub their body and antlers. To help herbivores in removing their loose fur, parasites and dead skin thick coir rope was wrapped on a tree and long wooden brushes with rough coir bristles were fixed on tree stumps as scratch posts to provide an opportunity for all the individuals to enhance their grooming routine. These also aids males to rub and scrape off their velvet lining from antlers helping in its maintenance.



An elevated grass feeder was created which helps in improving the deer's natural foraging behaviour while ensuring a cleaner feeding environment. Elevated feeder helps in keeping the grass off-ground, reducing the contamination from soil and faeces lowering the risk of parasitic infections. These feeders encourage movement, stretching, foraging etc. contributing to the physical fitness of the herbivore.



Bird Enclosures – Different species of canes are planted in the enclosure to increase the natural habitat and encourage their natural behaviours such as foraging, exploring and manipulating promoting physical activity. Top soil of the enclosure was replaced with red soil mixed with clay which provides access to clay for Macaws which is part of their diet in wild and helps in removing toxins in the body. Species appropriate nest boxes with wood shavings as substrate are fixed in the enclosure to promote breeding behaviour.



Star Tortoise Enclosure – Star tortoises generally feed on grass, leaves, flowers, buds and tubers in wild. Adding palatable plant species helps in improving the habitat within the enclosure along with providing foraging opportunities for the tortoises. As hibiscus leaves and flowers supplement them with required vitamins and minerals, few hibiscus saplings were planted around the enclosure to stimulate exploration, foraging, grazing and other natural behaviours. Tortoises being cold blooded animals, providing UV lamps during winters are essential for their health and well-being. UV light helps tortoises synthesize vitamin D3, which is crucial for calcium metabolism and overall health. To enhance the well-being of tortoises in captivity UV lamps were placed in the enclosures to create basking spots within the habitat providing an opportunity for these reptiles to keep themselves warm when temperature drops.



Food & Cognitive Enrichments:

Generally, animals are motivated and inclined to interact with food, hence, food-based enrichment is the most widely used enrichment in captivity to stimulate animals. Food enrichment is also defined as “the manipulation of food itself or method of presenting food.” Animals in wild forage and work for food in which they spend majority of their time of the day. To encourage zoo animals to show these natural foraging behaviours and stimulate their cognition a variety of novel food items, different feeding methods and puzzle feeders are designed and practiced regularly to prolong feeding time and making it more challenging for the animal.

Zebra – Braided fire hose browser filled with fruits and treats was suspended in the enclosure to promote exploratory and foraging behaviour and prolong their feeding session.



Grass pockets and grass balls filled with variety of fruits, vegetables and treats were scattered around the enclosure to engage zebras and stimulate their natural foraging behaviours in captivity.



Giraffe – A box puzzle feeder with openings large enough for their tongue to access the feed inside was created to mentally stimulate the Giraffe’s in captivity. Puzzle feeder filled with fruits was mounted in the enclosure to promote them to use their long pre-hensile tongue to get access to the treats inside. This challenges them to use cognition and solve problems to access the food encouraging natural foraging behaviour and mimicking natural feeding pattern.



Royal Bengal Tiger – Whole chicken was hung on trees around the enclosure to stimulate their natural hunting and foraging behaviours, providing both physical and mental exercise. Suspended meat encourages tigers to use their natural hunting skills such as stalking, pouncing and pulling, mimicking their actions in wild and stimulating their natural instincts.



Himalayan Black Bear – Bears feed on a variety of fruits and play a major role in seed dispersal and promoting survival of plant species. Jamun seasonally available within the zoo premises were scattered and suspended around the enclosure to promote exploratory behaviours in bears and allow them to utilize their sense of smell to access the fruits.



A suspended wooden log feeder stuffed with fruits and vegetables was placed in the enclosure to allow animals to work to get access to the food increasing the foraging period and feeding time.



Honey dispenser filled with honey and dried meal worms were placed in the enclosure promoting bears to use their long sticky tongue to slurp up the honey and worms from the dispenser.



Various fruits, vegetables and fish which are part of daily diet for bears were skewered on a natural vine and placed in the enclosure to stimulate the animal's senses and foraging behaviour.



Deer – Deer are natural browsers, spending a significant amount of time feeding on a variety of vegetation, including leaves, shoots, and twigs which provide essential nutrients such as vitamins, minerals, and fiber to them important for their growth, metabolism, and overall health. Tree branches were introduced in their habitat for them to browse which adds complexity and variety to their environment also allowing them to engage in natural foraging behaviours, which promotes physical activity and mental stimulation.



These tree branch browses were also used by males to wrestle with promoting their natural behaviors, physical exercise, and social interactions. This activity helps them develop and maintain muscle tone, agility, fitness and encourage social interactions among other males.



Rainbow Lorikeets – Lorikeets have brushed tongue, a unique adaptation allowing them to feed efficiently on nectar and pollen which is their primary source of nutrition. To promote their natural foraging behaviour, Eucalyptus tree branches with flowers were placed in the enclosure to mimic their wild environment in captivity. Feeding on Eucalyptus flowers allows them to engage in instinctual behaviours like probing and extracting nectar which stimulates them and promotes to exhibit natural feeding behaviours.



Star Tortoise – Tortoises naturally graze on a variety of plants and flowers in the wild and to imitate the same in captivity hibiscus flowers were scattered inside the enclosure occasionally to promote them to exhibit this natural foraging behaviour in captivity.



Skewered rose petals were suspended in different parts of the enclosure to stimulate their sense of sight with the bright coloured flowers and promote foraging behaviour and prolong their feeding session.



Elephant – Fire hose browser ball filled with green grass and treats such as fruits, vegetables, ground nuts and sugarcane were suspended in the enclosure to encourage elephants to use their trunk to manipulate the feeder and get access to the food using their cognition.



Pipe filled with treats including fruits, jaggery, ground nut and sugarcane was placed in the enclosure to encourage these gentle giants to use their trunk and pick up the small portion of treats which prolongs their feeding session keeping them busy for longer duration and promotes them to utilize the prehensile fingers at the tip of their trunk.

Lion-tailed Macaque – Macaques are generally omnivore in nature opportunistically feeding on plant and animal matter whenever available. To imitate the same feeding regime locally harvested fresh honeycomb with larvae was given to the macaques to forage and feast on larvae and honey.



Indian Grey Wolf – Grass pockets filled with small quantities of meat was scattered around the enclosure to stimulate wolf's sense of sight and smell. Animals were observed exhibiting scent roll and nibbling on the meat tearing the grass apart promoting their exploratory behaviour.



Hippopotamus – Different types of greens and seasonal summer fruits were scattered around the enclosure to promote their natural foraging and grazing behaviour.



Theme based Enrichment:

Distinct way of presenting food to animals by following a theme or on special days.

Zebra Birthday – On the occasion of our oldest foal Harishchandra's 4th birthday a multi layered cake made of green grass with hidden fruits and vegetables as treats were presented to the herd as a novel enrichment to stimulate their curiosity, exploratory and foraging behaviour.



Elephant Birthday – On the occasion of Elephant Om Ganga’s 1st birthday, a cake made of rice with jaggery and coconut along with treats such as watermelon, carrot, banana, corn and sugarcane were presented to the herd. This encourages their exploratory behaviour promoting physical activity including using their trunk to manipulate and explore the cake, foraging and problem-solving behaviour as they interact with different layers and treats.



Tiger Birthday – On the occasion of Tigress Anushka’s 10th birthday, a meat cake was presented to the animal to promote natural behaviours, provide sensory and mental stimulation, encouraging natural instincts of hunting and foraging behaviours as the tiger explore and feed on the cake.



Summer Management:

Animals in wild have an opportunity to escape from extreme temperatures by behavioural adaptations, whereas in captivity seasonal changes in their environment and diet are practiced for better upkeep of animals during summer. Sprinklers are installed in animal enclosures which provides a cooling mist or spray water during hot weather, helping animals maintain optimal body temperatures by cooling themselves under the water and/ or reducing heat stress by lowering the ambient temperature of the enclosure.

Zebra Enclosure



Giraffe Enclosure



Royal Bengal Tiger Enclosure



Sangai/Thamin Deer Enclosure – Mud wallows are created in the enclosure for Thamin deerto mimic their natural habitat and fulfil their physical and behavioural needs. Mud wallows offer a natural way for them to cool down during hot weather by covering themselves in mud which reduces their body temperature through evaporative cooling.



Bird Enclosures – Shallow water troughs filled with fresh water are made available to all species of birds to bathe and splash around, which helps them to regulate their body temperature, reduce heat stress and discomfort allowing birds to stay cool and comfortable during extreme temperature.



Emu Enclosure - Water puddle was created in the enclosure to promote their natural behaviour of bathing and splashing to regulate their body temperature in hot climates which helps in reducing heat stress and discomfort. Bathing also helps them in keeping their feathers clean and in good condition.



Himalayan Black Bear – Ice block filled with fruits and treats were provided as a refreshing and cooling sensation for bears during hot weather. The bears can lick, chew or lie next to the ice to regulate their body temperature and stay comfortable. In wild, bears engage in digging, pawing and manipulating objects which can be imitated in captivity with ice blocks which encourages similar behaviors of interacting and manipulating the ice to access the treats frozen inside.



Tender coconuts were given to bears during extreme temperatures, which are rich in electrolytes and helps in replenishing body fluids and maintaining hydration during hot weather. It engages bears in natural behaviour such as foraging and manipulating the coconut to access the water and refreshing soft meat inside, providing mental stimulation, promoting exploratory behaviour and physical activity



Primates – Ice popsicles and ice blocks filled with fruits, vegetables, groundnuts and seeds were provided to primates to help them regulate their body temperature during hot weather. As the ice melts, this also provides monkeys a source of water, promoting hydration during summer. Ice blocks create an opportunity for Monkeys to engage in natural foraging behaviours as they lick and manipulate the block to access the frozen treats inside promoting mental stimulation and encouraging problem-solving skills.

Rhesus Macaque



Pig tailed Macaque



Lion-tailed Macaque



Spectacled Langur



Hamadryas Baboon



Indian Giant Squirrel – Ice lollies made of fruits were suspended in the enclosure for the squirrel during hot time of the day, which enhances their welfare by keeping them cool, hydrated, and promoting their natural foraging behaviour as squirrels lick and gnaw at the ice to access the embedded treats, providing mental stimulation.



Striped Hyena – Ice block made of blood and meat was provided to Hyenas during the hot weather to help keep them cool, stimulate natural behaviours, and provide mental and physical stimulation. The ice block simulates hunting and scavenging behaviours encouraging hyenas to use their natural behaviors to lick, chew, and break the ice to access the frozen meat.



Indian Crested Porcupine – Vegetable and fruit filled ice block were provided to Porcupines to help them cool themselves and stay hydrated during hot weather. Ice block also helps in stimulating natural foraging behaviour of licking and gnawing at the ice to access the embedded treats, providing mental stimulation.



Sensory Enrichments:

In wild, animals are exposed to an ever-changing array of sensory stimuli and their senses are the important means of communication and routes to gather information about their surroundings. Sensory enrichments are practiced in captive conditions to stimulate one or more of the animal's senses to allow them to exhibit species specific behaviours.

Elephant – A coir rope scratch post was created in the enclosure which was combined with eucalyptus leaves as an effective form of sensory enrichment for elephants. Eucalyptus leaves offer a range of sensory stimuli that can enhance the well-being of these intelligent animals. The strong, distinctive aroma of Eucalyptus leaves stimulates curiosity and exploration in animals resulting in flehmen response where elephant curls its trunk into its mouth to detect and analyze the chemical signals or pheromones in their environment.



Leopard – Hessian sack stuffed with green grass and prey species (Spotted deer) feces was presented to leopards to promote exploratory behaviour along with stimulating visual and olfactory senses. The animals were seen stalking the sack, interacting, and manipulating it, pulling out and rolling over the grass and fecal matter. This also resulted in flehmen response by the leopards trying to understand the chemical signals present in their enclosure.



Indian Grey Wolf – Hessian sack filled with green grass and black buck feces was placed in different parts of the enclosure to promote exploratory behaviour in Wolves. The animals were seen manipulating the sack and urinating on them followed by scent roll which is used to communicate information to other pack members as their wild counterparts.



22 Research Works

	Authors	Title of paper	Journal
1	V. Manjunatha, M. Rout, B.P. Shankar, N. Vijay, K.S. Umashankar and R. Hegde	Pneumonia Caused by <i>Klebsiella pneumoniae</i> in a Pig-tailed Macaque (<i>Macaca leonina</i>)	Journal of Immunology and Immunopathology Vol. 25, No. 2, July-December, 2023: pp 132-136
2	V. Manjunatha, M. Rout, U.K. Srinivas, L.M. Kshamaa, S. Sujay, K. Sripad, S.M. Byregowda	Fatal Canine Adenovirus Type 1 Infection in Dhole (<i>Cuon alpinus</i>) Pups	https://arccjournals.com/journal/indian-journal-of-animal-research/B-5164..
3	V. Manjunatha, M. Rout, B.P. Shankar, V. Sreevatsava, K.S. Uma Shankar, K. Sripad and M.D. Venkatesha	Report of <i>Camallanus trispinosus</i> infestation in a captive indian startortoise (<i>Geochelone elegans</i>)	Indian J. Vet. Pathol., 47(3) : 265-268, 2023: DOI: 10.5958/0973-970X.2023.00047
4	Amala M Anil & Suresh I	Kraal to Corral: Evolution of elephant management	Cheetal: Journal of the Wildlife Preservation Society of India, Dehradun Vol 61 No.1(2024), November-2023 to April - 2024, Page No.34-43

Internships

Internship opportunities are provided to students from different fields to enhance their work based skills.

Harshitha, a Pre University Student wanted to peruse a career in the field of social service. She was provided an opportunity to enhance her communication and observation skills at Bannerughatta Biological Park for a period of a period of two months before the start of her higher education. She was involved in observing the different species housed in the zoo as well as conducting educational talks for zoo visitors along the theme of Lifestyle for Environment. With the knowledge she gained by observing zoo animals, she conducted activities such as quiz and games during Summer Camp for the members.

Damini Halai, studying BSc (Hons) Zoology at Nottingham Trent University in the UK, attended a placement to enhance her work based skills which would help her with a career with wildlife. She conducted non-invasive behavioural studies on Hippopotamus and Royal Bengal Tigers housed in the zoo to assess their activity budget and behavioural repertoire to provide suggestions for suitable enrichment to enhance their behaviour and welfare. She also conducted guided tours of the park for students from different grades who visited the park. To further enhance her communication skills, her study on animals included keeper interviews. Additionally, she planned and implemented various activities for Lion Day, Elephant Day and Wolf Day as means to create awareness through innovative methods such as animal theme crafts, crosswords, quiz and movie screening along with touch tables.

Vishesh Purswani and Anshul Bartwal persuing Postgraduate Diploma in Forestry Management from Indian Institute of Forest Management , Bhopal were provided a two month internship at Bannerughatta Biological Park with the aim of Developing a marketing strategy. The initiative started with understanding visitor perspective through surveys to get an insight into customer behaviour to find ways to enhance their experience as well as proposals provided for specialised zoo theme merchandising. A Corporate Social Responsibility plan was formulated to enhance ways to gain support of companies for zoo projects, through CSR funding. Detailed research was also done on evaluation of the social media presence of the park as well as a proposal to enhance its outreach along the current trends.



Student Research Projects at Bannerughatta Biological Park

As per the MoU signed between Bannerughatta Biological Park and Maharani Lakshmi Ammanni College for Women(mLAC), non-invasive research opportunity for 3rd year BSc Students from mLAC was provided to enhance their skills through two student projects to provide an insight into the human-keeper relationship and enclosure utilization to enhance management practices at BBP.

