

# Bannerghatta Biological Park (BBP)



**ANNUAL**

**REPORT**  
**2016-17**



CZA

WAZA

**Editorial Team:**

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Team Dharthi



A Non-Governmental Organization working on the front of Environment, Forests, Communities and Tourism (EFCT), and bringing about qualitative inputs that will help in the planning and strategizing for a sustainable framework. The focus areas include Policy, Research and Advocacy, Ecotourism Consulting, Responsible Tours, Environmental Impacts, Environment Education and Rural Livelihoods.

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The Pictures have been sourced from Team Dharthi. Supplementary Pictures have been received from the Office of the ED, BBP and other team members from the Laboratory, Zoo Hospital and Butterfly Park.

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# INTRODUCTION

Bannerghatta Biological Park (BBP) is located about 22 Kms from Bangalore 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 visions for wildlife protection and preservation for the present and future generations to come. The park offers an excellent opportunity and window to the citizens of the mega city, Bangalore, to come closer to the nature. BBP has different units such as Zoo, Safari, Butterfly Park and Rescue Center.

BBP started as a minuscule picnic spot way back in early '70s and it has grown at leaps and bounds to attain the present status of a big zoo, recognized by the Central Zoo Authority of India. Until 2002, it was under the control of the Wildlife Wing of the Karnataka Forest Department, but it was brought under the umbrella of Zoo Authority of Karnataka (ZAK) since 20th July 2002 coinciding with the creation of ZAK. Total area under the BBP is about 731.88 Ha, out of which about 200.00 Ha is build up area for different units.

## **Management**

Bannerghatta Biological Park is maintained with the principle to become a "Self-Sustaining Organization". It is headed by the Executive Director and assisted by other officers, engineers, veterinarians and scientists. There are about 200 employees working on contract basis.

## **Vision**

The vision of BBP is to create an opportunity to the citizens - especially to children in and around Bangalore to have a Biological Recreation Centre very close to the city in the midst of forests.

## **Mission**

To achieve the distinction of a natural eco zoo through world class conservation, education, research and visitor experience by connecting all creatures of GOD - People, Wildlife & Trees.



## Objectives

1. To create conditions for captive conservation and breeding of endangered species of wild animals.
2. To educate and enlighten the public (visitors) by displaying wild animals that are equally important, interesting and essential for the ecosystem's support and thus create empathy towards wild animals.
3. To offer an excellent opportunity for people to connect with nature and wildlife.
4. To serve as gene pool and germ plasm reserve for future biological research on wild animals and to facilitate research on behaviour and breeding of different animals.
5. To provide rehabilitation to orphaned animals of endangered species that are rescued from the wild/ circuses/crime etc.,
6. Conservation and breeding of butterflies at Butterfly Park
7. To provide recreational facilities to the public



## BBP At Glance

Bannerghatta Biological Park is spread over an area of 731.88 Ha.  
Unit-Wise Extent of Coverage is as Follows

Sl. No.	Area Under Different Uses	Area
1	Lion and Tiger Safari	22.00 ha
2	Bear Safari	14.50 ha
3	Herbivore Safari And Nature Camp (JLR)	121.41 ha
4	Butterfly Park And Host Plant Garden	12.86 ha
5	Rescue Center	17.50 ha
6	Zoo	12.54 ha
7	Proposed Area For Expansion Of Zoo	28.54 ha
8	Wildlife Rescue And Rehabilitation Centre	2.93 ha
9	Born Free Foundation -Tigers' Lifetime Care Facility	5.00 ha
10	Vehicle Parking Area	0.86 ha
11	Residential Area	0.13 ha
12	KSTDC Hotels	0.62 ha
13	BMTC Bus Stand	0.80 ha
Sub- Total Area Under		239.69 ha
14	Balance Area is Under Forest With a Lot of Water Bodies, Roads Etc.,	492.19 ha
Total Area Of BBP		731.88 ha

Currently 1976 Animals Belonging To 94 Species Are Being Displayed For Public Viewing

		Schedule I & II	Others	Total Species	Total Numbers
Captive Animals And Birds (as on 31-03-2017)	Birds	5	38	43	369 Nos
	Mammals	22	13	35	1385 Nos
	Reptiles	8	8	16	222 Nos
	Total	35	59	94	1976 Nos
No. of Animal Houses	Open Air Enclosure				14 Nos
	Closed Cages/Aviarles				26 Nos
	Animal Holding House				12 Nos

### Staff Strength in BBP

Sl No	Staff	Nos
1	Permanent Staff	12
2	Kshemanidhi Employees	13
3	Office staff	8
4	Safari staff	68
5	Zoo	77
6	Butterfly Park	20
7	Rescue Center	5
8	Veterinary officers	2
9	PRO	1
10	Entomologist	1
11	Biologist	1
12	Junior Engineer	1
13	Education Officer	1
14	Outsourced staff from Agency	42
15	Security Staff from Agency	24
<b>Total</b>		<b>276</b>

### Sanction Establishment Strength And Working Strength At Bannerghatta Biological Park, Bangalore as on 31-03-2017

Sl No.	Designation	No. of Posts Sanctioned	Working Strength	Vacant
1	Executive Director and Chief Conservator of Forests	1	1	0
2	Deputy Director and Deputy Conservator of Forests	1	1	0
3	Gazetted Manager	1	1	0
4	Assistant Director (Veterinary Service)	1	1	0
5	Assistant Engineer (PWD)	1	1	0
6	Range Forest Officer	3	1	2
7	First Division Assistant	1	1	0
8	Deputy Range Forest Officer	4	1	3
9	Forest Guard	3	1	2
10	Forest Watcher	3	2	1
11	Mahouts	2	1	1
12	Kavadi	4	0	4
<b>Total</b>		<b>25</b>	<b>12</b>	<b>13</b>

**Budget And Actual Income And Expenditure  
for the period 1 -4- 2016 to 31 -03-2017 (Rs. In Lakhs)**

Sl.No.	Details of Budget Head	Actual Expenditure from 01-04-16 to 31-03-17 In Lakhs
1	Establishment Charges	546.77
2	Office Expenses	10.25
3	Advertisement & Publicity	7.04
4	Stores,Tools& plants	1.18
5	General Charges	9.17
6	Zoo Education	0.02
7	Staff Welfare	21.44
8	Other if any	-
	<b>Total</b>	<b>595.87</b>
9	<b>Feed Fodder</b>	<b>727.79</b>
10	Hospitality/Animal Treatment charges	27.84
11	Purchase of live stock	0.64
	<b>Total</b>	<b>28.48</b>
12	Fixed Assets	28.91
13	Garden Development	-
14	Civil work Development (Zoo, Safari & Butterfly Park)	140.34
	<b>Total</b>	<b>169.25</b>
15	Maintenance charges	74.41
16	Garden Maintenance	-
17	Research & Documentation	-
18	Enrichment of captive Habitat	-
19	Civil Work Maintenance (Zoo, Safari & Butterfly Park)	93.62
20	Payment to KSTDC (50%of Safari Entry)	507.53
	<b>Total</b>	<b>675.56</b>
	<b>Sub Total</b>	<b>2,196.95</b>
	<b>Spillover Works</b>	<b>40.62</b>
	<b>Grand Total</b>	<b>2,237.57</b>

Actual income 2016-17 Upto March-17 in Lakhs	
Gate Collection	1,972.61
License Fees	141.92
Sale proceed	3.78
Bank Interests	228.30
Other receipts	555.14
Zoo Parking Stand	
Others	
<b>Total</b>	<b>2,901.75</b>

### Number of Visitors Month wise details during the year of 2016-2017

Sl.No.	Month	Adults	Children	S. Citizens	Students	Foreigner Safari - Adults	Foreigner Safari - children	Total
1	Apr-16	79,587	16,225	2,224	1,253	214	9	99,512
2	May-16	146,363	36,066	4,403	641	219	4	187,696
3	Jun-16	79,782	9,499	2,840	604	175	6	92,906
4	Jul-16	92,460	10,300	2,579	2,462	449	56	108,306
5	Aug-16	85,851	8,910	2,365	2,470	375	52	100,023
6	Sep-16	61,655	5,915	1,802	2,145	252	18	71,787
7	Oct-16	127,992	22,337	3,277	4,222	312	11	158,151
8	Nov-16	61,687	7,766	2,117	6,371	287	11	78,239
9	Dec-16	92,628	16,651	3,440	9,817	275	20	122,831
10	Jan-17	107,348	12,950	2,892	6,279	337	17	129,823
11	Feb-17	61,999	5,814	2,087	4,035	413	14	74,362
12	Mar-17	60,194	5,367	1,866	1,891	334	4	69,656
<b>Total</b>		<b>1,057,546</b>	<b>157,800</b>	<b>31,892</b>	<b>42,190</b>	<b>3,642</b>	<b>222</b>	<b>1,293,292</b>

#### Special Safari Trip Visitors of 2016-17

Sl.No.	Year	Adults	Children	Total
1	2016-17	82,123	3,413	85,536

#### Jungle Lodges and Resorts Visitors of 2016-17

Sl.No.	Year	Adults	Children	Total
1	2016-17	2,899	353	3,252

#### Online Booking Visitors of 2016-17

Sl.No.	Year	Adults	Children	S. Citizens	Total
1	2016-17	25,614	3,972	2,510	32,096

**Grand Total**

**1,414,176**



## BBP: HISTORY

The Bannerghatta Biological Park (BBP) as we know of it today, was created in 2002 with 545.00 Hectares of forest from the National Park being set aside to constitute the Biological Park, which was further extended to 731.88 Hectares. BBP however, has its own History, which brings to the fore the efforts towards conservation and preservation of the flora and fauna by the Karnataka Forest Department. Panning the pages of History one comes across the name of Shri YML Sharma, IFS<sup>1</sup>, the then Chief Conservator of Forests and also the Head of the Forest Department, who was responsible for identifying the need of a place where Bangaloreans can enjoy the solitude of the wilderness. He was instrumental in visualizing and creating the Bannerghatta National Park (BNP). The support he received from the then Governor of Karnataka, Shri Dharma Vira, and Shri Ramakrishna Hegde was noteworthy. Shri Dharma Vira, promulgated the notification declaring 104.27 square kilometers of forest as the National Park in 1974. YML had been working on the National Park project from 1972 and would travel to Bannerghatta area on a daily basis to ensure understanding of the area. He initiated the transfer of many animals like reptiles, foxes, bison into the park. It is also said that, YML had a small trench dug up to ensure protection to the animals and of course the people living in the nearby surroundings. Thence, it can be seen that the foundations for the National park as a safari park, as was visualized, by YML had its small footsteps and the periodic addition of new species created the BBP as we see it today. It has been the efforts of the Zoo Keeper officers, who with their dedication ensured quality preservation, conservation, leading to development in the initial stages, limited Wildlife tourism, now with the nomenclature of Ecotourism, recreational facilities and even educating the visitors has led to the creation of the BBP as it stands today. Further, the efforts of BBP are to promote better scientific understanding of the forest and wildlife in the minds of the younger generation.

