

ETAWAH SAFARI PARK ETAWAH

Annual Report for the year
2017-18



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1. Report of the Officer-in-charge

Etawah Safari Park, Etawah, located in distt. Etawah of Uttar Pradesh is created in 350 hectare area of Fisher Forest, a part of Social Forestry Division Etawah and is only safari of the state. Entire area is secured by a 7800 mtr long buffer boundry wall and and is filled with a variety of flora and fauna. The park caters about 100 spp of birds and about 17 and 08 spp of mammals and reptiles respectively. Etawah Safari is almost ready to open for visitors very soon.

Etawah Safari Park can be categorised in Asiatic Lion Breeding Centre, Multiple Safari and Visitor Facility Centre.

Asiatic Lion Breeding Centre is established in an area of 2 hectare. The purpose of LBC is ex-situ conservation of Asiatic lion population through planned breeding for display as well as exchange and rehabilitation. This breeding centre started after procuring pure blood Asiatic lions from Sakkarbaug, Rajkot and Hyderabad Zoo. The Asiatic lions from wild and zoo bred origin are being used as founder member to ensure genetic diversity and heterozygosity. Presently there are five adult Asiatic lion (3 male : 2 female) mentioned as above and three male cubs born in LBC Etawah. For successful conservation breeding program, there is an immense need of some potential breeding stock. A demand for 02 male 03 female Asiatic lions is under consideration of Gujrat state government that needs to be accelerated.

Multiple Safari consists of five salaries i.e Lion Safari, Bear Safari, Deer Safari, Antelope Safari and Leopard Safari covering about 150 hectare area.

In lion safari, captive bred stock from Lion Breeding Centre will be released gradually to make a harmonious pride. Therefore Lion Safari would be opened for visitors only after a suitable population of lions is obtained by breeding.

Deer Safari and Antelope Safari, are complete in all respect and are ready to open for visitors. Free ranging Cheetal, Sambhar and Black Buck are roaming in respective safari and are happy, hale and hearty.

Construction work of bear safari is complete. Three sloth beer are kept in quarantine to release. This safari is also ready to be open for visitors.

Some part of Leopard safari was damaged due to cyclone in the month of may-18. This safari will be ready to open only after completion of repairing work.

A Visitor Facilitation Centre, equipped with modern facilities having Multimedia Museum with sound reinforcement system, Public Address System and sound effects has been created in 5.0 hectare area. This centre is an example of world class sculpture theaming by Frank Vidal, an architect of Spain and includes Digital Sinage, large format displays, 4D education theatre for informing and guiding visitors, Wi-Fi network & CCTV surveillance for the area. Entire campus is lush green with colourful flowers. Construction work of this facilitation centre is almost complete and is ready to be opened for visitors.

I hope, this safari park will be showcase of nature for the visitors, nature lovers and wild lifers.

2. History of the Zoo

The Lion Breeding Center & Multiple Safari Park is proposed to be located in the historical "**Fisher Forests**" located on the Etawah-Gwalior Road, about 5 kms from Etawah town. The area contains one of the oldest plantations in the state. In 1884, the erstwhile District Magistrate of Etawah, Mr. J.F. Fisher was able to convince the *zamindars* of the area to voluntarily hand over the ravine area of 1146.07 ha to the District Magistrate so that it could be saved from further erosion and degradation. The *zamindars* were to pay for the works to be undertaken and the profit accruing through it was to be divided among them. Accordingly, the area was ploughed and seeds of babool (*Acacia nilotica*), shisham (*Dalbergia sissoo*), and neem (*Azadirachta indica*) were sown and the area was closed for grazing.

The growth of babool was so encouraging that in 1912, Cooper Allen Company of Kanpur was attracted to take the entire land at a lease rent of Rs. 2.50 per hectare per year for a period of 50 years. This company commercially exploited and extended the Fisher Forests till the year 1914. Thereafter, the company handed over the lease to the Forest Department with a liability of Rs. 2,500 as the cost of the lease and Rs. 2,382 lease rent to be paid to the *zamindars* annually. In this way, these forests have been under the control of the Forest Department since 1914.

Two kinds of activities were undertaken by the Forest Department in the following years; firstly, construction of check dams to prevent soil erosion and secondly, plantation and seed sowing of appropriate species.

In course of time, broad leaved forests were established in the area. However, due to high biotic pressure, the broad leaved species gradually deteriorated, and eventually the area ended up being severely eroded and degraded. In the year 1985 and subsequent few years, broadcast sowing of *Prosopis juliflora* was undertaken. As a result, the density of *P. juliflora* increased and the area was converted into a *P. juliflora* forest with sporadic occurrence of other species.

The Asiatic Lion (*Panthera leo persica*) which once roamed and reigned all over northern, western and central Indian forests (from Hindukush to Bay of Bengal and up to Narmada river) was driven out of its range by another big cat, equally matched in power but more cunning and agile spp- the Tiger (*Panthera tigris*), which sometimes later strayed in to Indian subcontinent through its north – eastern forest corridor from across south-eastern Asian region. These two big cats rivaled for supremacy and the Tiger proved mightier resulting in to usurping most of the territories held by Lion and driving the later to the western extremity of India - the Gir forests of Kathiawar in Gujarat state. The historical records indicate that in northern India, the last area, held by the migrating lion was the

forests in Yamuna river catchment until medieval times as the Mughal emperors shot lion in Shwalik foot hill forests (now Saharanpur forest division) and Aravali ridge forests around Delhi. While Siwalik foothills were occupied by Tigers because the habitat there remained conducive but down below as human population grew man-animal conflict increased and entire prides of lions were wiped out, coupled with depleting prey base and habitat loss, only a small population of Asiatic lion (411 individuals as per April 2010 census) remained in the wild in the Gir forests of Gujarat.