Project 1:

A peek into Mahout Elephant Relationship at Bannerughatta Biological Park

Students : Nithya B A, Pranathi C, Kusuma S & Vanishree C

Professor In Charge(mLAC) : Ms. Bhavya B, Assistant Professor

Guide in BBP : Ms. Amala M Anil, Education Officer

Strong impacts on animal wellbeing in zoos can result from the relationships between animals and the people who look after them. The positive attitude of caretakers has a great effect on the lifestyle, livelihood and behaviours of captive elephants. In this study, the behavioural differences in elephants were examined based on the training and attitudes of caretakers [Mahouts] towards the elephants in Bannerughatta Biological Park. This included 5 elephants, age ranging between 2 – 8 years and their mahouts for each elephant respectively. Survey and rating the elephants' behaviour on mahouts' point of view was the method used and this further helped in analysing the personality, bondage and other traits of the elephants.

The survey and rating were relied on Q & A format which included a total of 44 descriptive and 25 questions with options of agree, disagree and undecided which were related to general knowledge and view of elephants, desirable and undesirable qualities of elephants, opinions regarding individual difference among elephants, diverse impressions of what elephants think of them, functioning of elephants as a social group, behaviour, personality, human-elephant interaction, enclosure, welfare and mahout stories.

This study resulted in understanding the knowledge and understanding of Mahouts about their respective elephants as well as how the positive bond between the mahout and elephant is vital in maintaining good standards of animal welfare as they recognize stimuli which is perceived as positive or negative and how mahouts are making an effort to enhance their elephant's life in captivity.



Project 2:

Enclosure Utilization And Animal Activity Budget Of Blackbuck In Captivity In Bannerughatta Biological Park

Students : Bhavana C, Haleema Thahaniya, Haripriya SM, Lavanya G & Umme Arbiya A

Professor In Charge(mLAC) : Ms. Bhavya B, Assistant Professor
Guide in BBP : Ms. Amala M Anil, Education Officer

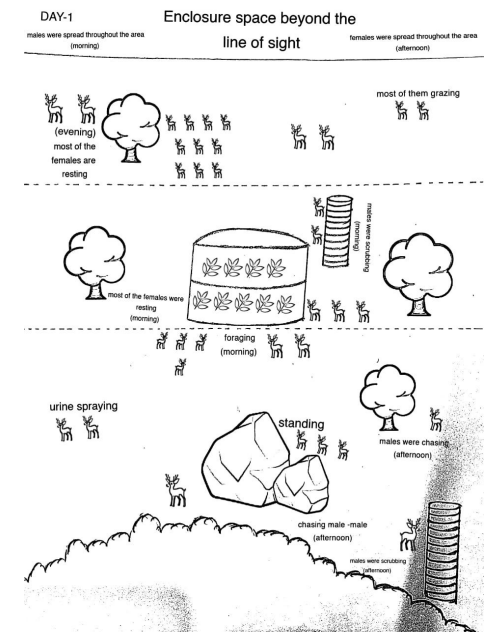
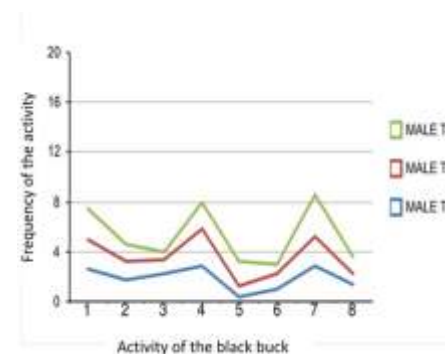
Blackbuck (*Antelope cervicapra*) is a prominent species of the family Bovidae that is often maintained in captivity for conservation and educational purposes. The study aimed to determine the proportion of time spent by blackbuck on various activities (animal activity budget) including feeding and drinking, resting and ruminating, chasing, rubbing and enclosure utility of blackbucks in an authoritative and captive environment.

Data collected for this study was based on observations made on a population of blackbuck housed in a well-designed enclosure in the Bannerughatta Biological Park. The results obtained made it evident that the captive black bucks exhibited prominent activity patterns, which, while different from their wild counterparts, were influenced by enclosure design, environmental enrichment, and feeding schedules. Enclosure utility was assessed by observing animal movement, habitat utilization and the impact of enclosure features on their welfare.

Understanding the activity budget and enclosure utility of blackbuck in captivity is crucial for improving their care and well-being, as well as for enhancing visitor experiences at zoological parks. This study provides insights into the captive supervision of blackbuck, emphasizing the importance of creating environments that cater to their natural behaviors, thereby promoting their conservation and overall well-being.

The study gave an insight into the blackbuck's dispersion across the enclosure, at different times of the day and in different weathers as well as the difference in behavior in the same situations between males and females. Preference for particular locations were identified and there were no obvious signs of undesirable behavior. Among the captive blackbucks' behaviors, feeding and foraging, resting and ruminating and standing seem to be the most significant ones.

Blackbucks usually graze grasses and other vegetation in their enclosure for extended periods of time. They scattered around with increased availability of fodder. They also require an adequate amount of space inside the enclosure to relax and take cover from the sunny weather. This can include places with vegetation cover and shade. They used to spend a lot of time resting in the afternoon under the trees, but in the evening and on bright days, they were more active, running around the enclosure and making use of every available space. Based on these results, relevant enrichment can be provided to further widen the behavioral repertoire of captive blackbucks.



23 Conservation Breeding Programme of the Zoo

Currently, Bannerghatta Biological Park is selected as the participating zoo for King Cobra Conservation Breeding by Central Zoo Authority. Further, we are initiating a Vulture Conservation Breeding Centre for Long-billed Vulture and White-backed Vulture at Bannerghatta National Park which is a satellite centre of Bannerghatta Biological Park.

Introduction:

Nine species of vultures are recorded in India out of which five species belong to the genus *Gyps*. Three *Gyps* vultures, namely Oriental White-backed Vulture (OWBV), Long-billed Vulture (LBV) and Slender-billed Vulture (SBV) are residents, and the remaining two, Eurasian Griffon and Himalayan Griffon are largely wintering species, a small population breeding in the Himalayas. The population of resident *Gyps* vultures in the Indian subcontinent crashed since 1990's. The populations of OWBV and LBV have declined by more than 92% between 1993 and 2000. By the year 2007 the population had declined by 99.9 % for OWBV and by 97% for LBV and SBV.

Due to mass decline in vulture numbers, all the three resident *Gyps* spp. in India are listed as "Critically Endangered" by the IUCN and are in Schedule I of the Indian Wildlife Protection Act (1972). The veterinary use of the non-steroidal anti-inflammatory drug (NSAID) - diclofenac in livestock is the main cause of this decline in the vulture species population

The establishment of a long-term Conservation Breeding Program is the only possible way to save these vulture species from extinction which aims to reintroduce the captive bred birds to the wild to play their ecological role in the environment. So far three conservation breeding centres have been set up for Vulture breeding across the country and setting up one centre in Karnataka will help in conservation of these critically endangered raptors in southern India on the west coast

Karnataka has a small population of Long-billed Vultures observed at Sri Ramdevara Betta, Ramanagara and Oriental White-backed Vultures are observed in the Sigur Plateau of Nilgiri hills. An area of 346.41 Ha at Sri Ramdevara Betta, Ramanagara is earmarked as protected area and is declared as Vulture Sanctuary in 2012 to emphasis on conserving these scavengers which play an integral part of the ecosystem.

As per the pre-requisites mentioned for the site selection to build Conservation Breeding Center for Vultures, 5 acres of geographically suitable land fulfilling all the requirements was finalised to establish Vulture Conservation Breeding Center at Bannerghatta National Park (BNP) after obtaining expert opinion on the location. This conservation breeding centre at BNP will be operated as a satellite centre of Bannerghatta Biological Park (BBP) and first to be established in south western India. Vulture Breeding Center at Bannerghatta aims to breed Long-billed Vulture and Oriental White backed Vulture and release them in their natural habitat in parts of Southern India

The Vulture Conservation Breeding Centre is built in a sparsely distributed tree habitat in Bannerghatta National Park premises away from human habitation within the distribution range of the species but relatively vulture free. It is 5 km away from Bannerghatta Biological Park where captive bird populations are held. This main centre location is easily accessible with easy access to water, electricity, and telephone connections due to the location being close to metropolitan city Bengaluru

Infrastructure built at the facility

Aviary section: Different types of aviaries are built as per the requirement at the center

Nursery Aviary: This aviary is designed to provide a natural nest-like environment to rear nestlings which hatch artificially at the centre or brought from wild till they fledge. This unit is divided into 8 aviary rooms 4 on each side of the corridor with a total capacity to house 32 nestlings at a time housing 2 to 4 nestlings/room



Holding Aviary: Two units of such aviary is built to hold 2 pairs of nestlings after they fledge from the nests/ nesting aviary. This aviary is built large enough to allow nestlings to do wing exercise and learn flying. They are equipped with CCTV cameras to observe vulture behaviour



Colony Aviary: Two units of colony aviary is built at the center to house sub-adult and adult birds after they spend about two years in holding aviaries. This aviary is large enough for the birds to perform wing exercises by flying from one end to another and to feed communally on carcasses, exactly as they do in wild. The colony aviaries are equipped with CCTV cameras for round-the-clock observation of vultures. Nest ledges and nesting materials are placed in this aviary to promote breeding.



Hospital Section: A well-equipped veterinary facility is created for the upkeep of vultures in the center.

Hospital Aviary : A small sized hospital aviary is constructed to house sick and injured birds which can facilitate frequent capturing required for veterinary reasons. This aviary is constructed close to the lab/hospital having adequate electricity and water supply.

Haematology Room : A well-equipped room is constructed to carry out routine haematology on vulture blood.

Freezer Room : A room is constructed to facilitate – 20°C freezers to store important vulture tissue samples.

Recovery Aviary : This aviary is built to house birds which can be shifted after recovery in the critical care room.



Hospital Aviary

Freezer & Haematology Room

Recovery Aviary

Clinical Room : This room is constructed to be equipped with required machines for basic disease diagnostics and surgery at the centre.

Critical Care Room : A thermo-controlled place with critical care boxes to house birds after surgery or while recovering from serious illness is facilitated at the center. Birds in the critical care boxes can be monitored from the adjacent clinical room through a one-way glass observation window on the wall between the two rooms.

CCTV Monitoring Room : This room is constructed to carry out round the clock observations on bird's behaviour at the colony aviary and holding aviary

Food Section: Vultures will be fed on freshly slaughtered goat which are to be housed at the center for minimum 10 days before slaughtering to ensure no diclofenac content in the body.

Food Processing Room : This room is used to weigh and skin goat carcass before distributing to different aviaries. The meat for the newly hatched nestlings will be prepared by chopping it down into smaller pieces and grinding the pieces in a mixer in this room.



Food Processing Room

Raised central platform

Water Supply : A borewell is dug and a Ground Level Service Reservoir (GLSR) is constructed to hold water to provide fresh water for vultures to drink, bathe and to keep the aviaries clean.

Electrical Room : Most of the centre works on solar power but for power back-up an inverter and batteries will be used. All the aviaries and passages are equipped with electrical connections as per the requirement mentioned by Central Zoo Authority.

Perimeter Fence : The entire 5 acres of land is surrounded by 5 ft chain link mesh and 5 ft solar fence along with vertical solar fence from outside to prevent trespassers, domestic animals and stray dogs entering the centre

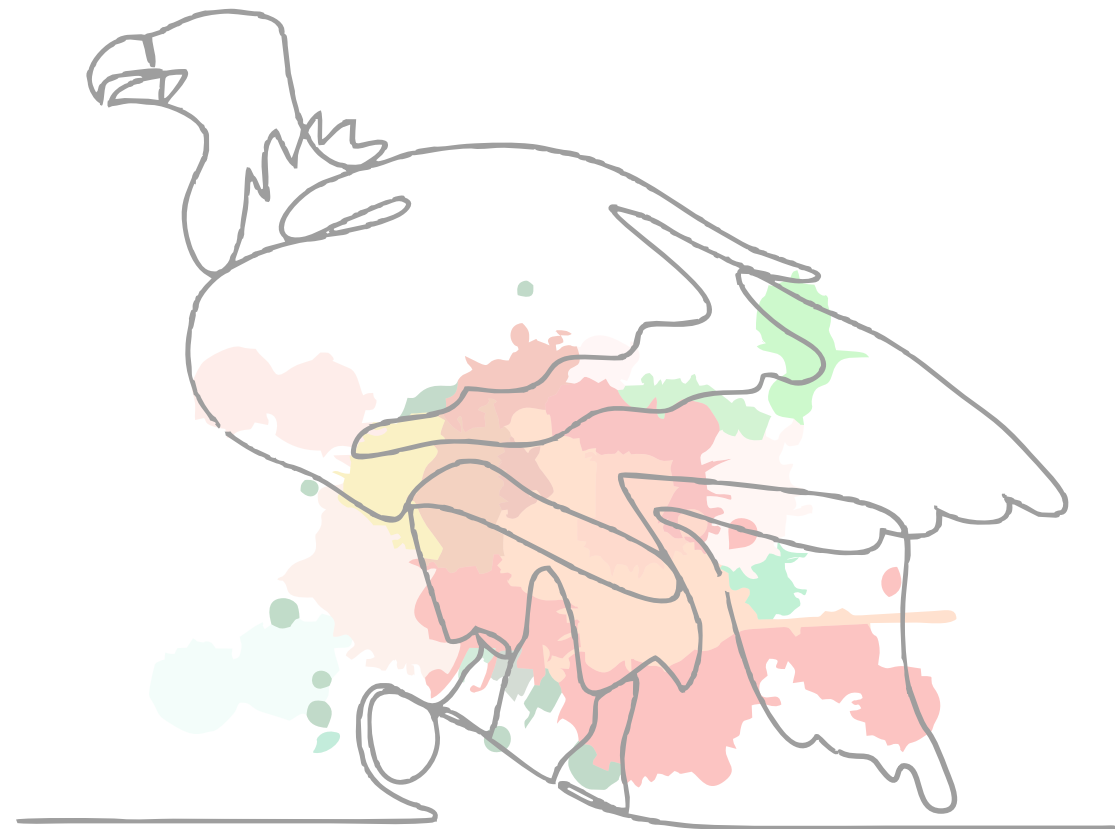


Conservation Breeding of the Vultures at the Facility

Founder stock (F1) of breeding pair of Vultures for the breeding program is planned to be acquired from Vulture Conservation Breeding Center, Pinjore. Efforts will be made to breed the pairs naturally as well as artificially using artificial incubation and double clutching to increase the nestlings per breeding season. Offsprings of F1 will be housed in the centre for minimum 2 years and will be released back to wild with few adult birds using soft release method

Release of Captive bred Vultures

Proposed release site is close to the centre and a place where wild vulture populations are found. The release site for Long-billed Vultures is proposed at Sri Ramdevera Hill Vulture Sanctuary and Sigur Plateau at Nilgiri hills for White-backed Vultures where few wild populations of these species have been observed. Pre-release aviary will be constructed in the release sites and the whole area will be fenced with chain link mesh to prevent entry of stray animals and humans.