### List Of Officers Headed Bannerghatta Biological Park After Bifurcation Of Bannerghatta National Park and Bannerghatta Biological Park.

1. Sri B.M.T.Rajeev, IFS
2. Sri N.L. Raghava - 27-06-2003 to 30-06-2003
3. Sri K.B. Markandaiah, IFS - 01-07-2003 to 25-06-2006
4. Smt. Geethanjali, IFS - 26-06-2006 to 08-03-2007
5. Sri K.B. Markandaiah, IFS - 08-03-2007 to 05-05-2008
6. Sri Millo Tago, IFS - 05-05-2008 to 09-03-2011
7. Sri Chandrashekhar (in-charge) - 09-03-2011 to 29-04-2011
8. Dr. R.Raju, IFS - 29-04-2011 to 06-03-2013
9. Sri N.Devaraju, IFS - 06-03-2013 to 16-09-2013
10. Sri Range Gowda, IFS - 16-09-2013 to 14-09-2015
11. Sri Santhosh Kumar, IFS - 14-09-2015 till date

The history of BBP as we see today is one of glory and a contribution of the forest officers and their teams, who have strived to the BBP a better place not only for the animals but the visitors to ensure a qualitative experience of the wild animals. BBP stands head on for more glory in the future and surely will reach to the global levels of Zoo management. The footfalls are some of the best in the country to any Zoo, and BBP has lead from the front to ensure best practices that will surely be adopted by others. The BBP thence, provides for a myriad of opportunities to explore in the domain of Wildlife with products. The Bannerghatta Zoo, the Safari, the Rescue Center, the Veterinary Hospital, and the Laboratory add to the repertoire of the Biological Park.

<sup>1</sup>Yalagondanahalli Muniswamy Iyer Lakshminarayana Sharma from Ashtagrama in the District of Kolar.





## **BBP: Zoo**

Being an integral part of the BBP, the Zoo attracts large crowds throughout the year. On an average 1.5 million visitors come to the Zoo every year. The area of the zoo is a saddle between the Champakadhama hill and Mirza hill in the Bannerghatta Sandal Reserve.

The vegetation of the area is encompassed over a very good tree growth of lofty height and large number of bamboo breaks with a natural stream running from north to south (seasonal). The location of the zoo is in between the hills and therefore, it always maintains a cool climate throughout the year with a lush green and salubrious nature.

From a Layout perspective, the Bannerghatta Zoo was evolved over a period and developed in a more traditional way without a comprehensive plan and vision. But then over a period of time, the Zoo evolved, and the Management Plan is helping in ensuring the Zoo evolves further on scientific lines.

Today we see the lawns, garden and tree growth within the Zoo are being paid more attention and efforts are on to create a congenial atmosphere through scientific planning. The arterial roads within the Zoo are well laid and foot paths for the movement of buggies and people has ensured easier access to the sight-seeing destinations within the Zoo. For the young, middle aged and the old, the Zoo management has ensured shelters in the form of pergolas and stone benches at vantage points which would help one to relax and move around. The rest room facilities within the Zoo has also been well appreciated. The drinking water facilities and of course the small cafeterias and restaurants have ensured the visitors need not have to come out of the park for food.

Consider this, the BBP Zoo have moved in hierarchy from a menagerie to Mini to today being a large Zoo<sup>2</sup> by the Central Zoo Authority (CZA)<sup>1</sup>, for its sheer size and animal population. Though there are a total of 52 animal houses at present, qualitative and scientific works are being done to accommodate all existing animals on a theme basis, which will add to the nuance of conservation, preservation, and recreation.

Clearly one can see that the Management Plan evolved for BBP by the officers under the framework of the CZA will ensure qualitative and scientific growth and development. If one were to see the easily available map of the Zoo area from a satellite image, it is very clear.

Hence, if one were to analyze the intent of the founding fathers, who wanted to have a Safari Park, a Picnic Corner for the people of Bangalore, the Zoo at BBP has come a long way to ensure the objective of conservation, preservation and recreation.

**Inventory Report for the year 2016-17**  
**INVENTORY OF SCHEDULE I AND II SPECIES (WILDLIFE PROTECTION ACT)**

Sl. No	Name Of The Animal & Scientific Name	Stock as on 31/03/2017			
		M	F	U	T
1	Great Indian Horn bill: <i>Buceros vicornis</i>	0	1	0	1
2	Pea fowl Indian: <i>Pavo cristatus</i>	4	2	0	6
3	Spoon bill: <i>Platalea leucorodia</i>	1	0	0	1
4	Kalij Pheasant: <i>Lophurs leucomelana</i>	0	1	0	1
5	Red Jungle Fowl: <i>Gallus gallus</i>	6	2	0	8
<b>TOTAL</b>		<b>11</b>	<b>6</b>	<b>0</b>	<b>17</b>

**MAMMALS**

1	Black Buck: <i>Antelope cervicapra</i>	5	11	12	28
2	Leopard: <i>Panther pardus</i>	15	19	0	34
3	Lion Tailed Macaque: <i>Macaca silenus</i>	0	1	0	1
4	Himalayan Black Bear: <i>Selenarctels thibetanuts</i>	4	2	0	6
5	Jackal: <i>Canis aureus</i>	0	2	0	2
6	Macaque Rhesus: <i>Macaca mulatta</i>	3	4	1	8
7	Common or Hanuman Langour: <i>Presbytis entellus</i>	0	3	0	3
8	Indian Giant Squirrel - <i>Ratufa indica</i>	0	1	0	1
9	Shanghai/Thamin Deer: <i>Cervus Eldi</i>	5	5	10	20
10	Mouse Deer: <i>Tragulus meminna</i>	0	0	0	0
11	Wild Dogs: <i>Cuon alpinus</i>	1	1	0	2
12	Indian Grey Wolf: <i>Canis lupas pallipes</i>	2	2	0	4
13	Four horned Antelope: <i>Tetracerus quadricornis</i>	1	3	1	5
14	Jungle Cat: <i>Felis chaus</i>	2	2	11	15
15	Spectacled Langur: <i>Trachypithecus obscurus</i>	2	2	0	4
16	Pig Tailed Macaque: <i>Macaca Leonina blyth</i>	2	2	1	5
17	Assamese Macaque (Hybrid): <i>Macaca assamensis</i>	1	1	0	2
18	Goral: <i>Nemorhaedus</i>	0	1	0	1
<b>TOTAL</b>		<b>44</b>	<b>61</b>	<b>36</b>	<b>141</b>

**REPTILES**

1	Crocodile long snouted Gharial: <i>Gravialis gangeticus</i>	0	4	0	4
2	Indian - Rock Python: <i>Python molurus</i>	3	4	0	7
3	Cobra Indian: <i>Naja naja</i>	9	8	0	17
4	King Cobra: <i>Ophiophagus hannah</i>	2	2	0	4
5	Viper Russells : <i>Vipera russelli</i>	4	2	1	7
6	Common Indian Monitor Lizard: <i>Varanus bengalensis</i>	0	1	1	2
7	Rat Snake: <i>Ptyas Mucousus</i>	0	0	30	30
8	Black Spotted Terrapins: <i>Geoclemys Haniltoni</i>	0	0	35	35
<b>TOTAL</b>		<b>18</b>	<b>21</b>	<b>67</b>	<b>106</b>

**INVENTORY OF OTHER SCHEDULE & EXOTIC SPECIES (WILDLIFE PROTECTION ACT)  
NAME OF THE ZOO: BANNERGHATTA BIOLOGICAL PARK**

Sl. No	Name Of The Animal & Scientific Name	Stock as on 31/03/2017			
		M	F	U	T
1	Baya Weaver: <i>Ploceus phillinus</i>	0	0	1	1
2	Love Birds: <i>Agapornis</i>	0	0	1	1
3	Cockatiels: <i>Nymphicus hollandicus</i>	15	21	0	36
4	Heron Night: <i>Nycticorax nycticorax</i>	20	35	5	60
5	Ibis White: <i>Threskiornis aethiopicus</i>	1	3	0	4
6	Budgerigar: <i>Melopsittacus undulatus</i>	48	45	10	103
7	Munia Black Headed: <i>Lonchura punctulata</i>	5	5	0	10
8	Barn Owl: <i>Tyto alba</i>	0	0	2	2
9	Eurasian Eagle Owl: <i>Asio otus</i>	2	1	3	6
10	Parakeet alexandrine: <i>Psittacula euparia</i>	3	2	0	5
11	Parakeet rose ring: <i>Psittacula krameri</i>	17	4	0	21
12	Pelican Grey: <i>Pelecanus philippensis</i>	7	5	10	22
13	Red crested pochard: <i>Netta rufina</i>	1	0	0	1
14	Stork painted: <i>Mycteria leucocephala</i>	0	1	0	1
15	Golden Pheasant: <i>Chrysolophus pictus</i>	1	0	0	1
16	Emu: <i>Dromaius novaehollandiae</i>	4	3	0	7
17	Pea fowl white: <i>Pavo cristatus</i>	4	0	0	4
18	Lady Amherst's Pheasant: <i>Chrysolophus amherstiae</i>	2	6	0	8
19	Ostrich: <i>Chrysolophus amherstiae</i>	1	1	0	2
20	Chines ring necked Pheasant: <i>Phasianus colchicus torquatus china</i>	1	0	0	1
21	Black swan: <i>Cygnus atratus</i>	2	2	0	4
22	Silver Pheasant: <i>Lophura nycthemera nycthemera</i>	7	8	0	15
23	Green Winged Macaws: <i>Ara chloropterus</i>	2	2	0	4
24	Rhea: <i>Americanus</i>	2	1	0	3
25	Amazon Parakeet: <i>Amazona amazona</i>	0	1	0	1
26	African grey parrot: <i>Psittacus erithacus</i>	1	0	0	1
27	Sun Conure Parrot: <i>Aratinga solstitialis</i>	1	2	0	3
28	Black Crowned Crane: <i>Balearica pavonina</i>	1	1	0	2
29	Blue Gold Macaws: <i>Ara ararauna</i>	1	1	2	4
30	Palm Cockatoo: <i>Probosciger aterrimus</i>	1	1	0	2
31	Electus Parrot: <i>Electus noronhai</i>	1	1	0	2
32	Sulphur Crested Cockatoo: <i>Cacatua galerita</i>	1	1	0	2
33	Scarlet Macaw: <i>Ara macao</i>	1	1	0	2
34	Galah Parrot: <i>Eolophus roseicapilla</i>	1	1	0	2
35	Mottled wood owl: <i>Strix ocellata</i>	0	0	1	1
36	Rainbow Lorikeet: <i>Trichoglossus haematodus</i>	0	0	2	2
37	Red Lorikeet: <i>Trichoglossus rubritorques</i>	0	0	2	2
38	Blue Crowned pigeons: <i>Goura victoria</i>	2	2	0	4
39	Blue winged Parakeet: <i>Psittacula columboides</i>	0	0	0	0
<b>TOTAL</b>		<b>156</b>	<b>157</b>	<b>39</b>	<b>352</b>