Thus, the Yamuna catchment forests were the last refuge of Asiatic lion in north India, retreating towards western fringe of the country due to constant onslaught of the invading Tigers. Inspired by this historical territorial background of lion, the former Chief Wild life Warden of U.P.- Shri R.S. Bhadauria in the year 1990-91, mooted the idea of reviving the past glory of Yamuna river catchment forests, by putting a pride of Asiatic lions back in to its lost territory, Fortunately there exists a very good and vast forest area along Yamuna river, known as Fisher Forest, which is akin to Lion habitat and is situated on the outskirts of Etawah city. Availability of suitable forest area close to Etawah city, which is also a divisional Head quarter of Forest Dept, qualified it amply for setting up a Lion Safari Park- a smaller version of free ranging Lion area. Besides this, there is National Chambal Sanctuary close by, the cradle of the rare spp. of Ghariyals, which is the only Ghariyal repository as a sanctuary in the world. These two wild life attractions offering the sighting of world's two rarest faunal spp and unique possession of India, will complement each other to enhance greatly the attraction for wildlife lovers. From conservation point of view, the establishment of Lion Safari will serve the dual purpose of making it a breeding centre for Asiatic lion as well as replicating a wild population of the bye gone era in its former range of habitat, though in captivity yet nearly free.

With these considerations in view the Lion Safari park was envisaged in the year 1990-91 and proposal was submitted to U.P. Govt. but due to paucity of resources it could not be implemented. In the Year 2004, unimplemented proposal for setting up of Lion Safari at Etawah, was submitted a fresh letter along with copy of earlier proposal, requesting to set up a Lion Safari, in Fisher Forest near Etawah city.

In the mean time, in the year 1992, the Govt. of India constituted the Central Zoo Authority (CZA) to regulate construction, maintenance, and upkeep of animals etc. in zoos and safari parks for which it framed rules and guidelines. The rules necessitated prior approval of CZA to set up any new captive facility. And after its approval, the clearance from Hon'ble Supreme Court also became mandatory. Therefore, in order to seek mandatory approval from CZA, a Concept Plan of Lion Safari Park justifying its necessity, underlying its regular proper maintenance was prepared and submitted to CZA by the erstwhile Chief Wild Life Warden of U.P. The CZA saw an opportunity to use the proposed

facility as a conservation breeding centre also and approved the plan as Lion Breeding Centre cum Safari Park. After obtaining CZA's approval in-principle, the Hon'ble Supreme Court was approached to give its clearance which also has been received.

Meanwhile, since the year 2009, the CZA has mandated the preparation of detailed Master Plan for minimum 10 years for all newly proposed as well as existing zoos and safari parks which requires approval by CZA. The Master Plan and master lay out plan was prepared covering an area of 350 ha. in which as originally proposed 50 ha was kept for Lion safari exhibit area and breeding centre together with state of the art vet. Hospital and other infrastructural facilities were proposed. This Master plan was approved by CZA where under the heading "Area" in part I of the plan, provision has been made for further future expansion of safari. After the approval of master plan and layout plan, detailed designs of Lion house, Lion safari encl, breeding centre and vet, hospital were prepared and got approved by CZA. Soon after construction work started and approved part of Lion safari Park completed. Thereafter four breeding pairs of Asiatic Lions were procured from Sakkarbag Zoo Junagarh (2 Pairs) , Rajkot Zoo (1 pair), and Hyderabad zoo, (1 pair) and housed in Breeding centre for breeding purpose.

As clearly expressed in approved Master plan, the state Govt. decided to add four more safaris in unutilized available approx. 124 ha area within the raised boundary wall covering 350 ha. The spp. proposed to be exhibited are Leopard, Sloth bear, Deer spp. and Antelopes which are endemic to the area and will enhance the visitor value of multiple Safari parks. Accordingly the Lay out plan was prepared and presented before the Zoo Expert Committee in its meeting held on July 13, 2015. Based on the revised Layout plan the revised master plan has been prepared and is being submitted CZA for approval .

3. Vision

To establish an international standard *ex-situ* Lion Breeding Center to augment the captive Asiatic Lion population of the country and support conservation awareness through establishment of Lion Safari along with its associate species like Leopard, Antelope, Deer and Sloth bear.

4. Mission

- (i) To create facilities for captive breeding of Asiatic Lion to supplement the captive lion population within the state as well as the country.
- (ii) To create awareness and sensitivity towards the cause of conservation of Asiatic Lion (*Panthera leo persica*) by provision of viewing of Lion along

with its associate species in a near natural habitat and furthering it through audio-visual and interactive media provided in an interpretation center.

- (iii) To create a theme based eco-awareness facility for local people and visitors.

5. Objective

The Lion Breeding Center and Multiple Safari Park would be able to fulfill the following objectives:

- (a) To create facilities of international standards for ex-situ breeding of Asiatic Lion.
- (b) To create a facility for public viewing of the species in its near natural habitat.
- (c) To create a facility for public viewing of the associate species of Lion (Leopard, Antelope, Deer and Sloth bear) in its near natural habitat.
- (d) To create an environment for safe upkeep and maintenance of the population thus created.
- (e) To create high standard eco-awareness facilities including an interpretation center and ancillary facilities (library, wildlife movie theatre etc.) to promote conservation awareness of the species.