Form – II (See Rule 11(1)) Part – A
Inventory Report for the Year 2023-24
Endangered Species #

Animals under Schedule I and Schedule II of the Wild Life (Protection) Act, 1972

INVENTORY OF SCHEDULE I AND II SPECIES (WILDLIFE PROTECTION ACT)

Total Species as on 31/03/2024

Sl.No.	Animals Name	Sch - I & II	Other Schedule	Total
1	Birds	13	26	39
2	Mammals	28	6	34
3	Reptiles	19	3	22
	Total	60	35	95

Schedule I & II - Birds

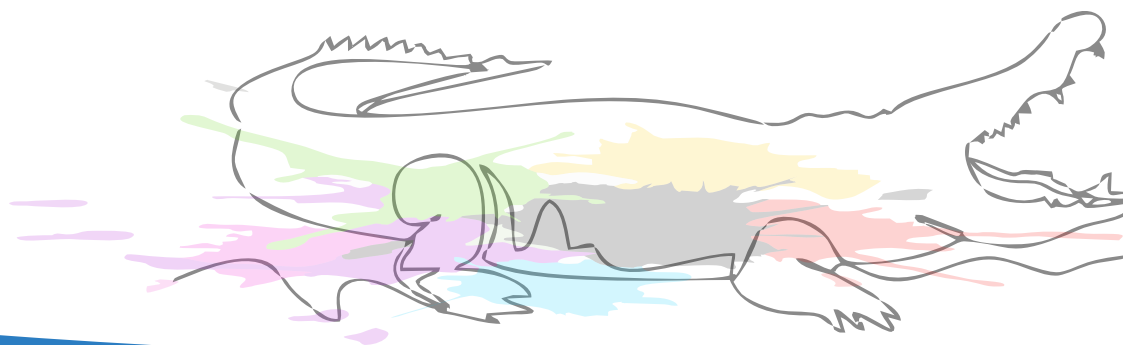
Sl. No	Name of the animal & Scientific name	Stock as on 01/04/2023				Births			Acquisitions			Disposals			Deaths			Stock as on 31/03/2024				
		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T	
1	Great Indian Hornbill - <i>Buceros bicornis</i>	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
2	Indian Peafowl - <i>Pavo cristatus</i>	2	2	0	4	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	3	
2a	Indian Peafowl (White) - <i>Pavo cristatus</i>	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	
3	Brahminy Kite - <i>Haliastur indus</i>	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
4	Grey Jungle Fowl - <i>Gallus sonneratii</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	
5	Black crowned Night Heron - <i>Nycticorax nycticorax</i>	15	30	14	59	0	0	0	0	0	0	0	0	0	0	0	0	15	30	14	59	
6	Lesser whistling Duck- <i>Dendrocygna javanica</i>	1	1	2	4	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	4	
7	Black-headed Ibis - <i>Threskiornis melanocephalus</i>	1	5	0	6	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	6	
8	Black Kite - <i>Milvus migrans</i>	0	0	3	3	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	
9	Alexandrine Parakeet - <i>Psittacula euparia</i>	2	1	0	3	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	2	
10	Rose-ring Parakeet - <i>Psittacula krameri</i>	14	2	2	18	0	0	0	0	0	0	0	0	0	2	1	0	12	2	1	15	
11	Red Jungle Fowl - <i>Gallus gallus</i>	4	3	0	7	0	0	0	0	0	0	0	0	0	0	0	0	4	3	0	7	
12	Common Quail - <i>Coturnix coturnix</i>	4	2	0	6	0	0	0	0	0	0	0	0	0	2	0	0	4	0	0	4	
13	Grey Pelican - <i>Pelecanus philippensis</i>	6	4	17	27	0	0	2	0	0	0	0	0	0	0	0	0	6	4	19	29	
14	Common Myna - <i>Acridotheres tristis</i>	0	0	3	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	2	
15	Painted Stork - <i>Mycteria leucocephala</i>	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	
	Total	52	54	42	148	0	0	2	0	0	0	0	0	4	4	4	0	48	52	38	138	

Schedule I & II - Mammals

Sl. No	Name of the animal & Scientific name	Stock as on 01/04/2023				Births			Acquisitions			Disposals			Deaths			Stock as on 31/03/2024			
		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
1	Black Buck - <i>Antelope cervicapra</i>	12	18	3	33	0	0	2	0	0	0	0	0	0	2	2	0	10	20	2	32
2	Himalayan Black Bear - <i>Ursus tibetanus</i>	2	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4
3	Sloth Bear - <i>Melursus ursinus</i>	1	3	0	4	0	0	0	1	0	0	0	0	0	0	0	0	1	4	0	5
4	Wild Dogs - <i>Cuon alpinus</i>	1	1	0	2	0	0	0	2	2	0	0	0	0	0	0	0	3	3	0	6
5	Indian Grey Wolf - <i>Canis lupus pallipes</i>	7	4	0	11	0	0	4	0	0	0	0	0	1	0	0	6	4	4	14	
6	Jackal - <i>Canis aureus indicus</i>	6	6	0	12	0	0	5	0	0	0	0	0	0	0	0	8	7	2	17	
7	Indian Leopard - <i>Panthera pardus fusca</i>	31	27	0	58	1	0	7	11	12	0	0	0	8	3	0	40	38	0	78	
8	Jungle Cat - <i>Felis chaus</i>	5	2	0	7	0	0	0	0	0	0	0	0	3	0	0	2	2	0	4	
9	Asian Palm Civet: <i>Paradoxurus hermaphroditus</i>	1	1	1	3	0	0	0	0	1	0	0	0	0	0	0	2	2	0	4	
10	Indian Hog Deer: <i>Axis porcinus</i>	2	18	5	25	0	0	3	0	0	0	0	0	1	1	0	6	17	3	26	
11	Sangai /Thamin Deer - <i>Rucervus eldii eldii</i>	8	7	3	18	0	0	3	0	0	0	0	0	5	1	0	7	6	2	15	
12	Sambar - <i>Rusa uniclour</i>	0	3	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
13	Barking Deer - <i>Muntiacus vaginalis</i>	1	5	0	6	0	0	5	0	0	0	0	0	3	1	0	4	3	7		
14	Indian Gazelle - <i>Gazella bennetti</i>	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	Indian Fox - <i>Vulpes bengalensis</i>	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
16	Striped Hyena - <i>Hyaena hyaena</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	
17	Indian grey Mongoose - <i>Urva edwardsii</i>	1	2	0	3	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	
18	Indian crested Porcupine - <i>Hystrix indica</i>	3	3	1	7	0	0	1	0	0	0	0	0	0	0	0	3	3	2	8	
19	Lion tailed Macaque - <i>Macaca silenus</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	
20	Spectacled Langur - <i>Trachypithecus phayrei</i>	2	3	0	5	0	0	0	0	0	0	0	0	0	0	0	2	3	0	5	
21	Pig tailed Macaque - <i>Macaca leonina blyth</i>	2	2	0	4	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4	
22	Indian Giant Squirrel - <i>Ratufa indica</i>	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
23	Nilgai or Blue Bull - <i>Boselaphus tragocamelus</i>	2	2	3	7	0	0	5	2	1	0	0	0	1	0	0	2	5	5	12	
24	Chital or Spotted deer - <i>Axis axis</i>	8	10	3	21	0	0	2	0	0	0	0	0	1	4	0	7	9	2	18	
25	Common or Hanuman Langur - <i>Semnopithecus entellus</i>	1	1	0	2	0	0	1	0	0	0	0	0	0	0	0	2	1	0	3	
26	Rhesus Macaque - <i>Macaca mulatta</i>	7	7	1	15	0	0	1	0	0	0	0	0	0	0	0	8	7	1	16	
	Total	107	130	20	257	1	0	39	16	16	0	1	2	0	25	13	0	117	141	26	284

Schedule I & II - Reptiles

Sl. No	Name of the animal & Scientific name	Stock as on 01/04/2023				Births			Acquisitions			Disposals			Deaths			Stock as on 31/03/2024			
		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
1	Gharial - <i>Gavialis gangeticus</i>	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4
2	Red Sand Boa - <i>Eryx johnii</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
3	Indian Cobra - <i>Naja naja</i>	9	8	3	20	0	0	0	0	0	0	0	0	2	0	0	7	8	3	18	
4	King Cobra - <i>Ophiophagus hannah</i>	2	1	1	4	0	0	0	0	0	1	0	0	0	0	0	2	1	2	5	
5	Russells Viper - <i>Vipera russelli</i>	2	2	1	5	0	0	0	0	0	0	0	0	3	0	0	0	2	0	2	
6	Rat Snake - <i>Ptyas mucosa</i>	0	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30
7	Indian Rock Python - <i>Python molurus</i>	1	1	4	6	0	0	0	0	0	0	0	0	2	1	0	0	0	3	3	
8	Indian Mud or Flapshell Turtle - <i>Lissemys punctata</i>	1	0	10	11	0	0	0	0	0	0	0	0	0	0	0	5	6	0	11	
9	Indian roofed turtle - <i>Kachuga tecta</i>	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
10	Indian Star Tortoise - <i>Geochelone elegans</i>	5	23	0	28	0	0	0	0	0	0	0	0	2	8	0	3	15	0	18	
11	Indian Tent turtle - <i>Pangshura tentoria circumdata</i>	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
12	Red crowned Roofed Turtle - <i>Batagur kachuga</i>	0	0	3	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	
13	Three Striped Roofed Turtle - <i>Batagur dhongoka</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
14	Black Spotted Pond Turtle - <i>Geoclemys hamiltonii</i>	0	18	12	30	0	0	0	0	0	0	0	0	11	10	0	0	8	1	9	
15	Batagar Terrapin or River Terrapin - <i>Batagur baska</i>	16	16	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16	Indian Black turtle - <i>Melanochelys trijuga</i>	3	3	0	6	0	0	0	0	0	0	0	0	0	0	0	19	19	0	38	
17	Tricarinate Hill Turtle- <i>Melanochelys tricarinata</i>	8	7	0	15	0	0	0	0	0	0	0	0	2	0	0	6	7	0	13	
18	Common Sand boa - <i>Gongylophis conicus</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
19	Common Krait - <i>Bungarus caeruleus</i>	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	
20	Common Wolf Snake - <i>Lycodon aulicus</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
	Total	48	84	69	201	0	0	0	0	0	1	0	0	23	19	0	45	71	44	160	



Other Schedule - Birds

Sl. No	Name of the animal & Scientific name	Stock as on 01/04/2023				Births			Acquisitions			Disposals			Deaths			Stock as on 31/03/2024					
		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T		
1	Peach faced Love Birds - <i>Agapornis roseicollis</i>	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	
2	Cockatiels - <i>Nymphicus hollandicus</i>	14	20	10	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	20	10	44
3	Budgeriger - <i>Melopsittacus undulatus</i>	19	18	10	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	18	10	47
4	Yellow Golden Pheasant - <i>Chrysolophus pictus</i>	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3
5	Emu - <i>Dromaius novaehollandiae</i>	4	2	0	6	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	1	0	5
6	Lady Amherst's Pheasant - <i>Chrysolophus amherstiae</i>	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4
7	Ostrich - <i>Struthio camelus</i>	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3
8	Black Swan - <i>Cygnus atratus</i>	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3
9	Silver Pheasant - <i>Lophura nycthemera</i>	7	3	0	10	0	0	0	0	0	0	1	1	0	2	0	0	0	0	4	2	0	6
10	Green Winged Macaws - <i>Ara chloropterus</i>	2	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4
11	Rhea - <i>Rhea americana</i>	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3
12	Orange winged Amazon Parrot - <i>Amazona amazonica</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
13	African Grey Parrot - <i>Psittacus erithacus</i>	3	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	5
14	Sun Conure - <i>Aratinga solstitialis</i>	3	3	6	12	0	0	3	0	0	0	0	0	2	2	1	0	0	0	1	2	7	10
15	Jandaya Conure - <i>Aratinga jandaya</i>	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
16a	Yellow-sided Green Cheeked Conure - <i>Phrrhura molinae</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
16b	Pineapple Conure - <i>Phrrhura molinae</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
17	Black Crowned Crane - <i>Balearica pavonina</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
18	Blue Gold Macaws - <i>Ara ararauna</i>	1	1	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	5
19	Palm Cockatoo - <i>Probosciger aterrimus</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
20	Electus Parrot - <i>Electus roratus</i>	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
21	Sulphur Crested Cockatoo - <i>Cacatua galerita</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
22	Scarlet Macaw - <i>Ara macao</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
23	Galah Parrot - <i>Eolophus roseicapilla</i>	1	2	1	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1	3
24	Rainbow Lorikeet - <i>Trichoglossus moluccanus</i>	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	5
25	Red Lory - <i>Eos bornea</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
26	Western Crowned Pigeon - <i>Goura cristata</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1
27	Zebra Finch - <i>Taeniopygia guttata</i>	0	0	25	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	25
	Total	73	65	66	204	0	0	3	0	0	0	1	1	2	8	2	0	67	63	63	193		

Other Schedule - Mammals

Sl. No	Name of the animal & Scientific name	Stock as on 01/04/2023				Births			Acquisitions			Disposals			Deaths			Stock as on 31/03/2024						
		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T			
1	Assamese Macaque(Hybrid): <i>Macaca assamensis</i>	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
2	Hippopotamus - <i>Hippopotamus amphibius</i>	4	2	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	0	6
3	Zebra - <i>Equus quagga</i>	2	3	0	5	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	0	7
4	Giraffe - <i>Giraffa camelopardalis</i>	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	2
5	Hamadryas Baboon - <i>Papio hamadryas</i>	2	1	0	3	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	4	5	0	9
	Total	9	7	0	16	0	2	0	2	5	0	0	0	0	0	0	0	0	0	0	11	14	0	25

Other Schedule - Reptiles

Sl. No	Name of the animal & Scientific name	Stock as on 01/04/2023				Births			Acquisitions			Disposals			Deaths			Stock as on 31/03/2024						
		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T			
1	Spectacled Caiman - <i>Caiman crocodilus</i>	7	8	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	8	0	15
2	Red-eared Slider - <i>Trachemys scripta elegans</i>	28	29	0	57	0	0	0	0	0	0	0	0	0	6	7	0	22	22	0	44	0	0	44
3	Morelet's Crocodile - <i>Crocodylus moreletii</i>	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
4	Green Iguana - <i>Iguana iguana</i>	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5	Red Iguana - <i>Iguana iguana</i>	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	Total	35	40	0	75	0	0	0	0	0	0	0	0	0	6	8	0	29	32	0	61	0	0	61

Lion and Tiger Safari

Sl. No	Name of the animal & Scientific name	Stock as on 01/04/2023				Births			Acquisitions			Disposals			Deaths			Stock as on 31/03/2024						
		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T			
	Schedule I and II species																							
1	Royal Bengal Tiger - <i>Panthera tigris tigris</i>	8	7	0	15	0	0	0	1	2	0	0	0	0	1	0	0	8	9	0	17	0	0	17
1a	White Royal Bengal Tiger - <i>Panthera tigris tigris</i>	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	2	0	0	2
2	Asiatic Lion - <i>Panthera leo persica</i>	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1
	Total	9	9	0	18	0	0	0	2	2	0	0	0	0	2	0	0	9	11	0	20	0	0	20
	Other Schedule Exotic species																							
1	Lion (Hybrid) - <i>Panthera leo</i>	8	10	0	18	5	1	0	0	0	0	1	0	0	4	0	0	8	11	0	19	0	0	19
	Total	8	10	0	18	5	1	0	0	0	0	1	0	0	4	0	0	8	11	0	19	0	0	19

Bear Safari

Sl. No	Name of the animal & Scientific name	Stock as on 01/04/2023				Births			Acquisitions			Disposals			Deaths			Stock as on 31/03/2024			
		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
1	Sloth Bear - <i>Melursus ursinus</i>	22	40	0	62	0	1	2	0	0	0	0	0	0	2	3	0	20	38	2	60
	Total	22	40	0	62	0	1	2	0	0	0	0	0	0	2	3	0	20	38	2	60