## MAMMALS

1	Hippopotamus: <i>Hippopotamus amphibius</i>	3	4	0	7
2	Porcupine: <i>Hystrix indica</i>	0	0	4	4
3	Cat Toddy: <i>Paradoxurus hemaphrodites</i>	1	1	2	4
4	Chital or Spotted Deer: <i>Axis axis</i>	5	12	5	22
5	Marmosets: <i>Callithrix jacchus</i>	1	0	0	1
6	Hog Deer: <i>Axis Porcinus</i>	6	9	6	21
7	Barking Deer: <i>Muntiacus muntjak</i>	2	3	2	7
8	Striped Hyena: <i>Hyena hyena</i>	1	1	0	2
9	Nilgai or Blue Bull: <i>Boselaphus tragocamelus</i>	2	4	1	7
10	Zebra: <i>Equus burchelli</i>	2	2	0	4
<b>TOTAL</b>		<b>23</b>	<b>36</b>	<b>20</b>	<b>79</b>

## REPTILES

1	Red Sand Boa: <i>Eryx johnii</i>	1	1	0	2
2	Tortise Indian Star: <i>Geochelone elegans</i>	4	5	0	9
3	Crocodile Caiman: <i>Caiman crocodilus</i>	12	10	0	22
4	Red - eared slider turtle: <i>Trachemys scripta elegans</i>	0	0	57	57
5	Batagar Terrapin or River Terrapin: <i>Batagar baska</i>	12	8	0	20
6	Indian Mud or Flapshell Turtle: <i>Lissemys punctata</i>	2	1	0	3
7	Morelet's Crocodile: <i>Crocodylus moreletii</i>	0	1	0	1
8	Iguana green: <i>Iguana iguana</i>	1	1	0	2
<b>TOTAL</b>		<b>32</b>	<b>27</b>	<b>57</b>	<b>116</b>

### Major Development Works Completed During The Year 2016-17

The following animal holding house was completed during the year with the financial assistant from Central Zoo Authority. The total cost incurred for these works was: INR 128.92 lakhs.

- ⇒ Construction of Giraffe and Zebra enclosure by Infosys Foundation through CSR at the cost of about INR 100.00 lakhs
- ⇒ Construction of Hippopotamus enclosure
- ⇒ Construction of Assamese Macaque enclosure
- ⇒ Construction of Common Langur enclosure
- ⇒ Construction of visitor's path near hippopotamus enclosure
- ⇒ Resurfacing of roads in Herbivore safari and elephant care center
- ⇒ To recharge the existing bore wells, rain water harvesting pit were constructed near existing bore wells



• Pathways in the Zoo •



• Lion Tailed Macaque Enclosure •



• Common Langur Enclosure •



• Himalayan Black Bear Enclosure •



• Hippopotamus Enclosure •



• Zebra Enclosure •



## BBP Safari



One of the important flagship products of BBP is the Safari, which has attracted visitors of all hues and in thousands. The Safari is one of the most invigorating and adrenaline pumping activity in the BBP. Jointly managed and monitored by BBP and the Karnataka State Tourism Development Corporation (KSTDC); with the BBP fixing the fee for the visitor, the KSTDC focusing on the counter sales, revenue collection, and physically monitoring the 20 mini buses with a capacity of 30 per bus that ply in the Safari route. Revenue sharing is on a 50: 50 basis. Two high end Air Conditioned buses are also made available for high end visitors wherein Safari tours are conducted with the Naturalist helping visitors to understand by interpreting flora and fauna. This apart, BBP also conducts Safari by Jeep for the benefit of families and groups of up to four in number.

### The Present Safari Boasts of The Following

Sl. No.	Safari enclosure	(Extent) Area (in Hectares)	Name of the Forest	Year of Establishment
1	Herbivore Safari	68.00	Bannerghatta Reserve Forest	Developed in the 1970's opened to Public in 2002
2	Bear Safari <sup>1</sup>	20.00	Ragihalli Reserve Forest	2002
3	Elephant Care Center	49.50		
4	Tiger Safari	15.00	Ragihalli Reserve Forest	1987
5	Lion Safari	6.00	Ragihalli Reserve Forest	1979
<b>Total Area: 158.5 Hectares</b>				



### Herbivores Safari

One of the largest segments of the Safari enclosure, Herbivores Safari, has evolved from the 1970's and was opened to public view in 2002. The Herbivore Safari enclosure has been barricaded with stone wall along with the additional support of solar power fence and Elephant proof trench (EPT). What is very visible in the enclosure is the vegetation that has ensured the Herbivore population survives with vigor. Species such as bamboo and anogassius interspread along with the water bodies, and the edible grass species such as sacharam, symbopogon and heteropogon are common to the grass land and constitute as the main fodder for animals. The patches of shorea telura provide for shade of the animals. The water bodies, viz., Deepankere, Chennamanakere, Gowdanakere and Seegadikunte cater to the animals throughout the year. Besides the naturally available Wild Boar, porcupine and pangolin to mention a few, larger animals like the Gaur, Sambar, Cheetal, Barking Deer, Black Buck and Nilgai were brought to BBP and released under the rescue and rehabilitation program. Over two decades, all the animals in the Herbivores enclosure has naturalized and the population has multiplied substantially, thus creating a best practice for others to emulate.

<sup>1</sup>Includes 8 hectares allocated to Wildlife SoS (WSoS)



**Herbivore Safari Inventory of Schedule I and II Species (Wildlife Protection Act):**

Sl. No	Name Of The Animal & Scientific Name	Stock as on 31/03/2017			
		M	F	U	T
1	Black Buck : <i>Antelope cervicapra</i>	5	2	0	7
2	Gaur or Indian Bison: <i>Bos gaurus</i>	4	1	0	5
<b>TOTAL</b>		<b>9</b>	<b>3</b>	<b>0</b>	<b>12</b>
<b>Other Schedule Exotic Species</b>		<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>
1	Chital or Spotted Deer : <i>Axis axis</i>	108	115	431	654
2	Barking Deer : <i>Muntiacus muntjak</i>	2	3	0	5
3	Sambar: <i>Rusa unicolor</i>	84	90	128	302
4	Nilgai or Blue Bull: <i>Boselaphus tragocamelus</i>	5	5	0	10
5	Hog Deer: <i>Hyelaphus porcinus</i>	3	13	0	16
<b>TOTAL</b>		<b>202</b>	<b>226</b>	<b>559</b>	<b>987</b>



**Lion Safari**

An open enclosure of 6.00 Ha of the Ragihalli Reserve Forest, the designated Lion Safari area has tall Chain Link mesh with a height of around 15 feet, and a moat all around the Chain link mesh that has been created to avoid trespass of any wild animals; thereby avoiding conflict and also providing safety and security. A total of 11 holding rooms have been provided with the retrieval area for day time rest. The holding rooms also have a squeeze cage facility (three in number) to treat and attend the animal for any clinical or routine observations by the Veterinarians and other Park staff. The Lion Pride has benefited the most and groups of Lions on a rotational basis are allowed into the Safari for the benefit of the visitors who throng in large numbers.



## Tiger Safari

The Tiger Safari area has three different units within itself:

Sl. No.	Tiger Safari Unit	(Extent) area in Hectares
1	Indira Gandhi Tiger Safari	6.00
2	Appaiah Tiger Safari	8.00
3	White Tiger Safari	1.00

The peripheral boundary has been created for all the three units by digging open moat and erecting chain link mesh fence. All the three areas have been compartmentalized as autonomous areas and provided with housing complexes as follows:

### Indira Gandhi Tiger Safari:

The Indira Gandhi Tiger Safari has three different units of animal housing facilities. A total of 11 rooms with 3 squeeze cages and retrieval are at the backyard area to be found.

### Appaiah Tiger Safari:

The 2 animal housing complexes, together have 10 animal holding rooms with the primary facilities of water and sanitation as required for the animals in the enclosures.

### White Tiger Safari:

This facility has 2 animal housing buildings, with 8 animal holding rooms and 3 squeeze cages are provided besides the regular water and sanitation facilities.

## Lion and Tiger Safari Inventory of Schedule I and II Species (Wildlife Protection Act):

Sl. No	Name of the Animal & Scientific Name	Stock as on 31/03/2017			
		M	F	U	T
<b>Schedule I and II species</b>					
1	Tiger - Royal Bengal: <i>Panthera tigris tigris</i>	15	11	0	26
2	White Tiger-Royal Bengal: <i>Panthera tigris tigris</i>	3	4	0	7
<b>TOTAL</b>		<b>18</b>	<b>15</b>	<b>0</b>	<b>33</b>
<b>Other Schedule Exotic Species</b>					
1	Lion: <i>Hybrid Panthera leo</i>	10	10	0	20



## BFF Tiger

Sl. No	Name of the Animal & Scientific Name	Stock as on 31/03/2017			
		M	F	U	T
<b>Schedule I and II species</b>					
1	Sumatran Tiger:- <i>Panthera tigris sumatrae</i>	1	0	0	1



## Bear Safari

Located in the Ragihalli Reserve Forest, the Bear Safari has a peripheral open moat and an outer wall of the moat which is embedded with stone slabs all round in order to prevent the sloth bears from escaping or to avoid trespass of any other animal from the free range area. A total of 5 animal housing facilities is christened as Panchavati, Chitrakuta, Kishkinda, Dr. GVK Block<sup>2</sup> and Jambava<sup>3</sup> are home to the sloth bears. The facility also has a kitchen to take care of the needs of the bears.

Bear Safari Inventory of Schedule I and II Species (Wildlife Protection Act):

Sl. No	Name of the Animal & Scientific Name	Stock as on 31/03/2017			
		M	F	U	T
1	Sloth Bear: - <i>Melursus ursinus</i>	32	46	0	78

<sup>2</sup>Constructed by Wildlife SoS (WSOS). Wildlife SoS has an Agreement with the Zoo Authority of Karnataka (ZAK), which is in force from November, 2005 to provide maintenance and care to the dancing bears rescued from the Khalandars. These bears have a human imprint on them. The agreement between ZAK and WSOS is to end on 30th November, 2015.