6. About us

S.No.	Particulars	Information
Basic Information about the Zoo		
1	Name of the Zoo	ETAWAH SAFARI PARK, ETAWAH
2	Year of Establishment	2012-13
3	Address of the Zoo	Etawah-Gwalior Road, Etawah
4	State	Uttar Pradesh
5	Telephone Number	7839435094
6	Fax Number	-

S.No.	Particulars	Information
7	E-mail address	dirlsetawah@gmail.com
8	Website	-
9	Distance from nearest	Airport: Agra (150km)
		Railway Station: Etawah (05km)
		Bus Stand: Etawah (06km)
10	Recognition Valid upto (Date)	03-11-2018
11	Category of zoo	Mini Zoo
12	Area (in Hectares)	350ha
13	Number of Visitors (Financial Year)	Adult : 0
		Children : 0
		Total Indian : 0
		Total Foreigners : 0
		Total Visitors: 0
14	Visitors' Facilities Available in Zoo	Visitor facilitation Centre, Clock Room, Tourist Vehicles,
15	Weekly Closure Day of the Zoo	Yet to be open for Visitors
Management Personnel of the zoo		
16	Name with designation of the Officer in-charge	Sh. V.K. Singh, Director
	Name of the Veterinary Officer	Dr. Gaurav Srivastava

S.No.	Particulars	Information
	Name of the Curator	Sh. Vinit Kumar Saxena
	Name of the Biologist	Sh. Raj Bahadur Uttam
	Name of the Education Officer	-
	Name of the Compounder/ Lab Assistant	Sh. Suyas Kumar Sh. Ankit Singh
Owner / Operator of the Zoo		
17	*Name of the Operator	Mrs. Kalpna Awasthi, I.A.S.
18	Address of the Operator	Principal Secretary Forest, Wildlife & Environment 6th Floor Babu Bahwan, Lucknow.
19	Contact details/Phone number of Operator	0522-2238669
20	E-mail address of Operator	psecforest-up@nic.in

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

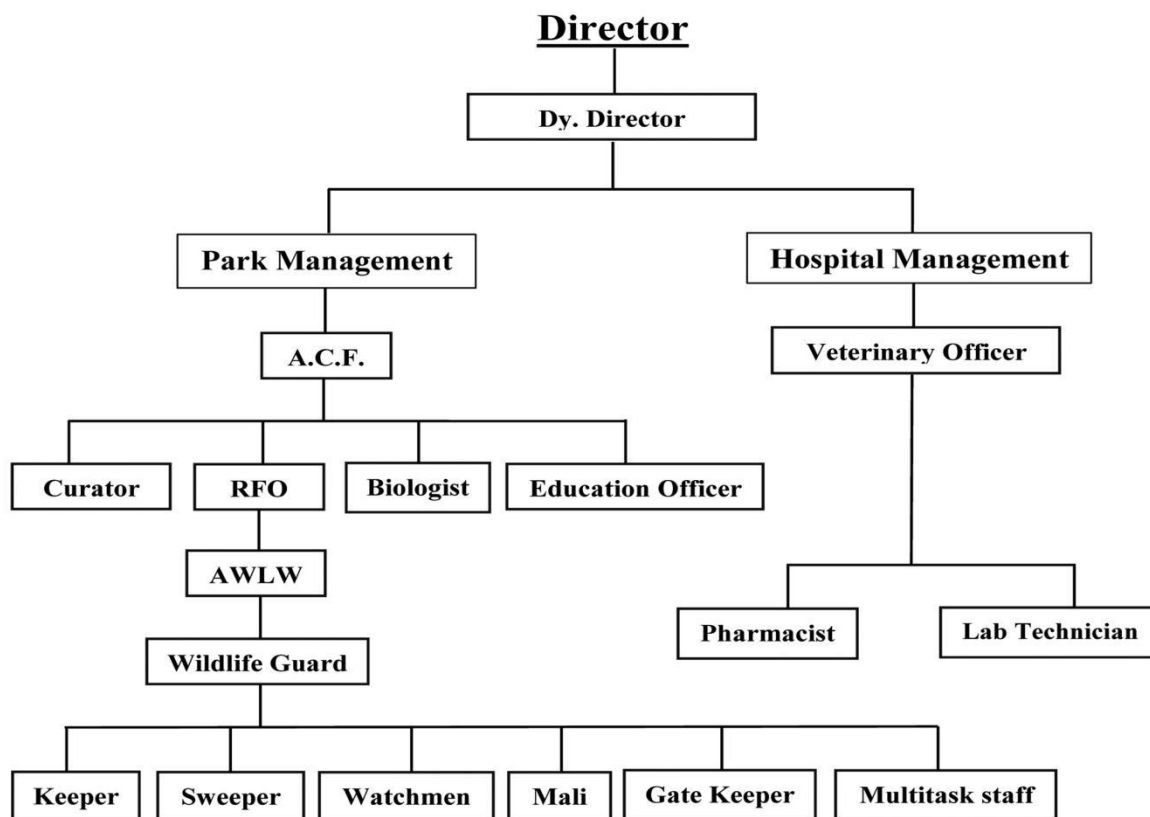
“Zoo Operator” means the person who has ultimate control over the affairs of the zoos provided that_____

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

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

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

7. Organizational Chart



8. Human Resources

Manpower of the Zoo*

Sl.No.	Designation	Number of Sanctioned Posts	Names of the incumbent
1	CF/Director, Lion Safari	01	Sh. V.K. Singh
2	DCF/Dy. Director, Lion Safari	01	Sh. Akhilesh Kr. Jaiswal
3	ACF	01	Sh. Akhilesh Kr. Jaiswal
4	Vet. Doctor	01	Dr. Gaurav Srivastava
5	Curator	01	Sh. Vinit Kumar Saxena
6	Biologist	01	Sh. Raj Bahadur Uttam (O.S.)
7	Education Officer	01	-
8	AWLW	02	1- Sh. Jawahar Lal 2- Sh. Om Prakash
9	Field Supervisor (AWLW)	02	Sh. M.P. Gupta (O.S.)
10	Lab Asst. /Xray technician	01	Sh. Ankit Singh (O.S.)