Elephant Care Center

Sl. No	Name of the animal & Scientific name	Stock as on 01/04/2023				Births			Acquisitions			Disposals			Deaths			Stock as on 31/03/2024			
		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
1	Indian Elephant - <i>Elephas maximus indicus</i>	10	15	0	25	1	1	0	0	0	0	0	0	0	0	1	0	11	15	0	26
	Total	10	15	0	25	1	1	0	0	0	0	0	0	0	0	1	0	11	15	0	26

Herbivore Safari

Sl. No	Name of the animal & Scientific name	Stock as on 01/04/2023				Births			Acquisitions			Disposals			Deaths			Stock as on 31/03/2024			
		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
	Schedule I and II species																				
1	Black Buck - <i>Antelope cervicapra</i>	4	9	0	13	0	0	0	1	0	0	0	0	0	0	1	0	5	8	0	13
2	Gaur or Indian Bison - <i>Bos gaurus</i>	6	6	0	12	2	0	0	0	0	0	0	0	0	0	0	0	8	6	0	14
3	Chital or Spotted Deer - <i>Axis axis</i>	391	508	0	899	0	0	0	4	10	0	0	0	0	16	7	0	379	511	0	890
4	Barking Deer - <i>Muntiacus muntjak</i>	2	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	5
5	Sambar - <i>Rusa unicolor</i>	118	130	0	248	0	0	1	0	0	0	0	0	0	3	0	0	115	132	1	248
6	Nilgai or Blue Bull - <i>Boselaphus tragocamelus</i>	2	2	1	5	0	0	0	0	0	0	0	0	0	0	0	0	2	5	0	7
7	Hog Deer - <i>Axis porcinus</i>	2	10	0	12	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	12
	Total	525	668	1	1194	2	0	1	5	10	0	0	0	0	19	8	0	513	675	1	1189

Abstract

	Stock as on 01/04/2023				Births			Aquisitions			Disposals			Deaths			Stock as on 31/03/2024			
Birds	125	119	108	352	0	0	5	0	0	0	1	1	6	12	6	0	115	115	101	331
Mammals	690	879	21	1590	9	5	42	25	33	0	2	2	0	52	25	0	689	905	29	1623
Reptiles	83	124	69	276	0	0	0	0	0	1	0	0	0	29	27	0	74	103	44	221
Grand Total	898	1122	198	2218	9	5	47	25	33	1	3	3	6	93	58	0	878	1123	174	2175

Mortality report of animals at Bannerghatta Biological Park for the month of April 2023 - March 2024

Sl No.	Species of animal	Nos	Sex	Date	Reason for death
1	Rose-ring parakeet	1	M	03-04-2023	Traumatic shock
2	Black spotted pond turtle	1	F	03-04-2023	Enteritis
3	Sloth bear Tippu (SoS)	1	M	07-04-2023	Rectal fistula/ Septicemia
4	Black spotted pond turtle	1	F	09-04-2023	Pneumonia
5	Sloth bear Amritha (SoS)	1	F	10-04-2023	Pulmonary Tuberculosis
6	Blackbuck (HS)	1	F	13-04-2023	Leopard kill
7	Rose-ring parakeet	1	M	17-04-2023	Trauma
8	Black spotted pond turtle	1	M	20-04-2023	Enteritis
9	Elephant Suvarna	1	F	21-04-2023	Dystocia
10	Star tortoise	1	M	27-04-2023	Enteritis
11	Yellow-sided green cheeked conure	1	M	28-04-2023	Predator attack
12	Spotted deer (HS)	1	M	29-04-2023	Predation by python
13	Black spotted pond turtle	1	F	04-05-2023	Helminthiasis
14	Black spotted pond turtle	1	M	06-05-2023	Helminthiasis
15	Silver Pheasant	1	M	11-05-2023	Senility/ Airsacculitis
16	Tricarinate hill turtle	1	M	15-05-2023	Autolysis
17	Spotted deer (HS)	1	M	19-05-2023	Infighting & Septicemia
18	Spotted deer (HS)	2	F	20-05-2023	Leopard kill
19	Black spotted pond turtle	1	M	22-05-2023	Pneumonia
20	Red Crowned Roof turtle	1	M	25-05-2023	Enteritis
21	Black spotted pond turtle	1	M	28-05-2023	Autolysis
22	Tricarinate hill turtle	1	M	31-05-2023	Autolysis
23	Spotted Pond turtle	2	M:F	01-06-2023	Helminthiasis
24	Spotted Pond turtle	1	F	05-06-2023	Helminthiasis
25	Red-eared slider	1	F	09-06-2023	Trauma
26	Jungle cat	1	M	11-06-2023	Septicemia
27	Sloth bear Lakshman (SoS)	1	M	18-06-2023	Tuberculosis
28	Spotted Pond turtle	2	M	20-06-2023	Pneumonia
29	Silver Pheasant	1	M	26-06-2023	Senility
30	Spotted Pond turtle	1	F	28-06-2023	Helminthiasis
31	Spotted Pond turtle	2	M:F	29-06-2023	Helminthiasis
32	Red-eared slider	1	M	29-06-2023	Trauma
33	Black spotted pond turtle	1	M	05-07-2023	Pneumonia
34	Spotted deer (HS)	1	M	06-07-2023	Crocodile attack
35	Red-eared slider	1	F	07-07-2023	Fatty liver syndrome
36	Spotted deer (HS)	1	M	07-07-2023	Crocodile attack

Sl No.	Species of animal	Nos	Sex	Date	Reason for death
37	Red-eared slider	1	M	10-07-2023	Fatty liver syndrome
38	Black spotted pond turtle	1	F	12-07-2023	Enteritis
39	Spotted deer (HS)	1	M	14-07-2023	Infighting injury
40	Black spotted pond turtle	2	M:F	19-07-2023	Autolysis/ Enteritis
41	Spotted deer (HS)	1	M	21-07-2023	Infighting injury - heart puncture
42	Spotted deer (HS)	1	M	22-07-2023	Infighting injury - trauma
43	Spotted deer (HS)	1	F	23-07-2023	Leopard kill
44	Black spotted pond turtle	1	M	25-07-2023	Pneumonia
45	Spotted deer (HS)	1	M	27-07-2023	Infighting injury - septicemia
46	Red-eared slider	1	F	29-07-2023	Fatty liver syndrome
47	Peacock	1	M	02-08-2023	Infighting injuries
48	Red-eared slider	1	F	03-08-2023	Fatty liver
49	Spotted deer (HS)	1	M	03-08-2023	Hypovolumic shock/ Hemothorax due to infighting injuries
50	Spotted deer (HS)	1	M	06-08-2023	Infighting injuries
51	Spotted deer (HS)	2	M:F	08-08-2023	Infighting injuries/ Septicemia
52	Red-eared slider	1	F	09-08-2023	Trauma
53	Spotted deer (HS)	1	M	10-08-2023	Infighting injuries
54	Red-eared slider	1	M	11-08-2023	Necrotic enteritis
55	Spotted deer (HS)	1	M	11-08-2023	Osteo sarcoma
56	Spotted deer (HS)	2	F	12-08-2023	Septicemia
57	Red-eared slider	1	M	21-08-2023	Fatty liver
58	Leopard cub	1	F	22-08-2023	Viral gastro enteritis
59	Spotted deer (HS)	1	M	24-08-2023	Infighting injuries
60	Star tortoise	1	F	26-08-2023	Fatty liver syndrome
61	Sambar deer	1	F	27-08-2023	Capture Myopathy
62	Red-eared slider	1	F	28-08-2023	Ascites
63	Leopard cub	1	F	29-08-2023	Parvo viral gastro enteritis
64	Leopard cub	1	M	30-08-2023	Parvo viral gastro enteritis
65	Pineapple conure	1	M	31-08-2023	Predator attack
66	Star tortoise	1	F	02-09-2023	Necrotic enteritis
67	Leopard cub	1	M	04-09-2023	Feline panleukopenia
68	Spotted deer (HS)	1	M	04-09-2023	Infighting injuries

Sl No.	Species of animal	Nos	Sex	Date	Reason for death
69	Leopard cub	1	M	06-09-2023	Feline panleukopenia
70	Leopard cub	1	M	06-09-2023	Feline panleukopenia
71	Jungle cat	1	M	06-09-2023	Senility
72	Leopard cub	1	M	07-09-2023	Feline panleukopenia
73	Red-eared Slider	1	M	13-09-2023	Fatty liver
74	Thamin deer	1	F	18-09-2023	Septicemia
75	Spotted deer (HS)	1	M	24-09-2023	Infighting injuries
76	Spotted deer (HS)	1	F	27-09-2023	Infighting injuries
77	Red-eared Slider	1	F	28-09-2023	Fatty liver
78	Nilgai	1	M	30-09-2023	Cardiac arrest/ Capture myopathy
79	Galah	1	M	30-09-2023	Fatty liver
80	Star tortoise	1	M	03-10-2023	Hepatic necrosis
81	Thamin deer	1	M	03-10-2023	Purulent pneumonia
82	Star tortoise	1	F	05-10-2023	Hepatic necrosis
83	Russell's viper	1	M	12-10-2023	Septicemia
84	Star tortoise	1	F	12-10-2023	Fatty liver
85	Sambar deer (HS)	1	M	12-10-2023	Infighting injury/ hypovolumic shock
86	Indian cobra	1	M	14-10-2023	Senility
87	Western crowned Pigeon	1	M	16-10-2023	Air sac infection
88	Emu	1	F	18-10-2023	Infighting trauma
89	Thamin deer	1	M	24-10-2023	Purulent pneumonia
90	Thamin deer	1	M	25-10-2023	Purulent pneumonia
91	Sun conure	1	M	30-10-2023	Infighting injury
92	Sloth bear Bharathi	1	F	30-10-2023	Multi-organ failure
93	Star tortoise	1	F	02-11-2023	Necrotic hepatitis
94	Hog deer	1	M	10-11-2023	Traumatic injury
95	Star tortoise	1	F	13-11-2023	Necrotic hepatitis
96	Lion Rama	1	M	16-11-2023	Multiorgan failure
97	Barking deer	1	F	25-11-2023	Acute pneumonia/ IBR
98	Star tortoise	1	F	01-12-2023	Necrotic enteritis
99	Tiger Mithun	1	M	09-12-2023	Splenic rupture
100	Spotted deer	2	M:F	16-12-2023	IBR/ Acute Broncho Pneumonia
101	Spotted deer	1	F	01-01-2024	Dystocia
102	Jungle cat	1	M	02-01-2024	Septicemia
103	Spotted deer	1	F	05-01-2024	Septicemia
104	Russell's viper	1	M	05-01-2024	Hepatitis
105	Indian Cobra	1	M	09-01-2024	Hepatitis/ Pneumonia
106	Sambar deer (HS)	1	M	09-01-2024	Thorasic puncture and traumatic shock

Sl No.	Species of animal	Nos	Sex	Date	Reason for death
107	Barking deer	1	M	12-01-2024	Purulent and Necrotic pneumonia
108	Star tortoise	1	F	13-01-2024	Necrotic enteritis
109	Indian Rock Python	1	M	20-01-2024	Acute hepatitis
110	Rose ringed parakeet	1	F	24-01-2024	Trauma
111	Spotted deer	1	F	24-01-2024	Sarcoma tumour on facial region
112	Sloth Bear Rathi (SoS)	1	F	24-01-2024	Multi organ failure
113	Indian Rock Python	1	M	29-01-2024	Hepatitis
114	Indian Rock Python	1	F	31-01-2024	Hepatitis
115	Asiatic lion Aryan	1	M	01-02-2024	Multi organ failure
116	Hog deer	1	F	02-02-2024	Septicemia
117	Blackbuck	1	M	05-02-2024	Acute Pneumonia
118	Barking deer	1	M	06-02-2024	Neurogenic shock
119	Leopard Deepa	1	F	08-02-2024	Brain tumour
120	Sun Conure	1	M	10-02-2024	Trauma
121	Blackbuck	1	M	20-02-2024	Septicemia
122	Common Myna	1	F	23-02-2024	Air sacculitis
123	Blackbuck	1	F	24-02-2024	Acute Pneumonia
124	Russell's viper	1	M	24-02-2024	Senility
125	Spotted pond turtle	1	F	02-03-2024	Hepatitis
126	Indian Grey Wolf Alok	1	M	05-03-2024	Kidney tumour/ Renal carcinoma
127	Common Quail	1	F	05-03-2024	Egg peritonitis
128	Morelett's Crocodile	1	F	06-03-2024	Purulent pneumonia
129	Sun conure	1	F	07-03-2024	Traumatic shock
130	Alexandrine parakeet	1	M	13-03-2024	Hepatitis
131	Red-eared slider	1	M	13-03-2024	Necrotic enteritis
132	Common Quail	1	F	14-03-2024	Egg peritonitis
133	Blackbuck	1	F	20-03-2024	Anaemia
134	Thamin deer	1	M	21-03-2024	Purulent pneumonia - Infighting injury
135	Barking deer	1	M	21-03-2024	Purulent pneumonia - Infighting injury
136	Sambar deer (HS)	1	M	24-03-2024	Traumatic shock
137	Leopard Saketh	1	M	25-03-2024	Renal necrosis
138	Lion cub	1	M	29-03-2024	Volvulus of intestines

Infant Mortality report of animals

1	Leopard cub (BRT Tiger Reserve)	1	M	21-05-2023	Enteritis
2	Leopard Amala cub	1	M	29-07-2023	Stampede
3	Lioness Pushpa cubs	2	M	25-11-2023	Aspiratory pneumonia/ Stampede
4	Thamin deer fawn	1	M	10-12-2023	IBR/ Acute Broncho Pneumonia

Natality report for the month of April 2023 - March 2024

Sl No.	Species	Sex			Total	Date
		M	F	U		
1	Leopard Swapna cubs	0	0	5	5	09-04-2023
2	Zebra Kaveri foal	0	1	0	1	14-04-2023
3	Sun Conure chick	0	0	1	1	03-03-2023
4	Jackal pups	0	0	3	3	03-03-2023
5	Sun Conure chick	0	0	1	1	03-05-2023
6	Porcupette	0	0	1	1	13-05-2023
7	Leopard Amala cubs	0	0	2	2	10-05-2023
8	Sun conure chick	0	0	1	1	17-06-2023
9	Rhesus Macaque	0	0	1	1	25-07-2023
10	Zebra Kabini foal	0	1	0	1	23-08-2023
11	Thamin deer fawn	0	0	1	1	24-09-2023
12	Lioness Amitha cub	1	0	0	1	04-07-2023
13	Leopard Geetha cub	1	0	0	1	20-08-2023
14	Hanuman Langur infant	0	0	1	1	07-10-2023
15	Sloth bear (SOS)	0	1	0	1	01-11-2023
16	Gaur Swetha calf	1	0	0	1	07-11-2023
17	Lioness Pushpa cubs	2	0	0	2	20-11-2023
18	Barking deer fawn	0	0	1	1	24-11-2023
19	Thamin deer fawn	0	0	1	1	25-11-2023
20	Hog deer	0	0	1	1	03-12-2023
21	Barking deer	0	0	1	1	05-12-2023
22	Elephant Roopa calf	0	1	0	1	11-12-2023
23	Lioness Amitha cubs	2	1	0	3	29-11-2023
24	Blackbuck fawn	0	0	1	1	07-01-2024
25	Blackbuck fawn	0	0	1	1	08-01-2024
26	Barking deer fawn	0	0	1	1	09-01-2024
27	Spotted deer fawn	0	0	1	1	10-01-2024
28	Hog deer fawn	0	0	1	1	11-01-2024
29	Barking deer fawn	0	0	1	1	12-01-2024
30	Spotted deer fawn	0	0	1	1	13-01-2024
31	Sambar deer fawn (HS)	0	0	1	1	14-01-2024
32	Hog deer fawn	0	0	1	1	15-01-2024
33	Nilgai calf	0	0	1	1	23-01-2024
34	Thamin deer fawn	0	0	1	1	23-01-2024
35	Elephant Veda calf	1	0	0	1	26-01-2024
36	Gaur Radhika calf	1	0	0	1	27-01-2024
37	Sloth bear cubs (SOS)	0	0	2	2	11-12-2023
38	Indian Grey Wolf Akhila pups	0	0	4	4	16-01-2024
39	Grey Pelican chick	0	0	1	1	19-01-2024