<sup>3</sup>Constructed by Wildlife SoS

## 🐘 Elephant Care Center

An area of 60.00 ha supported with thick bamboo breaks with a big water body called Sigekattekere intermitted with grasslands was proposed for Elephant Care Center in the approved Master Plan. Out of the 60.00 ha area 49.50 ha area is enclosed with a secured solar power fencing with gates wherever necessary and this will serve as a habitat for the captive elephants in "Elephant Care Centre". This is in adherence to the recommendation made by the CZA. A 0.65 Ha of land for emergency Coral is constructed within the enclosure to contain and separating the elephants for medical and bouts of un-controllable aggression. There are 21 (9 Male + 12 Female) elephants which are housed here in the Elephant Care Center. Within the area of herbivore safari, an elephant weaning care center has been established. Whilst the visitors get to move around the Safari in vehicles, they get a window view of the elephant activity at the center.

Sl. No	Name Of The Animal & Scientific Name	Stock as on 31/03/2017			
		M	F	U	T
<b>Schedule I and II species</b>					
1	Elephant Indian: <i>Elephas maximus</i>	9	12	0	21



### The Staff To Manage The Safari<sup>4</sup> :

Considered the main flagship product of BBP, the Safari area has been efficiently managed by the following staff under the overall supervision of the Executive Director:

Sl. No.	Category Posts	Number
1	Range Forest Officer (RFO)	1
2	Veterinary Officer <sup>5</sup>	1
3	Assistant Curator	1
4	Forester	1
5	Animal Supervisor	2
6	Plumber	1
7	Animal Keepers	14
8	Computer Operator	1
9	Forest Guards	3
10	Forest Watchers	3
11	Attender (Peon)	1
12	Assistant Animal Keepers	5
13	Gate Operators	16 <sup>6</sup>

<sup>4</sup>Illustration as per the Bannerghatta Management Plan of 2014-15 to 2033-34

<sup>5</sup>Attached to the Hospital within the Zoo enclosure

<sup>6</sup> There are a total of 9 gates in the Safari area. The Carnivores and the Bear Enclosures have a total of 7 gates and the Herbivores has 2 gates in operation. At any given point in time, the gates require two gate keepers to operate to ensure safety of all. The 16 gate keepers are engaged on an outsource basis from the nearby area of BBP. The gates are operational for the visitors from 09:00 to 16:30. The gate keepers are ferried into and out of the Safari area in the morning and in the evening by the Park authorities.

## BBP Butterfly Park



According to some estimates, there are about 20,000 different butterfly species in the world, of which 1,501 exist in India. Butterflies, attract attention of all for their beauty, the grace, and the efforts they take at survival. Besides, of course Scientists and the common man get attracted to Butterflies which fall under the invertebrate group, for the metamorphosis, one of the most remarkable phenomena of nature, which the Butterfly demonstrates.

One glance at the Circular Conservatory which occupies an area of 10,000 square feet with a Polycarbonate roof and plays host to 20 species of Butterflies; one feels that a small insect like the Butterfly commands so much respect because the support it provides to the Ecosystem. Inaugurated on 25th November 2006; the Butterfly Park in Bannerghatta is the First Butterfly Park in India.



The Zoo Authorities visualized the Butterfly Park in 2001; as a result, the Zoo Authority of Karnataka (ZAK) and the Department of Biotechnology, Government of India, jointly envisaged the project with a financial outlay of INR 297.85 Lakhs during the year 2003 under a Special Master Plan. The construction was initiated in 2003 and completed in 2007 and opened to public. The Bannerghatta Butterfly Park in many ways is an ensemble of best practices that can be emulated using the knowledge and information gathered over a period time to establish more such Parks anywhere in India and across the globe.

## Butterfly Species Displayed at the Bannerghatta Butterfly Park

Sl. No.	Common Name	Scientific Name	Sl. No.	Common Name	Scientific Name
1	Crimson Rose	<i>Pachliopta hector</i>	19	Common Wanderer	<i>Pareronia valeria</i>
2	Common Rose	<i>Pachliopta aristolochiae</i>	20	Tawny Caster	<i>Acraea violae</i>
3	Blue Battie	<i>Graphium sarpedon</i>	21	Common Leonard	<i>Phalanta phalantha</i>
4	Common Jay	<i>Graphium Agamemnon</i>	22	Common Castor	<i>Atladne merione</i>
5	Sport Sword Tail	<i>Graphium nomius</i>	23	Plain Tiger	<i>Danaus chrysippus</i>
6	Common Mime	<i>Papilio dityia</i>	24	Blue Tiger	<i>Tirumala limniace</i>
7	Lime Butterfly	<i>Papilio demoleus</i>	25	Striped Tiger	<i>Danaus genutia</i>
8	Common Marmon	<i>Papilio demoleus</i>	26	Common Crow	<i>Euploea core</i>
9	Blue Marmon	<i>Papilio polymnestor</i>	27	Red Pierrot	<i>Talicauda nivesus</i>
10	Common Emigrant	<i>Catopsilia Pomona</i>	28	Brown Awi	<i>Badamia exclamationis</i>
11	Mottled Emigrant	<i>Catopsilia pyranthe</i>	29	Three-spot Grass Yellow	<i>Eurema blanda</i>
12	Grass Yellow	<i>Eurema hecabe</i>	30	Gaint Redeve	<i>Gangara thyrsis</i>
13	Common Jezebel	<i>Delias eucharis</i>	31	Indian Skipper	<i>Spialia galba</i>
14	Psyche	<i>Leptasia nina</i>	32	Spotless Grass Yellow	<i>Eurema laeta</i>
15	Common Gull	<i>Cepora nerissa</i>	33	Crimson Tip	<i>Colitis danae</i>
16	Pioneer	<i>Anaphaeis aurota</i>	34	Common Sailer	<i>Naptis hylas</i>
17	White Orange Tip	<i>bias Marianne</i>	35	Malabar Tree Nymph	<i>Idea Malabarica</i>
18	Yellow Orange Tip	<i>bias pyrene</i>	36	Common Pierrot	<i>Castilius rosiman</i>

The dome where one finds the butterfly, which are released on a periodic basis, has a controlled environment and a temperature of 18° to 20° Celsius has been maintained. The primary reason is that most of the butterflies cannot withstand the temperature beyond 21° centigrade. The visitors are wonderstruck as the butterflies hover around them and literally welcome them into the butterfly microcosm.

The breeding of the butterflies is no doubt a challenge, but the BBP has created an environment wherein the butterflies thrive for the short life span that they have and ensure visibility to the visitor besides educating them in a multitude of ways. The Entomologist and the team members at the Butterfly Park have been studying the fluctuations of the Butterfly seasonality; have arrived at conclusions that has enabled them to undertake and create an ecosystem that will help the breeding of the butterflies throughout the year. Despite scenarios wherein, the population of butterflies decline in a few months.

MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
Partial Drought 300 to 400 butterflies can be seen 11-12 species can be seen			More than 20 species evolve with complete life cycle. There will be more than 1000 butterflies at any given point in time.			Tapering down of the butterfly population		More than 15 species can be seen in the dome. 500 to 600 numbers can be seen.			

Migrating butterflies are being monitored in the BNP and BBP, moving from South to North. (Common Immigrant, Mortal immigrant, Crimson Rose, Common Rose, Common Crow). The same is documented and records are maintained for the future.

### Parastoids Identification at various stages of Butterfly Metamorphosis

Another important achievement of the Scientific team at the Butterfly Park was the identification of Parastoids in June 2016. It was established through observation that the Parastoids were destroying through Egg Parastoids (*Trichyogramma*), Larva Parastoids (*Bathylids*, *Braconids*), and Pupa Parastoids (*Chalcids*) which destroy the birth of the butterflies at various stages of its metamorphosis.

### Fallen Pupa Syndrome

Another aspect that was worked upon was to identify the fact that, when the fallen pupa is found, it can be handicapped and the progeny that is born will be deformed. Hence, by constructing pupal chambers, the defect that would otherwise occur has been avoided, which helps in increasing the number of butterflies that are born. In fact, the mortality rates can be brought down to a much lower figure.

### Flowering Plant Density

Increase in the density of flowering plants, by planting different colour flowering plants like, yellow, red, blue. Besides outside the Butterfly Park area, in the forest area of BNP, plenty of flowering plants and host plants have been planted which will attract wild butterflies, leading to the improvement the progeny in the Butterfly Park.

### Karnataka State Butterfly

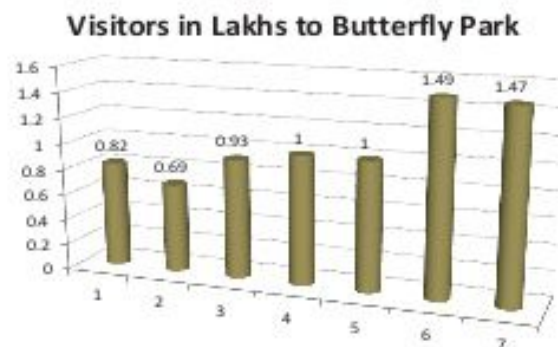
The Wildlife Board of the Government of Karnataka took a conscious decision and declared Southern Birdwing (*Troides minos*) as the state butterfly in order to attract people to nature, educate them, create awareness about the species and increase conservation for this flagship species, which is endemic to the Western Ghats and found all over the state in 2016. With an expanse of 140 - 190 mm, Southern Birdwing is one of the largest butterfly species. The Butterfly Park took a conscious decision to focus on the Southern Birdwing and introduce the same in the Butterfly dome in 2017.

### Butterfly Park Team

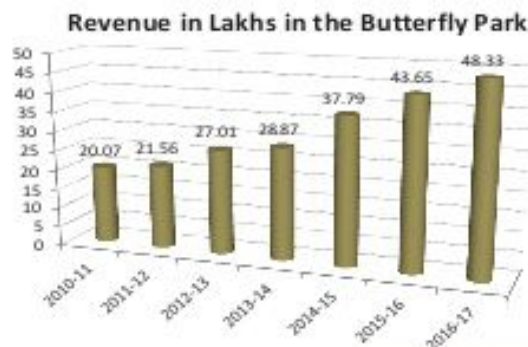
- Mrs. Bhagyalakshmi, Range Forest Officer, Butterfly Park
- Mr. V. Loknath, MSc (Agriculture Entomology), Senior Entomologist
- Laboratory Assistants - 4
- Horticulturist - 1
- Laboratory Helpers - 2
- Ticket Counter (Issuer and checker) - 2
- Sweepers - 3

### Number Of Visitors To The Butterfly Park

Year	Visitors in Lakhs
2010-11	0.82
2011-12	0.69
2012-13	0.93
2013-14	1
2014-15	1
2015-16	1.49
2016-17	1.47



Year	Revenue in Lakhs
2010-11	20.07
2011-12	21.56
2012-13	27.01
2013-14	28.87
2014-15	37.79
2015-16	43.65
2016-17	48.33



## BBP, Zoo Hospital



Established in 2002, the zoo has a modern hospital headed by an Assistant Director (Veterinary Service) and supported by 3 contractual veterinarians, 1 biologist, 1 education officer and 2 support staff. The hospital has an operation theatre (OT), X-ray facility, in-patient facility and store for medicines and equipment. Located within the Zoo premises, the Zoo Hospital, also referred to as the Veterinary Section, caters to the needs of Health care and Management of animals that are housed in the Zoo, Safari area, and the Rescue Center. Motivated with the sole objective of serving animals and creating a good environment for the visitors who flock to the Park, the Zoo Hospital team has overseen a multitude of functions and ensured management of health of the animals in the Park.