11	Compounder/Store Incharge	01	Sh. Suyas Kumar (O.S.)
12	Jr. Asst. (for booking)	02	1- Sh. Shashank Patel (O.S.) 2- Sh. Ashwani Yadav (O.S.)
13	Jr. Asst. (for office work)	01	Sh. K.K. Dwivedi (O.S.)
14	Wildlife Guard	03	1- Sh. Shashikant Chauhan 2- Sharad Yadav
15	Asst. Field Supervisor (Wildlife Guard)	03	-
16	Range Officer	01	Sh. Vinit Kumar Saxena
17	Steno	01	-
18	Zoo Keeper	19	1- Sh. Satyendra Yadav 2- Arif Ali 3- Asif Ali 4- Amit Kumar 5- Manjul Kumar 6- Mo. Imran 7- Kamlesh Kumar 8- Vipin Babu 9- Jagdish Singh 10- Mohar Singh
19	Tube well Operator	01	Sh. Surendra Kumar
20	Electrician	02	1- Sh. Mananjay Yadav 2- Sh. Ravi Sharma (O.S.)
21	Plumber	01	Sh. Sunil Kumar (O.S.)
22	Sweeper	17	1- Mahesh Kumar 2- Suraj Kumar 3- Raj 4- Amit Kumar 5- Hari Kishan 6- Ajay Kumar 7- Sanjay Singh 8- Ramveer 9- Sanjay Bhandari 10- Bhupendra Kumar 11- Yatendra (O.S.) 12- Radha Kishan (O.S.) 13- Rakesh Kumar (O.S.) 14- Dharam Singh (O.S.) 15- Shanti Swroop (O.S.) 16- Man Singh (O.S.)

			17- Kamal (O.S.)
23	Driver	04	1- Brijesh Kumar (O.S.) 2- Raju Shakarwar (O.S.) 3- Deen Dayal (O.S.) 4- Awadesh Kumar (O.S.)
24	Watchman	11	1- Manoj Singh 2- Manoj Kumar 3- Satish Kumar 4- Sanjay Kumar 5- Lakhmi Chandra 6- Bhanu Pratap 7- Anand Kumar 8- Rakesh Kumar 9- Kuldeep Kumar 10- Rishi Yadav 11- Omkar
25	Gate Keeper	05	1- Manish Kumar Yadav 2- Ramavtar Singh 3- Krishan Kumar 4- Kamlesh Kumar 5- Jugendra Singh
26	Mali	06	1- Ashok Shakya 2- Prdeep Kumar 3- Sohan Singh 4- Sharad Kumar 5- Baljeet 6- Jitendra Kumar
	TOTAL	90	

*Please give above mentioned information in respect of all zoo personnel, from the Officer in-charge upto the Animal Keeper.

O.S. - Out Sourcing Staff

9. Capacity Building of zoo personnel

Sl.No.	Name and designation of the zoo personnel	Subject matter of Training	Period of Training	Name of the Institution where the Training attended
1	Dr. Gaura Srivastava (V.O)	Seminar on new interventions in wildlife	27 th Feb 2018 to 28 th Feb 2018	School for Wildlife Forensic & Health, Jabalpur

10. Zoo Advisory Committee –

a. Date of constitution

b. Members

c. Dates on which Meetings held during the year

11. Health Advisory Committee–

a. Date of constitution

b. Members

Sl.		
1	Principal Chief Conservator of Forest & HoFF, U.P., Lucknow	President
2	Principal Chief Conservator of Forest, Wildlife, U.P. Lucknow	Vice President
3	Representative nominated by Member Sec., CZA, New Delhi	Member
4	Member Sec., State Zoo Authority, U.P., Lucknow	Member
5	Director, Nawab Wazid Ali Shah Prani Udhyan, Lucknow	Member Sec.
6	Director, Animal Husbandry Deptt. U.P. Lucknow	Member
7	Director, Kanpur Zoo Kanpur	Member
8	Incharge IVRI Bareilly	Member
9	Veterinary Officer (Dy. Director), Nawab Wazid Ali Shah Prani Udhyan, Lucknow	Member
10	Veterinary Officer, Kanpur Zoo Kanpur	Member
11	Dr. R.P. Pandey, Director, Clinic Veterinary College, DUVASU, Mathura	Member
12	Director, Etawah Safari Park, Etawah	Member

c. Dates on which Meetings held during the year - 20th March, 2018

12. Statement of income and expenditure of the Zoo

Income from Carpus Fund Intrest -

5,60,06606.80

Expenditure Details -

Expenditure Item's	Amount (Rs.)
➤ Carnivores and Herbivorous feed	4596986.00
➤ Purchase of medicine and equipment	4599735.00
➤ Training, educational tours and wildlife week celebration	965355.00
➤ Enrichment of Animal's enclosures	3076827.00
➤ Meetings	385846.00
➤ Printing and signages	295330.00
➤ Maintenance of vehicles and purchase of deisal/petrol	3169804.00
➤ Payment of honorarium of out-sourcing staff	8076534.00
➤ Habitat improvement	2675149.00
➤ Payment of electricity bills	7301919.00
➤ Installation & maintenance of CCTV cameras	1555172.00
➤ Office furniture & other miscellaneous works	2611082.00
Total	39309739.00