Sl No.	Species	Sex			Total	Date
		M	F	U		
40	Golden Jackal Jill pups	0	0	2	2	18-02-2024
41	Grey Pelican chick	0	0	1	1	22-02-2024
42	Nilgai calves	0	0	2	2	02-03-2024
43	Nilgai calves	0	0	2	2	08-03-2024
44	Barking deer fawn	0	0	1	1	21-03-2024

Acquisition report for the month of April 2023 - March 2024

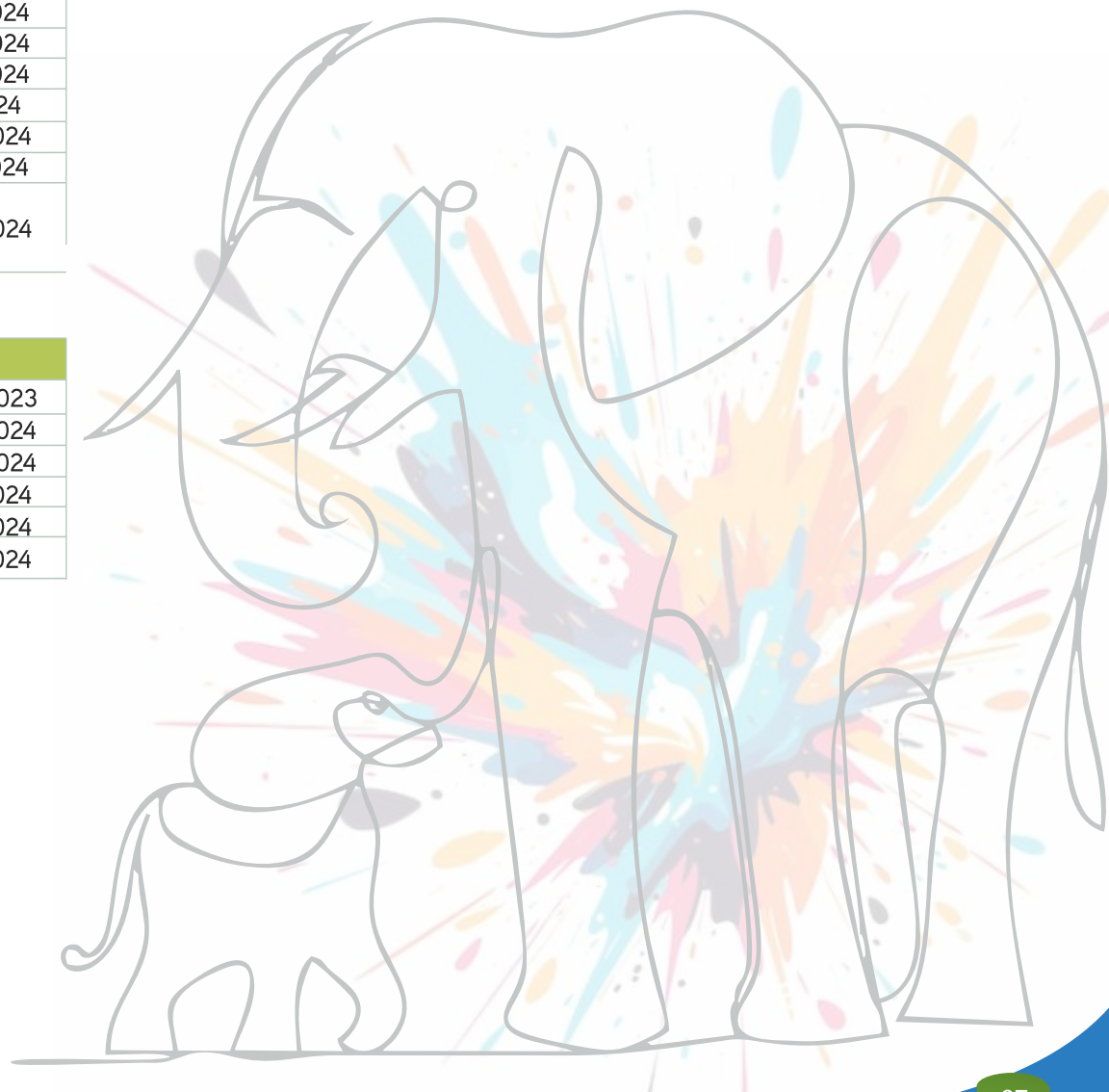
Sl No.	Species	Sex			Total	Date
		M	F	U		
1	Royal Bengal Tiger (Nagarahole Tiger Reserve - Received from Mysore zoo)	0	1	0	1	01-04-2023
2	Leopard cubs (T. Narasipura - Received from Mysore zoo)	1	2	0	3	01-04-2023
3	Leopard (H.D Kote)	0	1	0	1	16-04-2023
4	Royal Bengal Tiger (White) - Vandalur zoo, Chennai	1	0	0	1	21-04-2023
5	Leopard cubs (BRT Tiger Reserve)	1	2	0	3	21-04-2023
6	Asian Palm Civet (Bannerghatta)	0	1	0	1	23-03-2023
7	Sloth bear cub (Madhugiri range)	1	0	0	1	03-05-2023
8	Wild dog/ Dhole (Mysore Zoo)	2	2	0	4	31-05-2023
9	Leopard cub (Gopinatham, Kaveri Wildlife Sanctuary)	1	0	0	1	11-06-2023
10	King Cobra (Ujire)	0	0	1	1	13-07-2023
11	Leopard (Chamrajnagar district)	1	0	0	1	02-08-2023
12	Leopard (Hunsur division)	0	1	0	1	03-08-2023
13	Leopard (Shivmogga range)	1	0	0	1	20-08-2023
14	Leopard cub (Mysore division)	1	0	0	1	20-08-2023
15	Leopard cubs (Mysore division)	1	1	0	2	23-08-2023
16	Nilgai (Chitradurga Zoo)	2	1	0	3	20-09-2023
17	Spotted deer (St. John's Hospital)	4	10	0	14	17-08-2023
18	Royal Bengal Tiger (Koorghalli Rescue center)	0	1	0	1	05-12-2023

Sl No.	Species	Sex			Total	Date
		M	F	U		
19	Leopard cubs (Koorghalli Rescue center)	2	2	0	4	05-12-2023
20	Royal Bengal Tiger (Shivmogga zoo)	1	0	0	1	16-12-2023
21	Leopard (Koorghalli Rescue center)	0	1	0	1	02-01-2024
22	Leopard (Sathnur range)	1	0	0	1	03-01-2024
23	Leopard (Ramnagar range)	0	1	0	1	05-01-2024
24	Leopard cub (Kadur range)	1	0	0	1	06-01-2024
25	Blackbuck (PFA)	1	0	0	1	11-01-2024
26	Giraffe (Mysore Zoo)	0	1	0	1	27-02-2024
27	Leopard (K.R Pete)	0	1	0	1	14-03-2024
28	Hamadryas Baboon (Singapore Zoo)	2	4	0	6	28-03-2024

Disposal report for the month of April 2023 - March 2024

Sl No.	Species	Sex			Total	Date
		M	F	U		
1	Lion Sher-yar	1	0	0	1	20-04-2023
2	Silver Pheasant	1	1	0	2	09-02-2024
3	Sun Conure	0	0	2	2	09-02-2024
4	Black Kite	0	0	3	3	15-02-2024
5	Brahminy Kite	0	0	1	1	15-02-2024
6	Indian Grey Mongoose	1	2	0	3	19-02-2024

- * Lion disposed to Arignar Anna Zoological Park, Vandalur. Chennai
- * Silver Pheasant and Sun Conure disposed to Shivmogga Zoo
- * Black Kite, Brahminy Kite and Indian Grey Mongoose released to wild with PCCF permission



25 Animal Exchange Programme

Animal exchange plays an important role in maintaining the sustainable population of animals with good genetic variability of species in captivity which is critical for the health and survival of species. Exchange programs prevent inbreeding by ensuring that animals are bred with genetically diverse partners from other institutions. Some of the major animal exchanges carried out by Bannerughatta Biological Park in the last financial year are as follows:

1. Bannerughatta Biological Park exchanged a male Lion Sher-yar to a male leucistic Tiger Veer from Arignar Anna Zoological Park, Chennai

Upon permission received from Central Zoo Authority, BBP shifted male Lion Sher-yar aimed to pair with the female lioness at Arignar Anna Zoological Park, Chennai in exchange to a male white tiger to pair with single female white tigress at Bannerughatta Biological Park. Both the animals were shifted at night time to minimize the risk of heat stress during travel.

Acquired White Tiger Veer is shifted to safari area and housed along with the other tigers for visitor's display to create awareness about these mutated big cats.



2. Bannerughatta Biological Park acquired female Giraffe Shivani from Sri Chamarajendra Zoological Garden, Mysuru under animal exchange program to provide companion for the existing Giraffe Gowri.

As Giraffes are social animals, this acquisition aimed to enhance the social environment and overall well-being of the Giraffe housed in Bannerughatta Biological Park.

Prior to the transfer, comprehensive health checks were conducted on Shivani to ensure she was fit for transportation. A customised transportation cage designed to ensure comfortable travel for the species was placed inside the enclosure few days prior to shifting to train the individual to enter the crate without stress. Specialized transportation arrangements were made to ensure the giraffe's safety and comfort during the journey from Mysuru Zoo to Bannerughatta Zoo. This included a customized vehicle equipped with low bed required to transport large animal-like giraffes.

Upon arrival at Bannerughatta Zoo, transportation cage was shifted inside the enclosure using a crane and Giraffe Shivani was released in the partitioned area allowing both the giraffes to see and interact with each other at the safe distance. Upon observation, both the giraffes were gradually left together under supervision.



3 Bannerughatta Biological Park acquired 2 males and 4 females Hamadryas Baboon from Singapore Zoological Gardens under animal exchange program.

The baboons were transported from Singapore Changi Airport to Kempegowda International Airport Bengaluru by cargo flight on 28th March 2024. From the airport they were shifted to Quarantine facility at Bannerughatta Zoo in a closed vehicle.

Prior to the transfer, all the individuals were subjected to 45 days pre-export quarantine at Singapore Zoo and thorough health assessments both physical examinations and laboratory tests were conducted to ensure the baboon was free of diseases and fit for transportation.

These primates were shifted to the Quarantine facility for a minimum period of 30 days for post import Quarantine as per the guidelines issued by Animal Husbandry Department, New Delhi. During the quarantine period, blood samples of all the individuals were sent to national institutes and screened for Simia AIDS, Polio and Rabies. Upon receiving negative results, quarantine clearance certificate and permission to release the animals for public display was obtained.

The acquisition of these Hamadryas baboon from Singapore Zoo represents a significant step in Bannerughatta Biological Park's efforts to diversify its animal collection, support conservation programs, and enhance educational outreach. This exchange underscores the importance of international collaboration between zoos in achieving shared conservation goals and promoting the well-being of animals in captivity





Spot-billed Pelican chicks



Thamin Deer fawn



Elephant Calf



Hanuman Langur infant



Barking Deer fawn



Indian Grey Wolf pup



Golden Jackal pup



Zebra foal



Rhesus Macaque infant



Sun Conure chick



Gaur calf



Nilgai calf

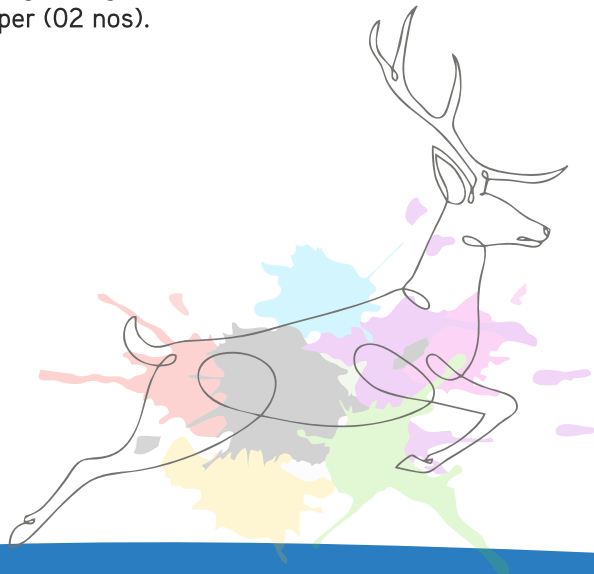
27 Rescue & Rehabilitation

During the period April 2023 to March 2024, BRC received a total of 311 wild animals, out of which 241 numbers were released back into the wild, while 62 numbers died and 01 number was transferred to another rescue centre (for further rehabilitation). The animals rescued are injured, rescued from pet trade, found in homes etc.

Among mammals, 53 numbers were admitted, 29 numbers released, 21 died while 01 transferred. The species of mammals rescued were Asian palm civet cat (03 nos), Bonnet macaque (36 nos), Black naped hare (02 nos), Grey slender loris (01 no), Indian flying fox (02 nos), Indian Jackal (01 no), Jungle cat (02 nos), Rhesus macaque (01 no), Rusty spotted cat (01 no), Spotted Deer (02 nos) and Three lined palm squirrel (06 nos).

In Birds, 194 nos were admitted, 162 nos released, and 29 nos died. The species of birds rescued are Asian Koel (02 nos), Alexandrine parakeet (09 nos), Brahminy kite (01 no), Black kite (48 nos), Black headed ibis (01 no), Black headed Munia (90 nos), Black shouldered kite (01 no), Common Barn owl (08 nos), Cattle egret (01 no), Greater coucal (01 no), House crow (01 no), Indian cormorant (01 no), Indian Myna (02 nos), Indian peafowl (10 nos), Indian pond heron (01 no), Indian scops owl (03 nos), Night heron (02 nos), Red Whiskered bulbul (01 no), Rose ring parakeet (03 nos), Shikra (03 nos), Spotted owlet (02 nos), Vernal Hanging Parrot (01 no) and white cheeked barbet (02 nos).

A total of 64 nos reptiles were admitted, 50 released and 12 nos died during this period. The reptile species rescued were Buff striped keelback (01 no), Indian black turtle (04 nos), Indian flap shell turtle (04 nos), Indian rat snake (08 nos), Indian rock python (01 no), Indian star tortoise (08), Indian Spectacled cobra (29 nos), Large Bengal Monitor lizard (04 nos), Red earth boa (03 nos) and Russel's viper (02 nos).