### Animal Exchange 2016-17 (Received)

Assamese Macaque	Chhatbir Zoo
Goral	Chhatbir Zoo
Wolf (Female)	Jaipur Zoo
Indian Rock Python	Madras Crocodile Bank
Royal Bengal Tiger	Pilikula Zoo
Toddy Cat	Pilikula Zoo

### Animal Exchange 2016-17 (Given)

Royal Bengal Tiger	Chhatbir Zoo
Star Tortoise	Chhatbir Zoo
Grey Pelican	Chhatbir Zoo
Lioness	Jaipur Zoo
Hippopotamus	Pilikula Zoo
Toddy Cat	Pilikula Zoo

### Equipments used in the Zoo Hospital

1. Computerized Radiography
2. Digital, water resistant, stainless steel 500 kg weighing scale
3. CCTV with IP camera for close examination of sick animal, pregnant and lactating animals with solar enabled
4. Autoclave to sterilize the instruments
5. Gaseous Anesthetic Machine
6. Operation table
7. X-ray Unit, Digital Radiography and other surgical equipment's

### The Following Equipments are Available for Restraining of Animals

1. Dist Inject Projector And Pistol
2. Pneumatic Projectors
3. Blow Pipe
4. Hand Syringe

The hospital also implements the biomedical waste segregation and management; which supports in maintaining a clean environment. A bio-medical waste disposal pit was constructed beside postmortem room to degrade and dispose medical (veterinary) wastes.



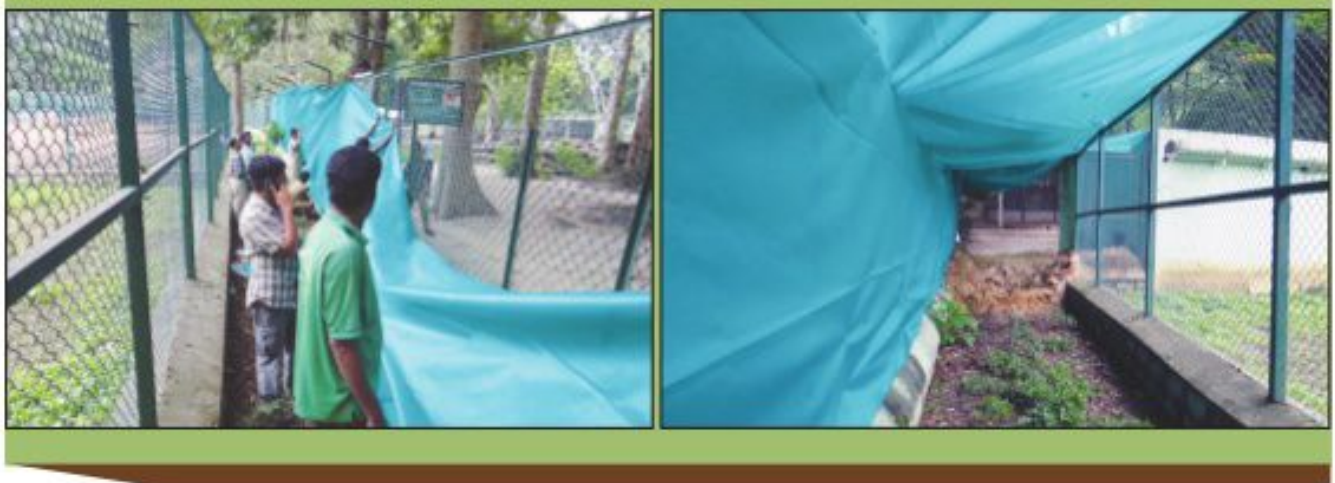
## The Team:

Sl. No	Name	Designation	Qualification	MV.Sc Specialization
1	Dr Sujay C. S	Assistant Director (VS) (In charge)	B.V.Sc & AH and PGDWADM	PG Diploma in Wildlife Diseases Management
2	Dr Nirupama Jaisingh	Veterinarian	B.V.Sc & AH, M.V.Sc and PGDWADM	Microbiology and PG Diploma in Wildlife Diseases Management
3	Dr Nikita Sallan	Veterinarian	B.V.Sc & AH	
4.	Kushal N	Biologist	MSc	Zoology
1 Computer Assistant and 2 Veterinary Assistants				

## Highlights of the Veterinary Care

### 1. Boma Method Of Shifting

Shifting of deer in the zoo without stressing the animals and non-invasive method. 30 animals were shifted in the truck which was padded with hay and side was padded with shade net filled with hay to decrease the injury. Passage was created towards the truck and closed with shade net. Animals were fed in the passage and later in the truck area. Deer took few days to get used to the new feeding area.





## 2. Enrichment For Animals During The Cold Climate

When the reptiles need heat for thermo regulation, artificial heat is supplied



## 3. Digital Weighing Machine



## 5. MRI Unit for the Animals



## 6. Physical Examination Of The Zebra

## 7. Examination of a Blackbuck

## 8. Treatment of Chronic Conjunctivitis – Leopard



# BBP Animal Adoption Scheme

*"Only if we understand, can we care  
Only if we care, will we help  
Only if we help, can they be saved"*  
Jane Goodall



A people's movement towards Conservation and Preservation of flora and fauna brings in higher dividends. Zoos across the world have evolved Adoption Scheme with a primary intention of involving public in the Conservation of endangered animals, birds, and reptiles. Herein lies the fact that, individuals, philanthropists, organizations, corporates can adopt an animal by way of contributing the feed cost of individual animal including its maintenance and veterinary health care. Adoption of animals has been looked at a source of revenue generation by the Zoo authorities in India. The Central Zoo Authority of India has categorically mentioned that all Zoos will develop protocols for receiving aid, fix price or amount of different services and adoption of animals. Besides individuals, the corporates too are providing for a sponsorship mechanism through the various Corporate Social Responsibility (CSR) activities that are being envisaged. This participation too has encouraged others to follow up and ensure for the Zoo.

## Privileges for Adopting an Animal

SL No.	Type of Adoption	Amount#	Privileges
1	Level 1	Up to INR 10,000/annum	Official Certificate of Adoption
2	Level 2	INR 10,000 to 25,000/annum	<ol style="list-style-type: none"> <li>1. One-year complimentary pass for 5 members</li> <li>2. Official certificate of Adoption</li> <li>3. Information about the adopted animal</li> <li>4. Display of name in front of the adopted animal enclosure</li> </ol>
3	Level 3	INR 25,000 and above	<ol style="list-style-type: none"> <li>1. One-year complimentary pass for 5 members</li> <li>2. Official certificate of Adoption</li> <li>3. Information about the adopted animal</li> <li>4. Display of name in front of the adopted animal enclosure</li> <li>5. T Shirt + Cap of the BBP</li> <li>6. Opportunity to participate in the Conference/ Workshop organized by BBP</li> <li>7. Proposed Youth Club membership of one Child in the age group of 7 to 12 years for a one-year period</li> </ol>

# Income Tax Exemption: All donations under the Adoption Scheme are exempted under Section 80G of the IT Act 1961  
 1 Zoos of India, 2014, Legislation, Policy, Guidelines and Strategy, Central Zoo Authority, New Delhi

### Sponsors for 2016 -17

SL. NO.	Name	Animal Adopted	Amount (INR)
1	TA Sharavana, Bangalore	Elephant	175000
2	Hemant Shurpali, Bangalore	White Tiger (1) Common Peafowl (1) Black Buck (1) Morelets Crocodile (1) Love Birds (1)	120000
3	M/s Inventure Academy, Bangalore	Tiger (1 number)	100000
4	M/s Forgepro India Private Limited, Kanakapura Taluk, Ramanagara District	Tiger (1)	100000
5	M/s Kumar Organic Products Ltd., Bangalore	Tigress (Sindu)	100000
6	M/s APTEAN, Bangalore	Giant Squirrel Common Langur Morelet's Crocodile Gharial Black Turtle	35500
7	Lakshmi, Bangalore	Peacock (2) Indian Cobra (2)	11000
8	M/s CAPS Foundation, Bangalore	Sparrow Star Tortoise Yellow Macaw	10500
9	N. Seshadri	Spotted Deer (1) Indian Peacock	10500
10	M/s Toyota Kirloskar Pvt. Ltd., Bidadi, Ramanagara District	Ostrich	10101
11	Vijaya Deshpande, Bangalore	Lion Tailed Macaque	10000
12	Manohar Nandi, Bangalore	Lion Tailed Macaque	10000
13	DD Prabhu, Bangalore	Painted Stroke and Love Bird	8500
14	Maheshwaran V., Bangalore	Mouse Deer	7500
15	M/s Pushpam Foundation, Bangalore	Spotted Deer	7500
16	Monika, Bangalore	Peacock (1) Star Tortoise	5500
17	Sunitha BC, Bangalore	Rhesus Macaque	5000
18	Shreyas Cadabam, Bangalore	Rhesus Macaque	5000
19	Priyameet K Kaur, Bangalore	Peacock (1)	4500
20	Divya Ashwini Kumar, Mysore	Red-Eared Slider (2 numbers)	4000
21	Sundara Harika Talanki, Tirupati, AP	Red-Eared Slider (2 numbers)	4000
22	Anjali Menon, Bangalore	Peacock (1 number)	3500
23	P. Saravana, Bangalore	King Cobra	3500
24	Kousalya, Bangalore	King Cobra	3500
25	AR Karthikeyarajan, Bangalore	King Cobra	3500
26	Nisha Saravana Nair, Bangalore	Peacock	3500
27	Anitha Sharma, Bangalore	Indian Rock Python	3500
28	Praveen Kumar, R., Bangalore	Indian Cobra	2000
29	S. Anantha Murthy, Bangalore	Red Eared Slider Turtle	2000
30	KA Ramesh, Bangalore	Indian Cobra	2000
31	Tanya Naveen, Thazhambur, Chennai	Russels Viper	2000
32	Balaji M, Bangalore	Cobra	2000
33	Anirban Dutta, Bangalore	Love Birds	1000
34	Suprith Patil, Bangalore	Star Finch	1000
35	Geetanjali Chidambaram	Munia	1000
36	Nagarjun, Bangalore	Rat Snake	1000
37	Spandana, Bangalore	Rat Snake	1000



## BBP Nature Education Program

"Children are born naturalists. They explore the world with all of their senses, experiment in the environment, and communicate their discoveries to those around them."