13. Daily feed Schedule of animals

Sl.No.	Species	Feed item	Quantity		Day of fasting
			Winter	Summer	
1	Asiatic lion	Beef	M:8kg, F:7kg	M:7kg, F:6kg	Friday
2	Leopard	Beef	M:3.5kg, F:2.5kg	M:3kg, F:2kg	Friday
3	Sloth Bear	Multigrain porridge & seasonal fruit	M:5kg, F:4kg	M:5kg, F:4kg	-
4	Spotted Deer	Green fodder & concentrate mixture.	Green fodder :3kg concentrate mixture : 250g.	Green fodder :3kg concentrate mixture : 250g.	-
5	Sambhar	Green fodder & concentrate mixture.	Green fodder :8kg concentrate mixture : 500g.	Green fodder :8kg concentrate mixture : 500g.	-
6	Black Buck	Green fodder & concentrate mixture.	Green fodder :3kg concentrate mixture : 250g.	Green fodder :3kg concentrate mixture : 250g.	-

14. Vaccination Schedule of animals

Sl.No.	Species	Disease vaccinated for	Name of the Vaccine and dosage/ quantity used	Periodicity	Remarks
1	Wild felids	Panleucopenia, Calcivirus, Rabies, Herpes Virus.	BIOFEL PCRH / 1ml s/c	Annual	-
2		Canine Distemper	Recombinant CDV Vaccine	Primary dose & 21 days apart two boosters then half yearly	-

15. De-worming Schedule of animals

Sl.No.	Species	Drug used	Month
1	Wild felids	Fenbendazole/ combination of Fenbendazole, Praziquante and Niclosamide	At interval of three months

16. Disinfection Schedule

Sl.No.	Species	Type of enclosure	Disinfectant used and method	Frequency of disinfection
1.	Asiatic Lions	Kraal/Paddock	Khorsolin-TH/ Virkon-S spray	Apart 10 days alternatively
		Feeding cells/ keepers gallery	Khorsolin-TH/ Virkon-S spray/ Blow torching	At weekly interval
2	Bears	Feeding cells/ keepers gallery	Khorsolin-TH/ Virkon-S spray	At weekly interval
3	Herbivores	Feeding shed/water shed	Khorsolin-TH/ Virkon-S spray	At weekly interval

17. Health Check-up of employees for zoonotic diseases

Sl.No.	Name	Designation	Date of Health Check up	Findings of Health Check up
1.	Dr. Gaurav Srivastav	Veterinary Officer	19.08.2017	NAD
2.	Dr. Rajendra Verma	Veterinary Officer	19.08.2017	NAD
3.	Ankit Singh	Lab Tech.	19.08.2017	NAD
4.	Satyendra Yadav	Keeper	19.08.2017	NAD
5.	Asif Ali	Keeper	16.09.2017	NAD
6.	Arif Ali	Keeper	11.09.2017	NAD
7.	Manjul Kumar	Keeper	16.09.2017	NAD
8.	Kamlesh Kumar	Keeper	11.09.2017	NAD
9.	Mohd. Imran	Keeper	11.09.2017	NAD
10.	Amit Kumar	Keeper	11.09.2017	NAD
11.	Vipin Babu	Keeper	11.09.2017	NAD
12.	Mohar Singh	Keeper	11.09.2017	NAD
13.	Jagdish Singh	Keeper	11.09.2017	NAD
14.	Hari Kishan	Sweeper	16.09.2017	NAD
15.	Amit Kumar	Sweeper	16.09.2017	NAD
16.	Ajay Singh	Sweeper	16.09.2017	NAD
17.	Mahesh Kumar	Sweeper	16.09.2017	NAD

18.	Raj	Sweeper	16.09.2017	NAD
19.	Suraj Kumar	Sweeper	16.09.2017	NAD
20.	Yatendra	Sweeper	16.09.2017	NAD
21.	Radha Kishan	Sweeper	16.09.2017	TB+ve
22.	Rakesh	Sweeper	16.09.2017	NAD
23.	Dhram Singh	Sweeper	16.09.2017	NAD

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

- **Strengthening of veterinary hospital** - Installation of Biochemical analyser, Haematology analyser, Urine analyser, Blood gas analyser & Ultrasonic massager.
- **Habitat Improvement** - Eradicate of Prosopis juliflora & other unwanted weeds, Plantation work, development of grass land for herbivorous & cultural operations of indigenous flora of Park.
- **Enrichment Activities for Wild Animals** - To set-up various wooden, hume pipe, structures and constration of dens in Bear & Leopard Safari along with socialization pan for Bears.
- Development of Visitor Facilitation Centre.

19. Education and Awareness programmes during the year -

- Celebration of Wildlife Week 1st Oct. 2017 to 7th Oct. 2017
 - **Events (Wildlife Themed)** :- Cycle Rally by school children with competitive Slogans, Eassy Writting, Painting, Nritya Natika, Poster Competition, Mehendi Competition, Listing of Birds, Extempore, Photography, Nature quiz
- Educational Programme for Other Institutions
 - On dt 05.11.2017, Forest Training Academy, Haldwani, UK - Educational Tour for RFO - 37 member
- Educational National Tour Program for Etawah Safari Park, Etawah Staff

Date	Places	Member
22-02-2018 to 27-02-2018	Visit to Rajkot Zoo, Gir Forest National Park, Sakkar Bagh Zoological Park & Kamla Nehure Zoological Park, Ahmdabad, Gujrat	09
06-03-2018 to 13-03-2018	Visit to Bannerghatta National Park, Bangaluru Karnataka. Sri Chamarajendra Zoological Garden, Mysore, Karnataka	10
15-03-2018 to 21-03-2018	Visit to Nehru Zoological Park, Hyderabad, Telangana	10

20. Important Events and happenings

- Birth of Jessica cub “Bahubali” on 15th Jan. 2018
- Celebration of Wildlife Week 1st Oct. 2017 to 7th Oct. 2017 on Dristic Level.