Two interesting cases have been presented below -

1. Fracture of Lateral Wall of orbit diagnosed by Computer Tomography (CT) in a Bonnet macaque

A juvenile female wild Bonnet macaque (*Macaca radiata*) weighing 1.3kg was presented to Bannerghatta rehabilitation centre with the history of road accident on 17th Dec 2023. She was in a semi-conscious state with bleeding from nose and mouth, left eye swollen and wound on head. She was stabilised by raising her body temperature (infrared therapy), control of bleeding (Botropase® inj) and reducing the pressure inside the brain by administering Mannitol intravenously. (@2 mg/kg). She was also administered emergency medication along with fluids. Second day animal showed bruising and swelling around the eyes, unable to open the eyes, poor appetite and no bleeding. Consecutive days she showed improvement in condition with drooping in left eye. She was sedated for Computed Tomography(CT) scan which revealed minimal displaced fracture of lateral wall of left orbit. She was treated with broad spectrum antibiotic, anti-inflammatory and antacid intramuscularly for 7 days, thrombofit®, calcium syrup and multivitamin syrup orally for a month. Animal showed good recovery and released in large infant enclosure.



Day 1-
Bleeding from mouth and nostrils, eye swelling, semi conscious state



Day 2-
Bruising of both eyes, bleeding stopped, no appetite



Day 11-
CT scan done under general anesthesia



CT Scan report-
There is a minimal displaced fracture of lateral wall of left orbit
There is undepressed fracture of left temporal bone



Present day, housed with other young Bonnet macaques



Day 15-
Eyes have cleared, wounds on head healed, good appetite

2- Non Invasive management of Spinal injury in Snakes.

Urbanization is leading to increase cases of injuries in wild animals especially snakes. Activities like vehicular movement, construction related excavation and attacks by pet animal are frequently encountered cases at BRC. During the six month period from Nov 2023 to April 2024, four cases were presented with spinal injuries



Case no 1
- Indian Spectacled cobra
250g



Case no 2
- Indian Spectacled cobra
90g



Case no 3
- Indian Spectacled cobra
740g



Case no 4
- Indian Rat snake
55g

All the four cases brought to BRC had spinal injuries, which was visible on physical examination.

They were weighed, examined and stabilised to achieve Preferred Optimal Temperature Zone (POTZ)

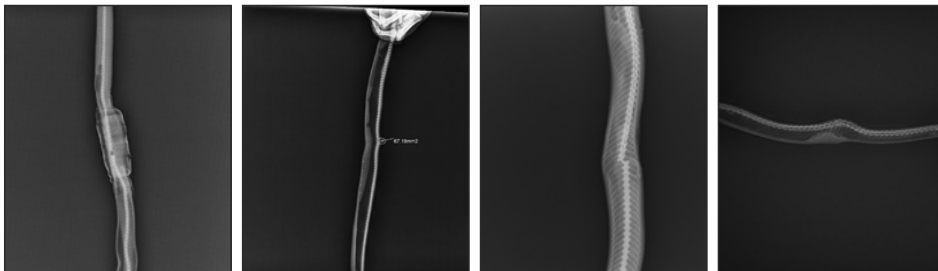
Haemostasis- bleeding was stopped by pressure gauge, parental injection of hemostatics like inj Bothropase®

Wounds were cleaned, flushed, sutured and dressed. Antibiotics, anti-inflammatory and steroid inj were given

Radiographs were taken.

Immobilization of spinal vertebrae was done by using external splints for three weeks. Snakes were maintained using subcutaneous fluid, anti-inflammatory, multi vitamin inj and infrared therapy for 15 to 20 min.

Radiography of snakes :



Case no 1 - Indian Spectacled cobra - 250g
Case no 2 - Indian Spectacled cobra - 90g
Case no 3 - Indian Spectacled cobra - 740g
Case no 4 - Indian Rat snake - 55g

Heat pad in snake box



Infrared therapy



Wound cleaned, flushed and sutured



Immobilisation of fracture by using External application of POP



Immobilisation by using Splint

Result- Success rate was 50 % as two Spectacled cobras with good movement were released in the forest and two snakes (one cobra and one Rat snake) died which revealed organ damage, internal bleeding on post mortem.



Case no 1- Released into forest



Case no 2- Released into forest



Case no 3- Died



Case no 4- Died

Sr. No	Norm No. under RZR, 2019	Condition	Time period to comply	Compliance
1. General requirements				
1.	10.1(6)	All the residential quarters including the Officer's quarters still has entry from zoo and reported is being shifted outside the zoo Tender process is initiated to for construction of the quarters outside the zoo premises. Veterinarians and night duty staff are still reportedly staying during the night hours on Bear Rescue Centre premises for ensuring the security and medical care of the rescued bears. The staff of hill view restaurant shall discontinue from staying in the premises. This practice should be discontinued. Entire residential colony should be separated from the zoo premises by a boundary wall with a minimum height of two meters from the ground level. entry to the residential colony should not be through the zoo premises.	Immediately	Tender was floated for construction of 24 nos of mahout quarters with estimated cost of Rs. 486.00 lakhs during March 2020. Due to Covid-19, the work could not be taken up. This will be initiated on availability of budget.
2.	10.1(7)	Drainage system in the zoo should be improved by way of contemplated commissioning of the underground drainage (UGD) and the sewage treatment plant (STP).	3 months	The UGD layout plan is ready for execution and will be started on availability of budget.
3.	10.1(9)	All-out effort should be made to prevent entry of dogs in the zoo premises as the same were seen during the visit.	Immediately	All the efforts have been made to prevent entry of dogs in the zoo premises. Necessary gates are placed at the critical places. Now there is no entry of dogs into zoo.
3. Development and Planning				
4.	10.3(1)	Submission of amended Master Plan of the zoo should be expedited	2 months	The amended Master Layout Plan has been cleared in 93rd Meeting of the Expert Group on Zoo Designing of Central Zoo Authority. The compliance to the observations made by the Committee were submitted on 23-09-2020. The copy of the amended Master Layout Plan is yet to be received from CZA.
5.	10.3(1) & 10.3(3)	The existing facility at Rescue Centre area should be handed over to the Wildlife SOS to use for rescued bears from Madaris or any source where other required facility viz medical, quarantine, post mortem facilities should be developed for long term use.	Immediately	Due to large number of wild animal-human conflict in Karnataka, we are housing 40 wild leopards, 3 sloth bears and 2 tigers in the Rescue center presently. We also have aged lions, tigers and bears from safari and zoo, where these animals are not fit for exhibition.

					We also expect more leopards, tigers and sloth bears from the Karnataka Forest Department due to increasing wild animal - human conflicts. Therefore the existing facility of Rescue center will be efficiently utilized for rescued animals. Separate area has been identified near Rescue Center for construction of separate rescue center for rescued bears from Madaris, for which BBP has sought funds from government. Once this is made available, separate RC will be constructed for rescued bears.
6.	10.3(7)	The Bears rescued at BRC from Madaris as well wild should be segregated and regular test for TB be undertaken.	Immediately	Action initiated.	
7.	10.3(7)	The facility created for two Tigers from the Born Free, UK is no more now. Any Tigers that are rescued and brought to the BBP should be housed at Rescue Centre area. The facilities created by the CZA for circus animals should be formally hand over to the BBP, Govt. of Karnataka so that same is used for housing rescued Tigers.	Immediately	The facility created for 2 tigers from the Born Free, UK can be utilized for the Safari Tigers breeding purpose.	
8.	10.3(7)	The Bears rescued from wild should be housed in different enclosure avoiding mixing with rescued from Madaris.	Immediately	Action have been taken to ensure the wild rescued bears are kept separately, away from the bears rescued from Madaris.	
9.	10.3(8)	Irrespective of the varied agencies engaged by the Zoo Operator for administrative convenience, acceptance of any rescued wild animal into premises of the Bengaluru Bannerghatta Biological Park should be reported to the Chief Wildlife Warden of the State as per extant provisions. In the event of acceptance of rescued animal of endangered species, a copy of the Report should be submitted to the Central Zoo Authority.	Immediately	Noted	
4. Animal housing, display of animals and animal enclosures:					
10.	10.4(1)	The night shelter of Bear Rescue Centre is visible from the visitor's route it should immediately be camouflaged by planting tall saplings of appropriate species. Alternatively, visitors route should be diverted before reaching Bear Rescue Centre.	Immediately	Action initiated.	
11.	10.4(1) & 10.4(3)	In the Herbivore Safari, all the cement structures viz water howdy, feeding turf, resting shade should be camouflaged by appropriate natural materials. It should be ensured that such facilities are not very close to the visitors route.	Immediately	Action initiated.	

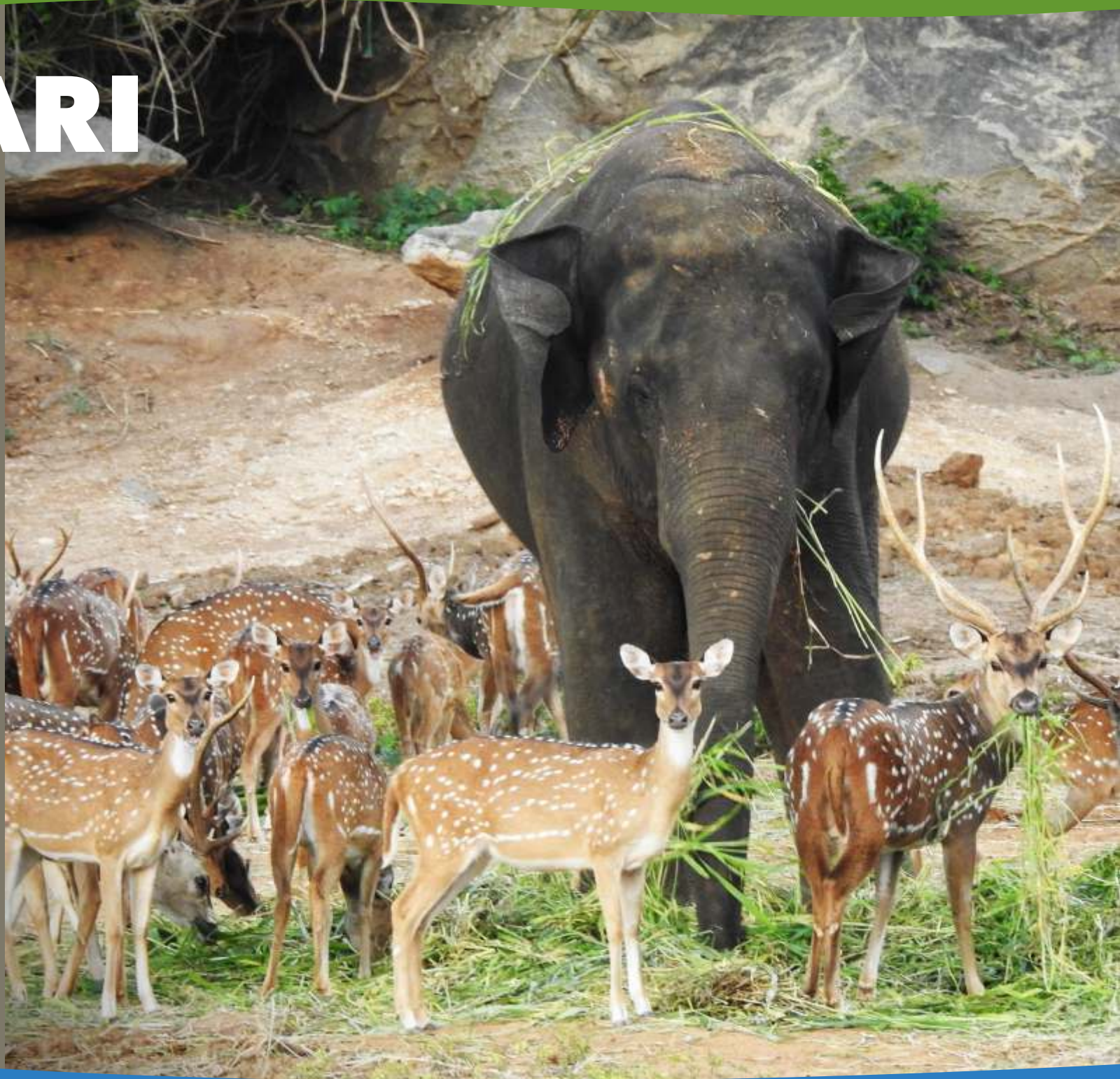
12.	10.4(2)	The Pulling door, drainage, door locking system, plinth of cell etc, of night-house of under construction Leopard Safari should be done as directed during visit.	Immediately	Action has been initiated and will be attended on priority.
13.	10.4(2)	In case of Hippopotamus enclosure: ·Only one enclosure may be designated for viewing ·The enclosure walls may be camouflaged A sewage treatment plant may be set-up behind Hippopotamus enclosure.	Immediately	·Action initiated ·Walls are camouflaged with elephant grass It will be attended after pandemic decreases
14.	10.4(2)	The reptile section needs redesign keeping in view the following points. ·Viewing of each enclosure should be restricted to 25% of the perimeter ·Visitor circulation should be planned such that movement should be uni-directional ·Vegetation and live hedges shall be planted in the area	Immediately	Attended. Attended designated path movement. Necessary action initiated.
15.	10.4(2)	In case of Caiman enclosure ·Additional vegetation shall be added to the enclosure ·A designated viewing area should be demarcated ·Hedge should be planted along the fence Basking sites shall be created	Immediately	Attended. Attended. Planted. Attended.
16.	10.4(3)	Provision of rail barricade should be made in order to reduce damage by wild Elephants in Safari.	6 months	Four railway gates have been constructed
17.	10.4(6)	Adequate width for live hedge be kept and undertake enrichment of arena and cell with appropriate species in Giraffe enclosure and so for the other enclosures.	Immediately	Attended.
18.	10.4(6)	Suitable enrichment options in Avian enclosures should be provided in the form of vegetation and perches.	Immediately	Attended.
19.	10.4(7)	In the Rescue Centre, appropriate screening of Tiger enclosures be carried out	Immediately	Screening of Tiger enclosures are placed in the Rescue Center.
20.	10.4(8)	Design of animal enclosures for endangered species either new or proposed for revamp/reconstruction as contemplated in the approved Master Plan should be taken up on priority and obtain approval from the CZA to execute their construction accordingly.	Immediately	Will be attended immediately after Covid-19 pandemic.

20.	10.4(8)	Design of animal enclosures for endangered species either new or proposed for revamp/reconstruction as contemplated in the approved Master Plan should be taken up on priority and obtain approval from the CZA to execute their construction accordingly.	Immediately	Will be attended immediately after Covid-19 pandemic.
21.	10.4(9)	The seating area near Herbivore enclosure should be hedged to mask the enclosures.	Immediately	Action will be taken.
5. Upkeep and healthcare of animals:				
22.	10.5(2) & 10.5(3)	Fodder should not be placed in one place in Herbivore Safari which deprives the young and weaker ones. Fodder should be placed at different sites. Should also hang some to the branches for browsers.	Immediately	Fodder is distributed in different areas to facilitate the young and weak animals to get access.
23.	10.5(5)	Use of turmeric powder as disinfectant may be encouraged instead of chemical disinfectants	Immediately	Action has been taken. Biodegradable environmental friendly disinfectants are being used and usage of chemical disinfectants has been stopped. Turmeric powder is also being used where ever required.
9. Acquisition and breeding of animals :				
24.	10.9(1) & 10.9(4)	Effort should be made to pair the existing female Giraffe	Immediately	Efforts are being made to pair existing Giraffe
25.	10.9(11)	Irrespective of the varied agencies engaged by the Zoo Operator for administrative convenience, any release of captive animal from premises of the Bengaluru Bannerghatta Biological Park in to the wild should be as per norms specified by the Central Zoo Authority with requisite prior permission.	Immediately	Animals released into wild are as per the CZA norms.