*Audubon Nature Preschool, USA*

The BBP has been contributing in a myriad of ways to help the common people cherish the idea of ecology, environment, conservation and preservation for more than four decades. Today, however the need to engage the children, who are the future citizens of the country is more than just cursory, we need to have focused approach, such that, the children of today, grow to be more responsible individuals for the morrow. It is here that BBP will play a dynamic role keeping in mind the closeness to the city of Bengaluru, and the factors of accessibility. Having evolved over a period of time, BBP and its repository of flora and fauna will surely rope the visitors young and old to learn and unlearn and facets of the wild. Hence, it is this opportunity that will help the BBP authorities to engage the stakeholders to come visit the Park with a purpose, a purpose to inculcate the best aspects of preservation and conservation, leading to a thought process of doing something, something good for nature. Hence, by showcasing the flora and fauna, in an organized manner, which will help in the learning process and which will increase the knowledge and levels of awareness and the challenges to nature, hitherto including the human beings as well, will create an army of individuals who will act in their group environment, family, school and society and get to the nuance of, 'act local, think global' and build on the philosophy of protecting our environment. Clearly BBP in particular and the Bannerghatta National Park (BNP) in general enlarges the horizon of not only the visitor, young and old alike, but also the Forest Department who can help in garnering more support at the time of need.

The plan for the future is to ensure a School connect to BBP, wherein Schools of various genres visit on regular basis and create an environment for learning. This becomes an important repository for the future. By organizing painting and quiz competitions the students will be able to garner the best of information about preservation and conservation leading to more hands working for the benefit of environment.

The BBP also hosted many of the Government School children under the Departments Chinnara Vana Darshana Programs, that have been conducted in the financial year.

The signage across the pens and enclosures have details of the animals, which provide the children and adults alike to understand the inputs of each animal that one sees.





## BBP Rescue Center

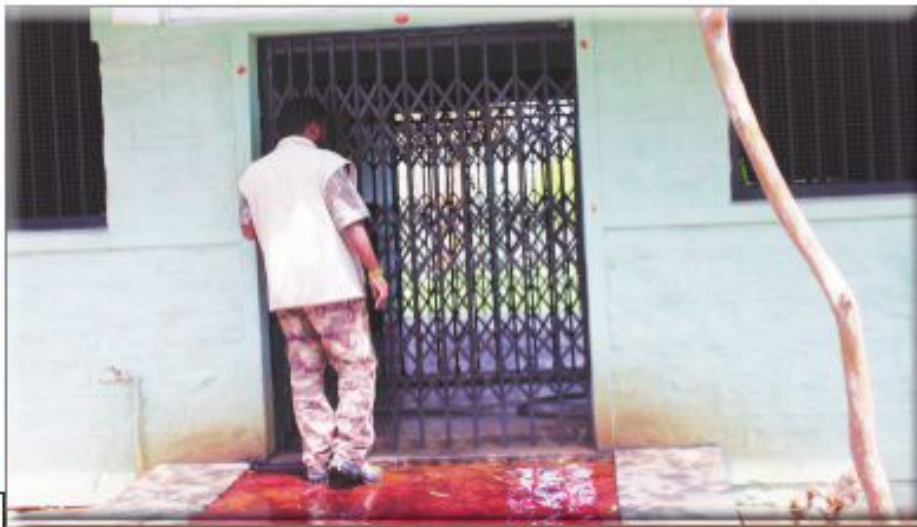
The Zoo, the Safari, the Butterfly Park, are areas that attract lakhs of visitors every year. However, one area with the BBP that has been considered as off-display area is the Rescue Center (RC) that was established on account of the opportunity provided by the Central Zoo Authority of India. The Center was established after diligently identifying 17.50 hectares of land within the BBP limits in the year 1999 at a cost of INR 227 Lakhs. The center started functioning in the year 2000.

The RC has two compartments one each for Lions and Tigers. L-Block is designated for the Lions, and a total of 72 Lions can be housed through the 12 independent houses (each house provides for 6 lions). Each of the independent houses have a common open enclosure ranging from 1 to 2 acres. The Tiger Block or T-Block has a total of 5 housing units with each house able to hold 6 Tigers. Center also houses Leopards that have been rescued.

The two independent Meat Rooms support in providing clean chopped meat to the animals at the center. A Veterinary clinic with transit facilities for storing emergency medicines is also part of the rescue center landscape. Beef, mutton and chicken that is served to the animals at the RC, is certified by the Veterinarian attached to the Center on a day to day basis after meat supplied by the tender contractor is received at the Meat Room.

As on 31-3-2017, 13 (7 male and 6 female) Lions rescued from various circuses have been accommodated at the RC. The annual expenditure for the year 2016-17 was Rs. 74.63 lakhs which is entirely met by the grants from Central Zoo Authority, New Delhi.

The animals that are rescued after Human Wildlife Conflicts (HWC) too are brought to the facility for treatment and care. Besides, the old and infirm animals of the Safari and Zoo area of the Park, and those that are injured are cared for in the RC on a real-time basis.



## BBP Infrastructure And Facilities

Any tourist destination if it has to attract tourist and visitors needs to provide facilities. BBP has left no stone unturned and ensured that the best of infrastructure and facilities are provided to the visitors.

Transportation is the key to tourists visiting the Biological Park. For the general public who use public transport, the BBP has teamed up with the Bangalore Metropolitan Transport Corporation (BMTc) by allocating 2 acres of land to build a well laid out bus station that caters to the masses. The Bus terminus was inaugurated in 2011. The umpteen number of buses operated by BMTc from every nook and corner of Bengaluru has ensured easy access to the BBP. Most of the visitors who use public transport consider this to be the best of service offerings. Besides the public transportation services, ample parking space has been provided to visitors who come in their own vehicles or taxi services.



Rest room facilities have been provided for the visitors which dot the Park area both inside and outside. There are four sulab sauchalaya facilities outside the Zoo enclosure and two within the Zoo. The rest room facilities are well maintained.

The Lawns, the play areas, the pergolas, sit out benches, have ensured that the visitors of all hues get to relax and ensure they spend maximum time within the BBP area. The well-manicured lawns across the area are pleasing to the eye.

Restaurants and small kiosks that provided for the tourists have been located at vantage points which has ensured the visitors are able to sit with family and friends and enjoy a meal. The Jungle Lodges and Resorts (JLR) has established the Hill View Restaurant within the Zoo area, which is very popular with the visitors. The Karnataka State Tourism Development Corporation (KSTDC), operates the Mayura Vanashree outside the Zoo area, which too attracts many visitors because of the natural setting it is located in.

The signage and directions are well maintained which will help the tourists to move around the enclosures without any issue. The Buggles too provide the elderly and those who would like to have a quick trip of the facility; an opportunity to move around faster. The pathways across the Zoo too help the challenged to ensure that they get a good glimpse of the animals in the pens.





# BBP, Laboratory



Animals die in captivity; one needs to ascribe reasons behind the death; hence, along with the Hospital in the BBP premises, a Laboratory, established out of a Memorandum of Understanding (MoU) between the Zoo Authority of Karnataka (ZAK) and the Institute of Animal Health and Veterinary Biologicals (IAH&VB), gets to the post-mortem of the concerned animal. What is important? The conclusions, the inputs that are observed, the reasons for the death; are critical for one to evaluate, as this would be a rare of rare case, or is it endemic to the species. Clearly the Laboratory considers the diagnosis and prognosis of zoo animals and considers the finer aspect of research. Most, if not all the treatments being meted out to the animals are based on the Pathology reports of the Laboratory. The MoU signed in 2002 between ZAK and IAH&VB has ensured that manpower and the equipment come from the Institute and the work scenario benefits all stakeholders within the BBP; viz., the Zoo Hospital, the Rescue Center (WRRC), and Wildlife SoS, besides of course the Administrators of the Zoo.

## Routine Activities of WADDL Lab

### 1. Haematology

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

### 2. Serum Examination: Serology

- ❖ Liver function tests: Total Protein, Albumin, Globulin, SGOT, SGPT and Alkaline Phosphate
- ❖ Kidney function tests: Creatinine and BUN
- ❖ Lipid Profile: Total Cholesterol and Triglycerides
- ❖ General: Glucose and LDH
- ❖ Serum Electrolytes: Ca, P, Na, K

### 3. Post mortem Examination of Wild Animals, Wild Birds and Reptiles and diagnosis of disease:

### 4. Wild Animal Disease investigation and advices to taking control measures to control the diseases in the BBP, BRC

### 5. Bacterial Isolation and identification by cultural, staining and biochemical methods in Wild animal and Birds

### 6. Fungal Isolation and identification by cultural, staining methods in Wild animal and Birds

### 7. Acid Fast staining / Ziehl Neelsen staining for the Acid-fast bacteria such as mycobacterium spp

### 8. Confirmation of the bacterial, viral and parasitic diseases in the wild animals by PCR method.

### 9. Wild animal research and publication of the new data about wild animal diseases and management.

### 10. PCR unit used for the following purposes / DNA work in our lab

### 11. Bird feather sexing: More than half of all adult and almost all juvenile birds have no easily detectable external characteristics that allow the identification of their sex. Early approaches to sex determination by surgical means posed a risk to the bird due to infection or complications of anaesthesia. Griffiths identified a gene called the chromo-helicase-DNA-binding gene (CHD1), which is present in the sex chromosomes of all bird species. Although a copy of this gene is present on both male 'Z' and female 'W' sex chromosomes, there are sufficient differences between the male and female genes to use CHD1 as a sex-specific diagnostic marker.

### 12. Wild animals Skin testing in veterolegal cases: Physical and chemical tests to differentiate between original skin with that of the artificial ones. Chemical Examination: The marking on the skin of wild animals will be subjected to chemical test using organic solvents and samples kept in Acetone, absolute Alcohol and Xylene for 72 hours. The marking on the skin did not distains/dissolve when tested, which is suggestive that the markings were natural ones.

### 13. Veterolegal cases: species identification in progress and soon we will take up the DNA profiling of Wild animals to solve the veterolegal cases in the wildlife.

### 14. The material sent to IAH&VB Hebbal for further confirmation

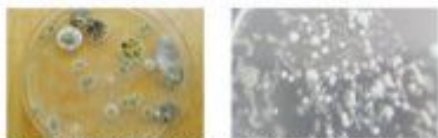
## Lab Employees: Presently Working Posts

1. Scientist-1 - One Post
2. Technical Grade-1 - One Post
3. Lab Attendant - One Post

The Laboratory is currently headed by Dr. Majunath, BVSc and MVSc, who has also held a Junior Research Fellowship. The other staff members are: Mrs. Madhuri (Laboratory Technician) and Mrs. Hemavathi (Laboratory Assistant).