21. Seasonal special arrangements for upkeep of animals

- Installation of Coolers in summer season at Breeding Centre for Lions.
- Installation of Foggers in summer season in Karals at Breeding Centre.
- Installation of “Khas Curtains” at Breeding Centre during summer for lions.
- Installation of “Room Heaters” in Winter season at Breeding Centre for lions.
- Covering of Karals roof by “Thatched Grass” at Bear’s Animal house.
- Covering of Feeding Point & Water Point roofs with “Thatched Grass” for Herbivorous in summer season.
- Constriction of “Thatched huts” in Winter season for Herbivorous.

22. Research Work carried out and publications

- Gaurav Srivastava, Arvind Tripathi, Sanjay Srivastava, Anil Patel and Amit Oad (2017) An outbreak of Canine Distemper in Asiatic Lion and its Successful Prophylaxis, Indian Wildlife Year Book, Vol.-15 (2017): 32-36.....?

An Outbreak of Canine Distemper in Asiatic Lion and its Successful Prophylaxis

Gaurav Srivastava¹, Sanjay Srivastava², Anil Patel², Arvind Tripathi³ and Amit Oad¹

.1. Etawah Safari Park, 2. Uttar Pradesh Forest Department, 3. AH Department U.P.

Introduction

Canine distemper virus (CDV), a morbillivirus that causes one of the most contagious and lethal viral diseases known in canids, has an expanding host range, including wild animals [1]. Domesticated dogs are the main reservoir of CDV, a multihost pathogen. This virus of the genus Morbillivirus in the family Paramyxoviridae occurs in other carnivorous species including all members of the Canidae and Mustelidae families and in some members of the Procyonidae, Hyaenidae, Ursidae, and Viverridae families. Canine distemper also has been reported in the Felidae family and marine mammals. The spread and incidences of CDV epidemics in dogs and wildlife are increasing worldwide [2]. Recently this disease has been confirmed in tiger, lion, leopard. Its outbreaks have devastated lion populations in Serengeti National Park, Tanzania in year 1994 [3]. The major mode of CDV transmission is through aerosolization of respiratory exudate containing virus, although other body excretions and secretions (e.g., urine) can result in infection in susceptible hosts if aerosolized. There appear to be only few reports of CD documented in large wild cats in India same is sero-prevalence to CDV has been reported 94.59% (35/37) in Asiatic lions, 76.92% (10/13) in hybrid lions and 91.96% (22/24) in leopards [4]. This is an emerging disease in wildlife with a rare occurrence. Some serious neurologic disease observed in several wild tigers throughout China since 2001 suggested disease emergence in this endangered species, the second most common cause of infectious disease death in

domestic canids and a viral disease of global importance in common and endangered carnivores, as the etiology of neurologic disease and fatal encephalitis in wild [5].

Etawah Safari Park at a glance

Etawah Safari Park is situated in the historical 'Fisher Reserve Forest area', located on the Etawah-Gwalior Road, about 5 km from Etawah town in Uttar Pradesh. The Etawah Safari Park spreads in an area of 350 ha and has been developed as per guidelines of CZA, New Delhi. Conservation Breeding Centre for Asiatic Lion has been established according to design approved by Central Zoo Authority. All the Asiatic lions were brought from Rajkot zoo and Sakkargh Zoo of Gujarat and Nehru Zoological Park, Hyderabad. At Breeding Centre of Asiatic Lions Etawah safari Park, Etawah, we lost our four adult lions because of canine distemper. Onset of disease was very acute symptoms noticed in lions affected with canine distemper were hind quarter paresis, high febrile condition, convulsions, jerky movements, very poor control on defecation and urination, anorexia etc. As it is well known there is no definitive treatment for distemper virus infections and mortality is around 100 percent [6,7]. In present scenario we are having six adult lions and two cubs.

Canine distemper outbreak at breeding centre of Asiatic lions

In October and November 2014 Lioness 'Laxmi' (Stud Book No. 000-6B72163/ 445) and Lion 'Vishnu' (Stud Book No 000-61146E09/670) died during the course of treatment. They were found positive for Canine distemper virus confirmed at IVRI, Bareilly.

In April 2016, Lion, 'Kuber' (Stud Book No 0006CC-31FA/761) was found ill and immediately treatment was initiated on advice of IVRI Bareilly and the blood sample was sent to IVRI for analysis. IVRI, Bareilly confirmed the animal positive for Canine Distemper virus and during the treatment lion Kuber succumbed to death on 2nd June 2016.

In July 2016, Lioness, 'Greeshma' (Stud Book No 00-06BB-ADFB/719) was noticed dull and unable to stand on her hind legs and immediately treatment was initiated on advice of IVRI Bareilly and the blood sample was sent to IVRI for analysis. IVRI, Bareilly confirmed the animal positive for Canine Distemper virus and the treatment continued as per advice of experts from Smithsonian Institute, USA, San Diego Zoo, USA, Central Zoo Authority, New Delhi, and national experts from Sakkargh Zoo, Junagarh, IVRI Bareilly, Mathura Veterinary College for 4 months till Lioness, 'Greeshma' succumbed to death on 8th November 2016.

Realizing the danger of outbreak of Canine distemper the vital samples of all the healthy animals were sent to IVRI Bareilly. Blood samples, ocular swabs, nasal swabs, faecal samples of all the lions (Greeshma, Pataudi, Gigo, Manan, Jessica, Kunveri, Hir) were collected in suitable RNA/DNA shield media at different intervals and sent to Indian Veterinary Research Institute, Izatnagar, Bareilly, and to Institute of Virology, University of Veterinary Medicine, Vienna (Austria).