SAFARI

The safari unit is an expedition to get an up close look at free ranging captive wildlife in immersive, naturalistic exhibits in the midst of the natural forest of Bannerghatta National Park (BNP). The landscape is a representation of the adjoining dry and moist deciduous forests of BNP in an undulating terrain which is home to a wide variety fauna and flora which are often spotted within BBP safari range as well.

The safari section is further subdivided into the Herbivore Safari, Bear Safari, Lion Safari and Tiger Safari, along with the addition of the latest Leopard Safari. In the different sections, visitors get to learn and explore the area in protected, closed buses and jeeps which are provided by the zoo. Buses, their management and safari queue management is done in partnership with the Karnataka State Tourism Development Cooperation (KSTDC).



Herbivore Safari:

The thrill of the safari starts with the Herbivore Safari, which houses mixed species of deer, antelopes and Gaur free ranging within an area of 68 hectares, barricaded by rubble wall. Species within this area includes Cervidae such as Spotted Deer (*Axis axis*), Sambar Deer (*Rusa unicolor*) and Bovidae such as Nilgai (*Boselaphus tragocamelus*), Gaur (*Bos gaurus*) and Black buck (*Antelope cervicapra*). Various feeding units are located in viewing vicinity from the safari roads to give visitors a glimpse of the co-existence of herbivore species, as they would in their natural habitat. Frequently, young ones of spotted deer, sambar deer and gaur can be spotted as they are breeding well within this area.

Drinking water is provided naturally for the residents of the Herbivore Safari in one of the five, interconnected natural lakes, namely Deepan kere, Chennamana kere, Gowdan kunte, Seegadi kunte and Gowdana kere, which get filled up during the rainy season and sustains throughout the year. Wide variety of free ranging birds and reptiles are spotted in the water bodies, such as Marsh crocodiles (*Crocodylus palustris*), Common moorhen (*Gallinula chloropus*), Little cormorant (*Microcarbo niger*), Great cormorant (*Phalacrocorax carbo*), White throated kingfisher (*Halcyon smyrnensis*), Brahminy Kite (*Haliastur indus*), Black crowned night heron (*Nycticorax nycticorax*), Spotted dove (*Spilopelia chinensis*), Peafowl (*Pavo cristatus*) to name a few. Sambar deer can also be spotted in the middle of the lakes, feeding on freely available grass and during summers they can be spotted in naturally formed slush ponds drenching themselves to keep cool. Stags competing with each other for breeding rights and gaurs vocalizing during rutting season gives visitors a mind chilling experience.



Bear Safari :

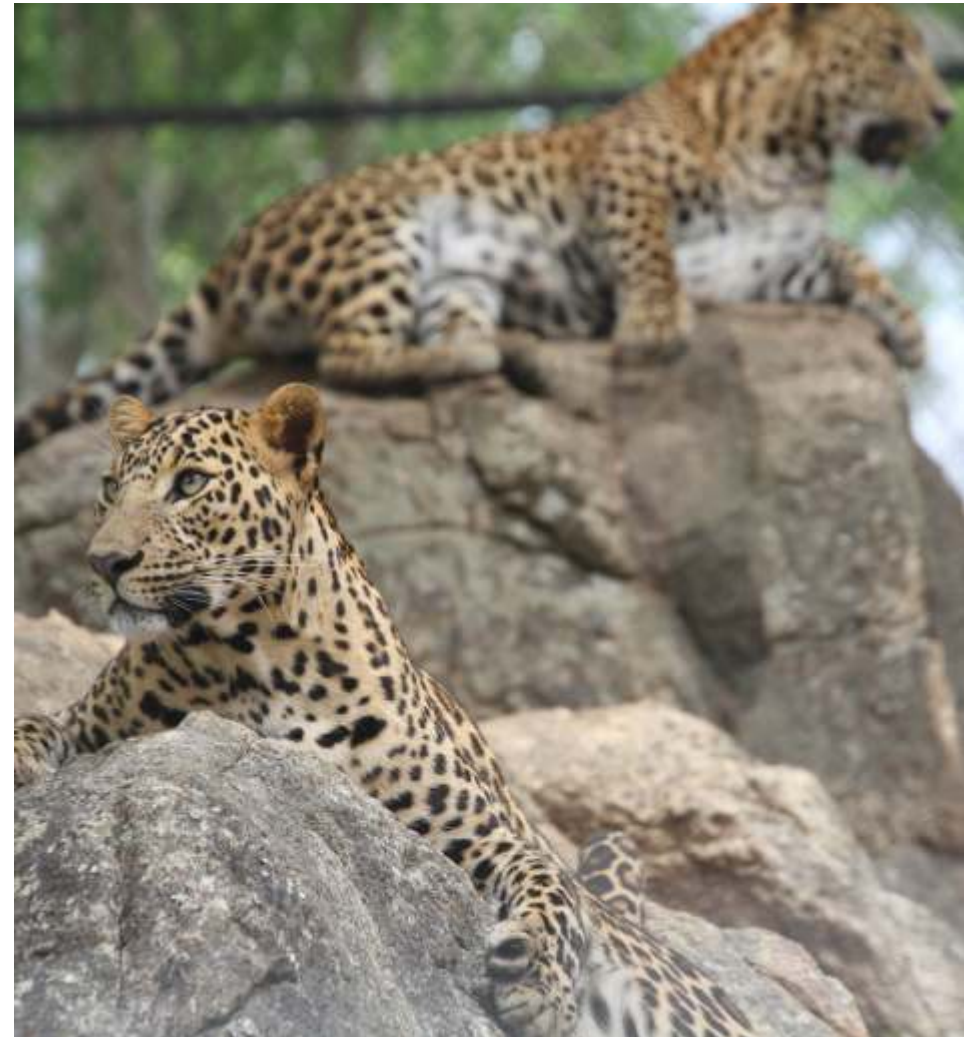
After the herbivore safari, visitors get a glimpse of the natural forest, before they reach the sloth bear safari. Bear safari is home to around 60 rescued sloth bears (*Melursus ursinus*), out of which majority were previously used as dancing bears by Kalandar tribals and others were rescued from human-animal conflict or found as abandoned cubs. This 20 hectare safari area is protected by a dry moat along with solar fence all around the safari as well as a double gate system at the entrance and exit gates for vehicles, to prevent sloth bears from escaping while vehicles enter and exit the safari.

The bears are allowed to free range within this area during the day in compatible groups. Watermelon, honey and other seasonal fruits are scattered in the field in the afternoon to encourage foraging behavior and the natural habitat is also suitable for the bears to dig the soil to feed on termites. Natural burrows have also been created by the bears, where they rest during the hot time of the day and return back to their individual holding houses for the night, where they are provided with finger millet porridge, fruits, milk and eggs in the morning and evening. There is animal housing facilities in five blocks namely Panchavati, Chitrakuta, Kishkinda, Dr. G.K.V Block and Jambava. The facility created in the Bear Safari is managed in collaboration with Wildlife SoS to house and maintain rescued bears.



Leopard Safari :

After the bear safari is the upcoming leopard safari, which is currently under construction. It is earmarked in a 20 hectare area between the bear safari and the lion safari. Bannerghatta is home to a good population of free ranging leopards (*Panthera pardus*) and highlighting these top predators is vital through display of captive leopards in this safari unit for visitors to learn about these elusive big cats. It is the second leopard safari in India and attempts are being made to give visitors an educative experience while they observe free ranging leopards up-close and learn about their behaviour.



Lion & Tiger Safari:

The carnivore safari sections is surrounded by chain-link mesh, moat and railway lines used as barricades along with double gate system for entry and exit of vehicles. BBP is home to 20 lions and the prides have been grouped according to compatibility. They are allowed in the safari field on a rotational basis and visitors get a glimpse of these majestic group animals interacting and resting close to the natural lake between bamboo clusters.

After the lions' is the tiger safari which has a water pond, resting platform and trees for scent marking in the field for these big cats. Two colors namely, normal and white tiger can be spotted in the safari and the role of genes for the change in pigmentation for the variants is evident for the same sub-species which visitors can often confuse the white tigers to be Siberian Tigers but are very much Royal Bengal Tigers (*Panthera tigris tigris*) with low melanin pigment.

Royal Bengal Tigers are generally solitary in the wild, however due to reduced competition for mates and food in the safari unit, they co-exist together. They camouflage extremely well in the long grass, bamboo breaks and create the excitement while visitors search for these endangered big cats within the safari area. They can be spotted scent marking, clawing trees, resting in water or between grass and occasionally surprise visitors with close encounters next to the safari vehicles.

Apart from the safaris, visitors get a glimpse of the Lungs of Bengaluru "Bannerghatta National Park" while returning back, after the tiger safari. Bannerghatta Biological Park is carved out of the National Park and it is the northern most tip of the Mysore Elephant Reserve. This vital corridor for elephants and other wildlife has an undulating terrain with broken chains of hills and rocky outcrop. Existing rocks are made of coarse granite and complex GNEISS which are part of Peninsular GNEISS. Since vegetation in the biological park is similar to that of National Park, some of the commonly found tree species are Peepal, Indian fig tree, Neem, Gooseberry, Ashoka attracting wide varieties of birds. According to Champion and Seth classification of Indian forests, upper region have southern tropical dry deciduous forests in red and gravelly soil and valley region have southern tropical moist deciduous forests in sandy loam soil.

Since the area surrounding the safari units are accessible to free ranging wildlife, the safari closes to visitors at 5:30 pm. Also only BBP or KSTDC vehicles are allowed into the safari during operating hours and no safari vehicles move in this area after the visiting timings.

This allows unrestricted and undisturbed movement of free ranging Asian Elephants, Sloth Bear, Indian Leopard, Sambar Deer, Spotted Deer and Gaur to name a few. All captive animals in the different safari unit are monitored by their keepers for any signs of ill health and the same is reported to the veterinary team, headed by the Assistant Director (Veterinary Services). Feeding of all carnivores is done indoors in the holding house, after the safari closes at 5:30 pm and feed is weighed and quality is checked before it is provided to all the animals. Tuesday is a starve day for all felines and canids, mimicking their natural behaviour in the wild as they do not consume food on a daily basis.

Keepers and security personnel assess the mesh, barricades and doors of all safari units twice a day to ensure no damages, escape routes or trespassing of free ranging wildlife into the safari. Staff are on a rotational basis in the morning and evening to provide security and to monitor the safari animals round the clock. Range Forest Officer maintains the infrastructure and before the onset of the dry season, weeding and fire lines are created within the safari range to prevent spread of forest fires.

Additionally, indigenous groups such as Jenu Kurubas and Iruligas are employed and play a vital role in ensuring safety at night, midst the movement of these free ranging animals, within and around the safari area of BBP. The safari is an educative experience for visitors to explore the wilderness of the natural forest and to learn about captive wildlife in its natural habitat, with safety and less intrusion with the hope that they are motivated to adopt green life styles to contribute their bit for nature and wildlife conservation.



30 Elephant Care Centre

BBP has a specialised centre for housing and managing Asian Elephants (*Elephas maximum indicus*) called Elephant Care Centre (ECC) spread across an area of more than 60 hectares. Currently, 26 Asian Elephants (11:15) are housed at BBP's Elephant Care Centre. Sufficient water source is available in the natural pond Seegekatte, in the ECC for the elephants to drink and have a swim along with tree cover retained from the natural habitat of the national park, to provide sufficient shade while they free range within the care centre area during the day. They lead a semi-free ranging lifestyle, where they are provided nutritious food and cared for by their mahouts and veterinary team in the care centre during the day. In the evening, our Elephants are allowed to free range until next day morning, in the adjoining BNP. They are retrieved in the morning by their mahouts, who are from the Jenu Kuruba tribal community and enrich the management practice at BBP with the traditional knowledge that they have gained over centuries from their forefathers. Additionally, a 0.65 Ha emergency Corral is constructed within the care centre to contain and separate elephants for medical procedures and also as a musth corral, where the bull elephant can free range within the enclosed area.



31 Rescue Centre

The National Zoo Policy 1998, provides opportunity to all the zoos to function as rescue centre for orphaned, refused, rescued wild animals subject to the availability of appropriate housing and up keeping facilities. This Park has one of the Rescue Centers initiated by the Government of India in the year 1999 under Central Zoo Authority for rehabilitation of rescued animals. The park has successfully established the Rescue Center over an area of 17.50 Ha within the Biological Park limits. The Rescue Centre established started functioning from December 2000 as an off-display area.

The Rescue Center has two wings, one each for Lions and Tigers. The lion block is called as L- block having 12 houses, each house consisting of 6 holding rooms connected to kraal of 1500 Sq m., where a total of 72 lions can be housed. Right opposite to the lion block another semicircular housing complex namely T-block of half the size of L-block has been constructed for housing tigers. There are 05 housing units in this block and each of the housing unit has 06 animal holding rooms connected to kraal of 1500 Sq.m, where a total of 30 tigers can be housed. Presently, rescued leopards, tigers & sloth bears and aged animals from zoo & safari are housed in this unit. Rest of the center is planned to harbor different varieties of trees and plants to create natural surrounding like forest inside the center.

A Bear Rescue Centre, by using a part of the existing Bear Safari with the existing rescued animals has been established at Bannerghatta Biological Park, Bengaluru, with the collaboration of Wildlife SOS, New Delhi, for the benefit of the bears rescued from Khalandars, found stray, injured, orphaned, trapped & sick. As on 31-3-2023, 60 rescued bears, are being accommodated in this rescue centre. The maintenance costs of all these Bears are directly met by Wildlife SOS, an NGO. Tigers rescued from various circuses in Europe is accommodated at Born Free Foundation (BFF), Bannerughatta Biological Park, Bengaluru. As on 31-3-2023, a wild male rescued tiger is accommodated in this unit. The maintenance cost of this animal for the year 2022-23 is met by BFF, an NGO

Bannerughatta Biological Park (BBP) being in close proximity to Bengaluru city receives lot of urban wildlife rescued from human-animal conflict and illegal trade. Most of these animals, except for large carnivores and bears, are received and treated in the Bannerghatta Rehabilitation Centre (BRC), which was started by Wildlife Rescue and Rehabilitation Centre (WRRRC) and is part of BBP. BRC is not open to the public and situated away from the zoo premises.

The rescued animal details, including species, name of rescuer, etc. is entered at BBP security gate upon arrival and once permission is obtained from the Assistant Director (Veterinary Services), it is shifted to BRC after confirmation of data entry at parking gate.

Upon arrival at BRC, rescued animal's body weight and body condition is examined. Healthy animals are dewormed and vaccinated, if required. Whereas, injured animals are treated to stabilize their condition prior to any medical procedures. Further relevant diet is formulated for the species and the animals are observed for 1 - 2 weeks to assess their health condition.

In the unforeseen circumstance of an animal death, the animal will be sent to Institute of Animal Husbandry & Veterinary Biologicals (IAH&VB) lab located inside BBP premises, where the post-mortem is conducted. The deceased animal is burnt in WRRRC premises, in the presence of Range Forest Officer (RFO)/ Deputy Range Forest Officer (DRFO) from Butterfly Park range and mahazar is conducted on spot.

However, animals which are fit for release are certified by the wildlife veterinarian and release request with time, date of release is submitted to BBP and Bannerghatta National Park (BNP) officials. The above said animals are released back to wild, in a suitable habitat, in the presence of BBP and BNP officials and release mahazar is conducted at the time of release and submitted accordingly.



32 Butterfly Park

The Park was conceptualized as one integrated center that would support education, conservation and research activities with exclusive focus on butterflies as flagship ambassadors of conservation. The Butterfly Park has the following major components:

- A Butterfly garden to sustain local butterfly population
- A butterfly conservatory enclosed under polycarbonate roof
- Research and captive breeding laboratory
- A museum
- Multimedia center

The entire park has been established over area 7.5 acres which has a butterfly trail of about 1 km length. The butterfly trail established over a five acre garden leads the visitors to an innovatively designed three dome structure housing the conservatory, museum and the multi-media center.