### Fungal Culture And Identification

- Fungal Isolation and identification by culture, staining methods in Wild animal and Birds



Sabouraud Dextrose Agar is for the cultivation of fungi (Yeasts, moulds), particularly useful for the fungi associated with skin infections



Candida fungal hyphae from the tiger and leopard skin

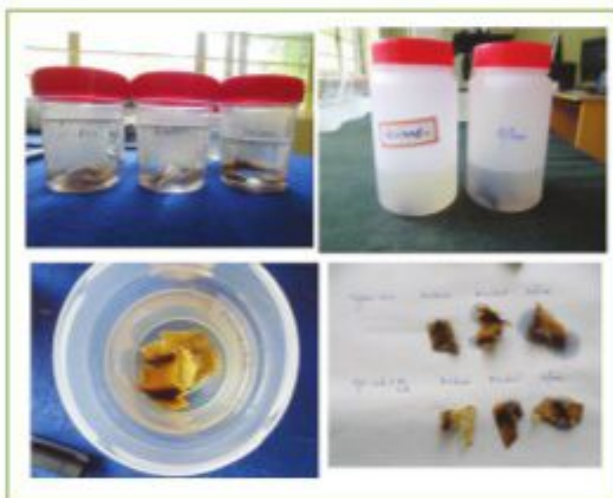


Aspergillus sporing from wild birds



penicillium hyphae from wild animals

### Wild Animals Skin Examination



### Helminthic Eggs Identification In Wild Animals Fecal Samples



Hymenolepis spp



Anchylostoma spp



Diprometra spp



Toxocara spp ova



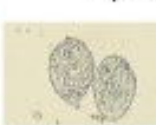
Capillaria spp ova



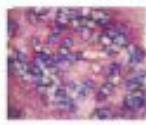
Trichostrongylus spp ova



Pin worm eggs in tortoise



Botrydium pyriformis ova



Rhabdias larvae ova

### Annual Progress of WADDL from April 2016 to March 2017

Sl. NO.	Test Conducted	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total
1	Hematology	17	33	23	10	4	12	23	40	21	21	53	15	222
2	Blood smear	17	33	23	11	17	12	23	24	21	21	28	15	245
3	Biochemistry	204	396	298	264	180	66	156	519	294	260	276	195	3108
4	Post Mortem	11	11	11	7		6	12	3	14	11	10	16	112
5	Histopathology	7	5	3	13		3	8		6	6	5	10	66
6	Micobiology	17	16	14	18		6	12	3	19	17	8	24	154
7	Impression smear	24	42	33	18	16	25	31	7	42	34	22	45	339
8	Fecal sample	21	38	87	15	12	34	26	26	67	24	30	58	438
9	ASGE	5	6	5	4	2	2	5	6	6	3	2	7	53
10	Bacteriology / Virology	7	10		3	3	1			1	12	10	11	58
11	AFB	8	8	8	10	2	8	6		12	11	17	10	100
12	DNA Isolation	10			9				14	11			15	77
13	PCR Testing								19	21	6	86	68	200
14	Toxicology / SN test		3								3		12	18
15	Needle Aspiration			1				2						3
	Total	348	601	506	382	236	172	304	661	535	429	565	501	5243

### PCR UNIT



### Multiplex PCR for Diagnosis of TB in Sloth



### ZN Staining

- Acid Fast staining / Ziehl-Neelsen staining for the Acid fast bacteria such as mycobacteria spp and other protozoa



TB Infected Lung



The Ziehl-Neelsen stain (ZN stain), identify acid-fast organisms, mainly Mycobacteria TB bacteria

### Microscopic Unit





# Annexures

## Natality Report for the Year 2016-17

Sl. No	Species	Sex			Total	Date
		M	F	U		
1	Lioness Hema Cubs	1	1	0	2	15.05.2016
2	Pig Tailed Macaque	0	0	1	1	17.05.2016
3	Black Buck	1	0	0	1	11.06.2016
4	Spotted deer	1	0	0	1	13.06.2016
5	Black Buck	0	1	0	1	17.06.2016
6	Spotted deer	0	1	0	1	18.06.2016
7	Black Buck	0	1	0	1	12.07.2016
8	Spotted deer	0	1	0	1	15.07.2016
9	White Tiger Subhadra cubs	0	2	0	2	30.07.2016
10	Spotted deer(HS)	1	0	0	1	11.09.2016
11	Spotted deer(HS)	0	1	0	1	12.09.2016
12	Sambar deer(HS)	1	0	0	1	16.09.2016
13	Sambar deer(HS)	0	1	0	1	17.09.2016
14	Nilgai(Zoo)	0	0	1	1	29.09.2016
15	Leopard Cub(Sara) (16.09.2016)	1	1	0	1	01.11.2016
16	Spotted deer(HS)	0	1	0	1	22.11.2016
17	Spotted deer(HS)	0	1	0	1	25.11.2016
18	Grey Pelican	0	0	2	2	28.11.2016
19	Nilgai Calf	0	0	1	1	08.12.2016
20	Spotted deer	0	1	0	1	11.12.2016
21	Black buck	1	0	0	1	17.12.2016
22	Pig tailed Macaque	0	0	1	1	10.01.2017
23	Spotted Deer(HS)	0	1	0	1	12.02.2017
24	Spectacle d monkey	1	0	0	1	27.02.2017
25	Grey Pelican	0	0	4	4	27.02.2017
26	Thamin deer	0	0	1	1	28.02.2017
27	Eurasian Eagle Owl	0	0	2	2	02.03.2017
28	Blue gold macaw	0	0	1	1	05.03.2017
29	Jungle cat	0	0	3	3	08.03.2017
30	Four Horn Antelope	0	0	1	1	20.03.2017
31	Tigress vishmaya cubs	1	2	0	3	20.03.2017
32	Jungle cat	0	0	3	3	25.03.2017
33	Black Buck	0	0	9*	9	31.03.2017
34	Thamin deer	0	0	3*	3	31.03.2017
35	Spotted deer	0	0	5*	5	31.03.2017
36	Barking deer	0	0	2*	2	31.03.2017
37	Hog deer	0	0	6*	6	31.03.2017
38	Tigress Subhadre cubs (26.11.2016)	0	2	0	2	31.03.2017
39	Elephant Nisarga calf (06.11.2016)	1	0	0	1	31.03.2017
40	Elephant Roopa calf (21.12.2016)	0	1	0	1	31.03.2017
<b>Total</b>		<b>10</b>	<b>18</b>	<b>46</b>	<b>74</b>	

## Mortality Report of Animals at Bannerghatta Biological Park for the Year 2016-17

Sl No	Species Of Animal	Nos	Sex	Date	Reason For Death
1	Tigress Pooja	1	F	01.04.2016	Facial Paralysis Tumor On The Head
2	Goral	1	M	05.04.2016	Bloat
3	Tiger Karthik	1	M	08.04.2016	Septicemia
4	Sloth bear	1	M	09.04.2016	Senility And Hepatitis
5	Hog deer	1	M	28.04.2016	Trauma
6	Calman Crocodile	1	M	08.05.2016	Septicemia
7	Hog deer	1	M	08.05.2016	Wild Animal Attack- Eaten By Wild Crocodile
8	Hog deer	1	M	09.05.2016	Wild Animal Attack- Eaten By Wild Leopard
9	Lady Amherst Pheasant	1	F	10.05.2016	Infighting Leading To Fracture Of Spine
10	Vanitha Elephant	1	F	11.05.2016	Severe Endocarditis & Myocarditis/ Heart Disease
11	Hog deer	1	M	15.05.2016	Infighting
12	Lioness Sushmita	1	F	16.05.2016	Old Age And Multi Organ Failure
13	Nilgai	1	M	19.05.2016	Pm Lesions Suggestive Of Hemorrhagic Septicemia
14	Lioness Komala	1	F	03.06.2016	Suppurative Pneumonia
15	Black buck	1	M	12.06.2016	Wild Animal Attack - Eaten By Wild Leopard
16	Tigress Sneha	1	F	16.06.2016	Gastric Dilatation, Hepatitis, Kidney Dysfunction All Related To Oldage
17	Spotted deer	1	M	19.06.2016	Wild Animal Attack - Eaten By Wild Leopard
18	Common Indian Monitor Lizard	1	M	01.07.2016	Metabolic Bone Disorder
19	Sloth bear	1	M	02.07.2016	Senility
20	Sloth bear	1	M	06.07.2016	Senility
21	Yellow Golden Pheasant	1	M	22.07.2016	Senility
22	Sloth bear	1	M	24.07.2016	Hepatitis
23	Barking Deer	1	F	25.07.2016	Capture Myopathy
24	Spotted Deer	1	M	26.07.2016	Leopard Attack
25	Indian Peafowl	1	M	31.07.2016	Senility
26	Barking deer	1	M	01.08.2016	Weakness And Capture Myopathy
27	Silver Pheasant	1	M	05.08.2016	Senility
28	African Grey Parrot	1	F	09.08.2016	Killed By Rodent
29	Sloth bear	1	M	12.08.2016	Tuberculosis And Meningitis
30	Porcupine	1	M	08.09.2016	Senility MI
31	Indian Peafowl	1	F	10.09.2016	Senility
32	Himalayan Black Bear (Ramesh)	1	M	15.09.2016	Senility
33	Common Indian Monitor Lizard	1	M	01.07.2016	Metabolic Bone Disorder
34	Sloth bear	1	M	02.07.2016	Senility
35	Sloth bear	1	M	06.07.2016	Senility