Blood samples of all lions were found positive for CDV by RT-PCR by using universal and F-gene primers, and also confirmed by sequencing results by IVRI, Bareilly. Accordingly report obtained from Vienna, lions were found positive for CDV in different samples by RT-qPCR and confirmed by sequencing of the PCR product and considered intermittent shedder of virus.

Strategic Vaccination to control CD in Asiatic lions

As it is clearly mentioned in the guidelines provided by CZA, New Delhi, live vaccines are not safe in wild animals and are viewed with concern. Killed vaccines against canine distemper are not available worldwide. On the advice of experts from Smithsonian institute, USA, San Diego Zoo, USA, National Experts of India, CZA concluded live vectored (recombinant) vaccines provide hope for safe and effective vaccination of wild animals, and advised Canarypox vectored canine distemper vaccine by Merial Pharmaceutical Co., USA to vaccinate all the lions. Recombinant Canarypox vectored canine distemper vaccine does not carry live canine distemper virus and has been used in clinical trials in large cats. No adverse reactions were reported and cats did develop detectable antibody titres to canine distemper virus. This vaccine provides the best option available to provide some protection against canine distemper virus in large felids. A suitable vaccination pattern involves primary vaccination at eight weeks of age with subsequent double revaccination at 3-week intervals followed by annual revaccinations [8,9]. All the 6 adult Asiatic lions were vaccinated with Distemper Ferret canarypox vectored vaccine first time in India

at Etawah safari park. Its a pioneer work going on at Etawah Asiatic lions Breeding Centre for conservation of such a rarest precious species.

Vaccination Schedule

Adult lions vaccinated with 1ml CDV ferret vaccine primary dose, 3 weeks apart 1st booster 1ml dose and 3weeks after 1st booster 1ml 2nd booster dose given. It is tabulated below:-

Sr. No.	Name of lions	Date of First CD vaccine	1 st booster	2 nd booster	Annual vaccination (due)
1.	Gigo	11.07.2016	01.08.2016	22.08.2016	11.07.2017
2.	Pataudi	11.07.2016	01.08.2016	22.08.2016	11.07.2017
3.	Hir	11.07.2016	01.08.2016	22.08.2016	11.07.2017
4.	Manan	18.07.2016	08.08.2016	29.08.2016	18.07.2017
5.	Jessica	18.07.2016	08.08.2016	29.08.2016	18.07.2017
6.	Kunveri	23.07.2016	13.08.2016	03.09.2016	23.07.2017

Discussion

The evaluation of vaccination efficacy in our study was based on a virus-neutralization test. The virus-neutralization test has still been regarded as a standard serological test providing a good correlate of protection against viral infection [10]. Serum samples of vaccinated animals were subjected for canine distemper virus neutralization test and results obtained were:

Name of Lion	SN titre as per IVRI report			SN titre as per Vienna Institute	
	0 days	21 st day post primary (dp)	42 nd day post primary	30.08.16	06.09.16
Gigo	No titre	No titre	1:64	1:6 (50 dp)	1:11 (57 dp)
Manan	1:8	1:512	1:1024	1:91 (42 dp)	1:64 (50 dp)
Pataudi	No Titre	1:4	1:64	1:32 (50dp)	1:32 (57 dp)
Hir	No titre	1:4	1:64	1:23 (50 dp)	1:23 (57 dp)
Jessica	>1:128	1:1024	1:512	1:256 (42dp)	Not estimated
Kunveri	>1:128	1:1024	1:2048	1:362 (42 dp)	Not estimated

All the lions CDV antibody titres growing respect to day zero indicating protection level against canine distemper and effectiveness of current vaccination schedule. Antibody titres of lion named Gigo, Pataudi, Hir were comparatively less so they were revaccinated six months after 2nd booster of vaccination to improve their antibody titre for better protection. The whole study covered the period of 1year from primary vaccination. No symptoms of disease were observed in the lions throughout the study. Three lions Gigo, Pataudi, Hir had zero virus neutralization antibody titre before primary vaccination and increasing trend of serum antibody titre showing protection level against canine distemper due to vaccination. In Manan, Jessica, Kunveri presence of CDV antibody titre prior to vaccination may be due to CDV infection. In these three lions serum antibody titre also increased after successive vaccinations without any clinical manifestation of disease. Regarding the results obtained in this scheme we do not consider the recommended vaccination with a recombinant ferret CDV vaccine is a solely effective method to control CDV in population of Asiatic lions. This test will be the subject of another study on a larger population of animals.

Suggestions

It is to get the attention of everyone involved in conservation and management of lions. There is also an immediate need to test all cats for CDV exposure or virus presence. All the zoos, safari, parks should consider implementing rigorous quarantine and vaccination program. It is very clear that CDV is present in the population of Asiatic lions and it is being spread amongst institutions probably because little attention is being paid to pre-ship testing, confirmatory diagnosis, and a rigorous vaccination program. There is also a need to collect and bank serum and tissues (primarily from animals succumb to CDV) for future testing. Serum banks will allow institutions to trace the origins of a disease retrospectively. Canary pox vectored CDV vaccine is safe and provides the best option available to provide some protection against canine distemper in lions.

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Competing interests

The author declares that they have no competing interests.

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23. Conservation Breeding Programme of the Zoo

- Conservation Breeding Program of Asiatic lion is on progress at lion breeding centre of Etawah Safari Park, Etawah. Presently 03 Male & 02 Female lions are present as founder animals. 02 male cubs were born in year October, 2016 & 01 male was born on January, 2018 by sire Manan & Dam Jacisa lion. Park management is trying to increase more founder animals.