INSECTARIUM

A new initiative of displaying insects was taken up as various species of insects are found around Butterfly Park. Accordingly, 8 to 10 locally available species of insects are exhibited currently in the insectarium to create awareness and educate students and general public

Life Cycle of Butterfly

Eggs

Common Mormon

Crimson Rose

Common Crow



Larvae or Caterpillar



Three-spot Grass Yellow



Great Orange Tip



Common Crow

Chrysalis Pupa



Blue Tiger



Common Crow



Crimson Rose

Enclosed
Butterfly
or
Emerging
from Pupa



Common Mormon



Common Pioneer

Lab Duties

Feeding butterfly larvae is the most essential task in the breeding section which is done by trained Lab Assistants. They segregate larva according to the in-star and species to provide sufficient host plant leaves to the specific species in their specific instars. Additionally, special care is provided to protect the dormant stages of egg and larva. Once the butterfly hatches from the pupa after metamorphosis, they are allowed to rest and dry their wings before they are left free in the conservatory dome on a daily basis.



List of butterfly species bred in the Breeding Centre

- | | |
|-----------------------|----------------------------|
| 1 Common Mormon | 12 Common Jay |
| 2 Common Lime | 13 Common Emigrant |
| 3 Common Castor | 14 Common Rose |
| 4 Blue Mormon | 15 Common Pioneer |
| 5 Red Pierrot | 16 Three-spot Grass Yellow |
| 6 Blue Tiger | 17 Southern bird Wing |
| 7 Common Crow | 18 Striped Tiger |
| 8 Plain Tiger | 19 Great Orange Tip |
| 9 Common Grass Yellow | 20 Common Jay |
| 10 Crimson Rose | 21 Tailed Jay |
| 11 Common Leopard | 22 White Orange Tip |

Natural enemies in breeding centre

Parasitoid in various stages:

Egg, larvae and pupal stages are the most important stages of butterflies and conserving them from enemies indoors is very crucial.



Egg Parasitoid



Pupal Parasitoid

Yellow sticky traps are used as a control measure to avoid parasitoid infestation and other predator insects to protect the eggs and larva.



Host Plant Garden:

Butterflies are host specific where different species of butterflies have specific host plants on which the female lays its eggs. These species of plants are palatable to the specific species larvae, which hatch from the egg. Since different stages of a butterfly life cycle are reared in the Breeding Centre there is a requirement for the species specific larvae as well as for egg laying females. Hence a dedicated Host Plant Garden is maintained to supply to the captive bred butterflies to facilitate their growth, development and breeding.



Educating other zoos or institutions:

With expertise from our Butterfly Park, our staff are invited by other institutions to provide technical assistance to set up and develop Butterfly Parks in other parts of India such as in Maharaja Martand Singh Judeo White Tiger Safari and Zoo, Madhya Pradesh. Outreach awareness through a Butterfly workshop was conducted by our staff at Life Science Educational Trust.



Awareness activities in butterfly park:

With successful breeding and rearing of various butterflies as well as host plants and nectar plants, visitors from all walks of life can get an up-close look at the different life stages of various species of butterflies, their evolution, ecological significance and behaviour. Visitors also get an opportunity to release newly hatched butterflies in the Conservatory dome area.

During the month of September 2023, 8671 butterflies belonging to 18 species were bred successfully and released in the dome area. Learn about Butterfly Day was celebrated with a new species being highlighted everyday for visitors.



33 Animal Health Care



The zoo has a modern hospital headed by an Assistant Director (Veterinary Service) and supported by veterinary officer, 1 biologist and 2 supporting staff. The hospital has an operation theatre (OT), X-ray facility, in-patient facility and store unit for medicines and equipment as well as a fully equipped ambulance for animal rescues. The Veterinarians have been active in training veterinary interns to get hands on experience and impart knowledge on the skills required to work effectively as a wildlife veterinarian.

The following equipments are available in the zoo hospital :

- ✓ Gaseous Anesthetic machine ✓ Operation table
- ✓ X-ray unit, digital radiography & Other surgical equipments ✓ Autoclave

The following equipments are available for restraining of animals :

- ✓ Dist inject projector and pistol ✓ Pneumatic projectors
- ✓ Blow pipe ✓ Hand syringe

WILD ANIMAL DISEASE DIAGNOSTIC LAB, BANNERGHATTA - WADDL

BBP has a well equipped pathology laboratory namely Wild Animal Disease Diagnostic Laboratory (WADDL), a branch of IAH & VB headed by a scientist and lab technician. There is a post mortem room where all the carcasses of dead captive animals are subjected for postmortem and pathological investigation to determine the cause of death. After the postmortem, the carcasses are disposed by burning. A bio-medical waste disposal pit was constructed beside postmortem room to degrade and dispose medical (veterinary) wastes.

Activities in the WADD Lab

- Clinical Examination of Blood, Serum, Urine and Exudates from the Wild Animals
- Blood Examination : Hematology – parameters including WBC, RBC, Hb, PCV, DLC, Platelets, MCV, MCH and MCHC

Aims & Objectives

- Large scale production of various biologicals for prophylaxis and diagnostic agents for speedy and prompt diagnosis of various livestock and poultry diseases.
- Produces Bacterial vaccines, Viral vaccines and Diagnostic antigens.
- To provide prompt and effective diagnostic services for identification of disease problems with an aim to eradicate them.
- To adopt new technologies in the development of cost effective and efficient biologicals and diagnostic aids.
- To undertake in-depth study on animal disease epidemiology with emphasis on rural economy and cost benefits.
- Training of scientific and technical personnel of the recent advances in the technology of biological production and disease diagnosis and also to impart knowledge to the farmers in raising healthy animals and poultry.

Hematology Unit



Urine analysis



PCR Unit



Serology Unit



Microscope Unit



Successful surgical management of Hiatal Hernia Type 1 in a Leopard cub at BBP

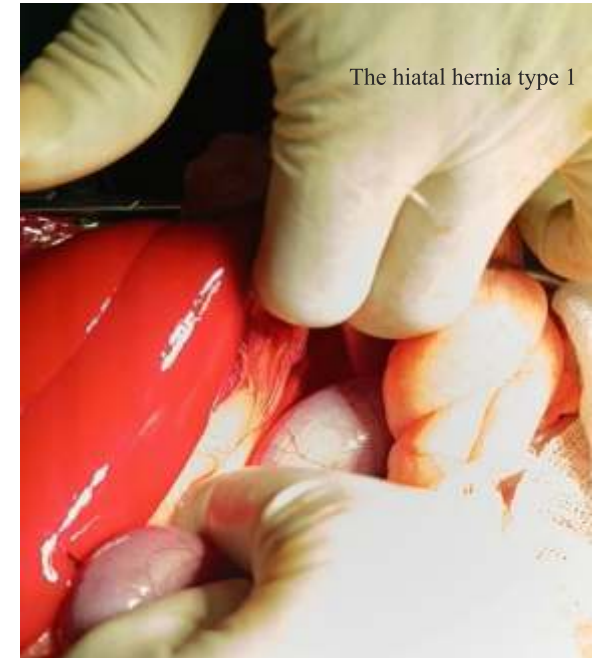
A 8 month old male leopard (*Panthera pardus*) which was hand-reared at BBP zoo hospital showed clinical signs such as complete off-fed, vomition, dullness, arched back and apparent weight loss. The hematobiochemical reports revealed no major changes. upon survey radiograph of the animal it was revealed that a gas and soft tissue opacity filled organ was appreciated and the diaphragmatic line was unclear. The animal was subjected to ultrasonography, which confirmed the breakage of diaphragmatic wall and the part of stomach could be scanned at the level of left 9th and 10th intercostal space. The condition was confirmed to be hiatal hernia type 1

Survey radiograph showing gas and soft tissue filled organ inside the thorax.

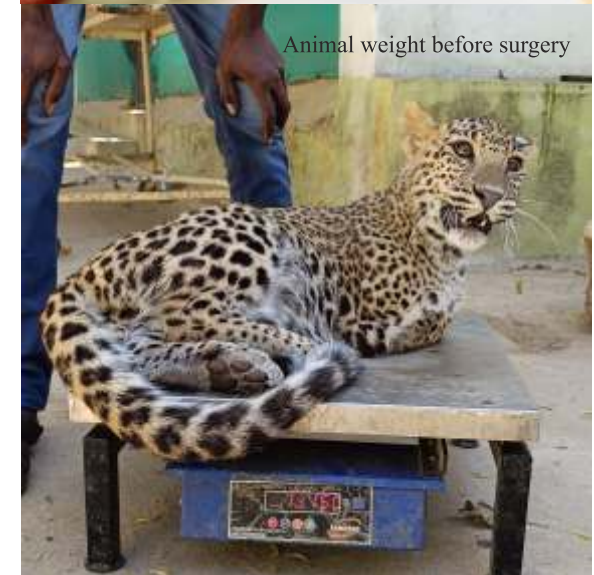
12th day of follow up, where in there's no organ inside the thorax



Animal gained its weight around 27 kg (after deduction of cage weight)



The hiatal hernia type 1



Animal weight before surgery

RESULTS- An intensive cautious corrective surgery was attempted on the leopard cub. The amount of risk taken was enormous as there was no one reported in Asia. This is the first account of this condition in this species being successfully treated in Asia. It was imperative that surgical intervention be effective because long-term medicinal therapy would not have been feasible in big cats. The peculiar way this case presented emphasises how crucial it is to rule out hiatal hernia in young cachectic animals

Progress Report of WADDL from April 2023 to March 2024

		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
1	Hematology	8	29	7	3	9	13	15	13	18	21	45	30	211
2	Blood smears	8	29	7	3	9	12	15	13	18	21	48	30	213
3	Fecal samples	36	21	14	66	27	42	42	43	30	20	76	19	436
4	Impression Smears	27	23	17	16	56	68	28	26	71	27	31	36	426
5	Immunoserology													
6	Histopathology	5	3	3	4	14	16		8	12		15	6	86
7	Serum chemistry	112	406	98	48	126	182	190	182	252	252	621	364	2833
8	Skin scrapings													
9	Urine analysis			2	2	2	3	1				1	2	12
10	TB & JD testing													
11	Fecal sample-AFB	21	19	12	10	26	28	16	12	30	20	25	19	238
12	Anti bioassay	2			2		2					3	1	10
13	Autopsies	18	19	20	8	21	35	15	12	30	20	25	19	242
14	Brain for Rabies									1		1		2
15	FMD-Tong. Epith.													
16	Brain for BSE													
17	AI - tracheal / cloacal/Envr swabs							4						4
18	Poisoning/ Toxicity						2			4		2		8
19	Milk sample													
20	Nasal discharge				2									2
21	Miscellaneous/DNA /PCR/Veterolegal	18	8	3	22	18	43	34	24	31	18	51	9	279
		255	557	183	185	308	446	360	333	497	399	944	534	5001



Hymenolepis spp



Anchylostoma spp



Spirometra spp



Toxocara spp ova



Capillaria spp ova



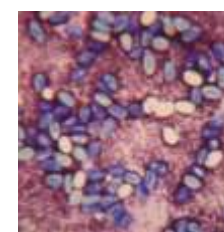
Tricuris spp ova



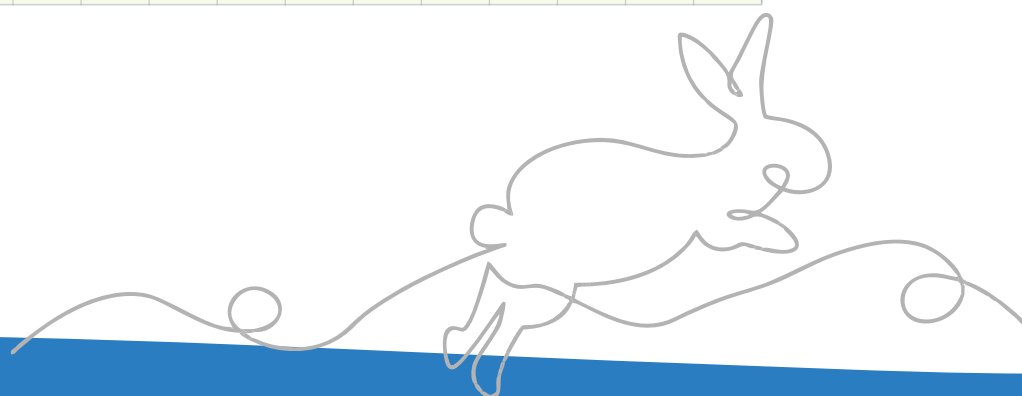
Pin worm eggs in tortoise



Bothridium pythonii ova



Rhabdias larvated ova



34 Free Living Wild Animals within the Park Premises





Bannerughatta Biological Park provides an opportunity for citizens to contribute towards Ex-situ conservation by adopting animals on a yearly or daily basis. Adoption covers partial cost of Animal Feed, Maintenance and Veterinary health care with provision for Income Tax rebate under 80G (5) (iv) of Income Tax Act, 1961. Adopters receive an Appreciation certificate as well as free entry pass where they could visit the park to see their adopted animal.

We are extremely grateful to citizens for their continuous support through the Animal Adoption and One Day Feeding Programme.

The total amount received through adoption and one day feeding for the year 2023-24 is Rs.72,51,767/-

Adoption Summary


Type of Adoption	Number of Adopters	Amount Donated
Animal Adoption	259	70,22,477
One Day Feeding	140	2,29,290
Total	399	72,51,767

Platinum Class Adopters

Adopters Name	Name of the Animal Adopted
Sanmati Balaji	Asian Elephant
Sri Sri Ravishankar Vidya Mandir	Lion
Anupama Parthasarathy	White Royal Bengal Tiger Veer and Zebra Kabini
Prakruthi Constructions	Indian Leopard Prakruthi
Shree Ganga Properties	Asian Elephant Om Ganga, King Cobra, Hanuman Langur (2 nos), Spectacled Langur (2 nos) and Pig Tailed Macaque
P C Mohan	Lion
Vilas V Shinde	Lioness Anasuya
Schneider Electric India Pvt Ltd	Indian Leopard and Common Ostrich
Forgepro India Pvt Ltd	Royal Bengal Tiger Mithun
Spoorthy Nagappa	Asian Elephant Anarghya & Indian Leopard Amoggh
Kumar Organic Products Ltd	Royal Bengal Tiger (2 nos)
Kirloskar Toyota Textile Machinery Pvt Ltd	Asiatic Elephant, Royal Bengal Tiger, Hippopotamus, Zebra (2 nos), Indian Leopard, Golden Jackal, Spot Billed Pelican, Malabar Giant Squirrel, Nilgai (2nos), Scarlet Macaw, Rhesus Macaque, Indian Crested Porcupine, Night Heron & Budgerigars (2 nos)
Consilio India Pvt Ltd	Asian Elephant, Royal Bengal Tiger (White), Zebra and Indian Leopard
Nandi Economic Corridor Enterprises Limited	Asiatic Elephant (2 nos), Royal Bengal Tiger (2 nos), Green Winged Macaw, Rainbow Lorikeet, Eceletus Parrot & African Grey Parrot

Donations : Two Bolero's & Sponsorship of Self Serve Kiosk by Bank of Baroda



A photograph of two green parakeets with red beaks peering out from a hole in a tree trunk. The tree trunk is dark brown and textured. The background is a soft-focus green and yellow, suggesting foliage. The image is framed with a dark blue curved border at the bottom.

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