Sl No	Species Of Animal	Nos	Sex	Date	Reason For Death
36	Yellow Golden Pheasant	1	M	22.07.2016	Senility
37	Sloth bear	1	M	24.07.2016	Hepatitis
38	Barking Deer	1	F	25.07.2016	Capture myopathy
39	Spotted Deer	1	M	26.07.2016	Leopard attack
40	Indian Peafowl	1	M	31.07.2016	Senility
41	Barking deer	1	M	01.08.2016	Weakness and Capture myopathy
42	Silver Pheasant	1	M	05.08.2016	Senility
43	African Grey Parrot	1	F	09.08.2016	Killed by rodent
44	Sloth bear	1	M	12.08.2016	Tuberculosis and Meningitis
45	Porcupine	1	M	08.09.2016	Senility MI
46	Indian Peafowl	1	F	10.09.2016	Senility
47	Himalayan Black Bear (Ramesh)	1	M	15.09.2016	Senility
48	Spotted Deer (Kodihalli Range)	1	M	04.01.2017	Septicemia
49	Budgerigars	5	U	08.01.2017	Infectious pododermatitis
50	Rock python	1	F	16.01.2017	Wormload impaction
51	Black buck	1	M	16.01.2017	Septicemia
52	Spectacled cobra	1	M	18.01.2017	Neoplasia and Hydrocephalus
53	Ostrich	1	F	20.01.2017	Hypocalcemia and entero-bacterial infection
54	Lioness Rani (RC)	1	F	30.01.2017	Neoplasia
55	Spotted Deer (HS)	1	M	30.01.2017	Tetanus
56	Spotted Deer(HS)	1	F	30.01.2017	Wild animal attack
57	Lion Tailed Macaque Ramu	1	M	11.02.2017	Tetanus
58	Porcupine	1	F	27.02.2017	Senility
59	Sambar (HS)	1	M	27.02.2017	Crocodile kill
60	Tiger Lava (Safari)	1	M	24.03.2017	Senility, Multi organ Failure
61	Black Buck (Zoo)	1	M	25.03.2017	Vector borne disease
62	Love Bird	1	U	26.03.2017	Senility
63	Black Buck (Zoo)	1	M	27.03.2017	Vector borne disease
64	Love Bird	1	U	28.03.2017	Senility
<b>Total</b>		<b>68</b>			

**Status of compliance to the particulars called for vide letters No. F.No.19-80/92- CZA (125) (Vol. IX) (BKG)/897/2016, dated: 13-06-2016 regarding the standard norms to be followed in the zoo.**

Sl.No.	Norm No. Under Rule 10	Details On The Conditions Stipulated By The CZA	Status of compliance as on 29-10-2016 & 27-04-2017
<b>General Requirements</b>			
1	2(6)	The residential colony including quarter of the Range Officer has entry from the zoo. The entry to the residential colony through the zoo premises may be stopped immediately.	All the Residential quarters including the officers quarters is being shifted outside the zoo. The design and drawings of the same is under process.
2	2 (6ii)	The animal attendants and the other personnel working in the Bear Rescue Center are staying in the same building at the upper storey of the building in which the Veterinary Hospital and the Animal Houses are at the ground level. The building and the campus of the Rescue center may not be used for any type of residential purpose	Only night duty staffs including veterinarians were present during the night hours on Bear Rescue Center premises for ensuring the security and medical care of the rescued bears.
3	1(7)	The drainage system of the zoo is in very bad shape and has not been properly planned. It should be addressed in a proper manner with a proper drainage plan.	Already 100 mtrs of UGD line has been laid and the unlined drain near the new Hippopotamus enclosure is being converted to RCC drain. The remaining portion will be tackled immediately.
<b>3. Development and Planning</b>			
4	3(1)	The enclosure as proposed for modification in the Master Plan should be taken up on priority	The enclosures proposed for modifications being taken up for implementation on priority
<b>4. Animal housing, display of animals and animal enclosure</b>			
5	4(2&3)	The moat in safari needs modification to reduce wild elephant damages	Wherever the moat is vulnerable to elephants retaining wall is being constructed based on the availability of funds
<b>5. Upkeep and healthcare of animals</b>			
6	5(4)	A street dog was seen in the zoo premises. The entry points of the dogs in the zoo premises should be identified and plugged effectively. It should be ensured that the dogs and other feral animals do not enter the zoo premises	All the access point of street dogs has been closed and the dogs have been caught and rehabilitated.
<b>9. Acquisition and breeding of animals</b>			
7	9(1,2&9)	The breeding of lion, tigers housed in safari needs progeny profile. There are excess tigers and lions in the Safari/Zoo, which should be reduced or exchanged, and further breeding should be stopped.	Action has been initiated

## Publications From Veterinary Team Of BBP & WADDL for the year 2016-17

- Attur Shanmugam Arun, Sanath Krishna, Linto Antony, Harikrishnan Chandran Pillai, Manjunatha Venkataramanappa, and Sujay Suresh (2016); Effective Reversible Immobilization of Captive Himalayan Black Bears (*Selenarctos thibetanus laniger*) with Medetomidine-TiletamineZolazepam and Atipamezole; DOI: 10.7589/2014-08-206 Journal of Wildlife Diseases, 52(2), 2016, pp. 400-402
- Sujay C. S, Muliya S. K., Gonathinayagam. S, Senthilkumar. K., Manjunatha. V, Azhahianambi. P and Jayathangaraj. M. G. Serologic evidence of cytauxzoon felis in captive lions of India (2016), American Association for zoo Association; 2016 Joint AAZV/EAZWV/IZW Conference Proceedings, 219.
- Arun Attur Shanmugam, Sanath Krishna Muliya, Ajay Deshmukh, Sujay Suresh, Anukul Nath, Pa Kalaignan, Manjunath Venkataravanappa and Lyju Jose (2017) Baseline hematology and serum biochemistry results for Indian leopards (*Panthera pardus fusca*); Veterinary World, EISSN: 2231-0916; Available at [www.veterinaryworld.org/Vol.10/July-2017/19.pdf](http://www.veterinaryworld.org/Vol.10/July-2017/19.pdf) 19. Manjunatha V., Rout M., Puneeth H. J., Nirupama Jaisingh., Giridhar P and Byregowda (2016); Syngamiasis In Peafowl Chicks In Conservative Breeding At Bannerghatta Biological Park, Karnataka.
- Manjunatha V, Shivashankar B, Nirupama Jai Singh, Nagaraju, Giridhar P, and Byregowda S M; (2017) Report Of Tetrameres Verminous Proventriculitis in Open Billed Stork at Bannerghatta Biological Park"; National Congress on Wildlife Health & Annual Convention of Association of Indian Zoo and Wildlife Veterinarians (AIZWV) (06th - 07th January, 2017) Jointly Organized by AIZWV & ICAR - IVRI, Izatnagar - 243 122 (U.P)
- Manjunatha V; Roopa Satish; Muniyellappa; Giridhar P; Byregowda S M (2017); "INFLAMMATORY MYOCARDITIS IN THE FEMALE KOEL: A CASE REPORT" by National Congress on Wildlife Health & Annual Convention of Association of Indian Zoo and Wildlife Veterinarians (AIZWV) (06th - 07th January 2017) Jointly Organized by AIZWV & ICAR - IVRI, Izatnagar - 243 122 (U.P)
- Manjunatha V; Roopa Satish; Muniyellappa; Giridhar P; Byregowda S M (2017); "Diseases of Wildlife, Diagnosis and Management"; lead paper at National Congress on Wildlife Health & Annual Convention of Association of Indian Zoo and Wildlife Veterinarians (AIZWV) (06th - 07th January 2017) Jointly Organized by AIZWV & ICAR - IVRI, Izatnagar - 243 122
- Manjunatha V; (2016), Challenges in Wildlife Disease Diagnosis; 20th National training programme on Clinical Parasitological techniques & molecular methods in the detection of parasitic diseases, Practical Manual, held from 7th to 27th November 2016 at Centre of Advanced Faculty Training in Veterinary Parasitology, Veterinary College, Hebbal, KVAFSU.
- Manjunatha V., Rout M., Puneeth H. J., Nirupama Jaisingh., Giridhar P and S. M. Byregowda; (2016) Syngamiasis In Peafowl Chicks In Conservative Breeding At Bannerghatta Biological Park, Karnataka; VETERINARY PATHOLOGY CONGRESS-2016 XXXIII Annual Conference of Indian Association of Veterinary Pathologists on "Innovative Approaches for Diagnosis and Control of Emerging and Re-emerging Diseases of Livestock, Poultry and Fish" 09-11 November 2016 at College of Veterinary Science & A.H., Anjora, Durg-491001, Chhattisgarh, India
- V. Manjunatha ,Sujay C S ,Puneeth ,Nirupama ,Nikitha salin ,Shankar B P ,P.Giridhar S.M.Byregowda; acute suppurative pneumonia caused by the pseudomonas infection in captive lion (2017), veterinary pathology congress-2016 xxxiii Annual Conference of Indian Association of Veterinary Pathologists on "Innovative Approaches for Diagnosis and Control of Emerging and Re-emerging Diseases of Livestock, Poultry and Fish" 09-11 November 2016 at College of Veterinary Science & A.H., Anjora, Durg-491001, Chhattisgarh, India.
- Manjunatha V, Roopa Satish, Muniyellappa, Giridhar P, and Byregowda S M; (2017); "Histological Studies of Necrotic Hepatitis in Rat Snake: A Case Report" National Congress on Wildlife Health & Annual Convention of Association of Indian Zoo and Wildlife Veterinarians (AIZWV) (06th - 07th January 2017) Jointly Organized by AIZWV & ICAR - IVRI, Izatnagar - 243 122 (U.P)









The Zoo Authority of Karnataka (ZAK) is registered under Societies Registration Act, 1960, and functioning at Sri Chamarajendra Zoological Garden's Premises, Mysuru. ZAK currently manages eight zoos in the state.



Central Zoo Authority (CZA) ([www.cza.nic.in](http://www.cza.nic.in)), is an autonomous statutory body of the Government of India, constituted under the Wild Life (Protection) Act, which supports the conservation of Wildlife by laying down standards and norms for housing, upkeep, health care and overall management of animals in zoos as under the Recognition of Zoo Rules, 1992.



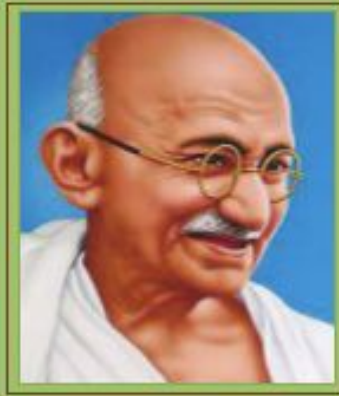
World Association of Zoos and Aquariums | **WAZA**  
United for Conservation



Established in 1935 and headquartered in Gland, Switzerland, the World Association of Zoos and Aquariums (WAZA) ([www.waza.org](http://www.waza.org)) is the "umbrella" organization for the world zoo and aquarium community. Its mission is to provide leadership and support for zoos, aquariums, and partner organizations of the world in animal care and welfare, conservation of biodiversity, environmental education and global sustainability.



The vision of the Bannerghatta Biological Park (<http://bannerghattabiologicalpark.org>) is to create an opportunity to the citizens - specially to children of Bangalore Metropolitan City to have a Biological Recreation Center very close to the city in the midst of the forests in the valley of the famous Champakadhama hills inside the Bannerghatta National Park. The endeavor has been to inculcate the awareness of nature conservation, provide natural habitat to all the animals suitable for their conservation and propagation through educational program and to connect visitor and wild animals through exemplary welfare, care and best educational practice to foster public support in ex-situ conservation.



**“The Greatness of a Nation and its moral progress  
can be judged by the way its animals are treated”**

*~ Mahatma Gandhi ~*



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