24. Animal acquisition / transfer / exchange during the year

A. Animals arriving in the Zoo					
H.NO.	Species	Number (M:F)	From which Zoo	Date of arrival in the zoo	
1	Lion (Manan & Kunwari)	2(1:1)	Shakkar Baug Zoo	11.04.14	
	Lion (Kuber & Greeshma)	2(1:1)	Rajkot Zoo & Shakkar Baug Zoo	02.09.14	
	Lion (Gigo & Hir)	2(1:1)	Shakkar Baug Zoo & Rajkot Zoo	07.09.14	
	Lion (Laxmi & Vishnu)	2(1:1)	Hyderabad Zoo	10.09.14	
	Lion (Patoudi, Tapsya & Jesica)	3(1:3)	Shakkar Bauh Zoo	28.12.15	
2	Black Buck	10(1:9)	Lucknow Zoo	21.02.17	
	Black Buck	10(4:6)	Kanpur Zoo	31.05.18	
3	Bear (Shankar, Kalia & Kuni)	3(2:1)	Nandankanan Zoological Park	06.03.17	
	Bear (Bholu)	1(1:0)	Bhagwan Birsa Biological Park Ranchi	06.03.17	
4	Sambar	2(0:2)	Lucknow Zoo	05.10.16	
5		3(0:3)	Kanpur Zoo	05.10.16	
		4(4:0)	Kanpur Zoo	08.12.16	
6	Chital	10(5:5)	Lucknow Zoo	29.09.16	
		10(3:7)	Kanpur Zoo	05.10.16	
B. Animals going from the zoo					
H.NO.	Species	Number (M:F)	Going to which Zoo	Date of deposition from the zoo	
-	-	-	-	-	

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

Sl.No.	Date of Rescue	Species with number of animals rescued with their sex (M: F:U:T)	Received from	Date of Submission of Report to the CWLW / CZA	Action taken	
					Date and Place of rehabilitation in their habitat	Reasons for housing in the zoo, if not released in their habitat
1	23-09-17	Leopard-01 (F)	Piproli Gadiya Etawah	24-09-17	-	Died on 26-09-17 during quarantine house in Etawah Safari Park.

26. Annual Inventory of animals

Form – II

[See Rule 11(1)]

Part – A

Inventory Report for the Year : 2017-18

Endangered Species*

S.N o.	Anim al Nam e	Scienti fic name	Opening Stock as on				Births			Acquisitio n			Dispo sal			Death			Closing Stock as on			
			M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
1	Bear Sloth	Melurs us ursinu s	0	0	0	0	0	0	0	3	1	0	0	0	0	1	0	0	2	1	0	3
2	Blac k Buch	Antilop e Cervic apra	2	1	0	1	2	3	0	0	0	0	0	0	0	1	0	0	3	1	0	1
3	Lion	Panth era leo persic a	5	3	0	8	1	0	0	0	0	0	0	0	0	1	0	0	6	2	0	8

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

Part – B

Other than Endangered Species

S.N o.	Ani mal Nam e	Scienti fic name	Opening Stock as on				Births			Acquisiti on			Dispos al			Death			Closing Stock as on			
			M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
4	Deer Sam bar	Rusa unicol or	4	5	0	9	0	0	0	0	0	0	0	0	0	2	0	0	4	3	0	7
5	Deer Spot ted	Axis axis	1	9	0	2	2	2	0	0	0	0	0	0	1	0	0	1	1	0	2	
			3			2												4	1		5	

27. Mortality of animals

Sl.No.	Animal Name (with individual identification mark, if any)	Scientific Name	Sex	Date of Death	Reason of Death as per the Post-mortem report
1	Lion (Kunwari)	Panthera leo persica	F	04.02.18	Chronic Renal failure
2	Bear (Shankar)	Melursus ursinus	M	25.12.17	Tuberculosis
3	Black Buck	Antilope Cervicapra	M	04.01.18	Pneumonia
4	Deer Sambar	Rusa unicolor	F	16.06.17	Ruminal Infection
	Deer Sambar	Rusa unicolor	F	13.10.17	Ruminal Infection
5	Deer Spotted	Axis axis	M	01.06.17	Traumatic

28. Compliance with conditions stipulated by the Central Zoo Authority

Sr. No	Norm No. under RZR, 2009	Condition Stipulated	Time Period to Comply	Since when pending	Status with regard to compliance of the conditions
1. General requirements					
	1(1)	The Safari administration shall take care to maintain genetic diversity among Asiatic lions and Deer population (Spotted deer and Sambar)	One Year		Genetic diversity among Asiatic lions and Deer population (Spotted deer and Sambar) is being maintained at the time of mating & reproduction procedure.
		The suggestion given for the Spotted deer and Sambars houses should be carried out in the night	Three Month		Appropriate measures have been followed on suggestions as per requirement.

		houses/animal feeding cells and retiring cells.			
1(2)		The vegetation growth in the Deer Safari should be controlled in such a manner that the visitors have good visibility of animals housed therein.	Three Month		Appropriate measures has been taken.
1(5)		At few places the height of the outer perimeter wall is less than 2.0 mt which should be maintained at a height of 2.0 mt from both sides of the perimeter boundary wall.	Three Month		The height of the outer perimeter wall has been constructed as approved plan form CZA
1(7)		The Safari area should have a soak pit for the drainage generated in the night house.	10 days		The soak pit has been constructed in the night cell
1(7)		The deer safari should be planted with grass species as natural feed for the animals further the plant weed should be removed regularly from safari area.	Six Month		Appropriate species of grasses such as <i>Dinanath Grass, Gunea Grass, Duub Grass and stylo hemata</i> are planted. The unwanted weeds are being regularly eradicated.

2. Administrative and staffing pattern					
	2(2)	At Lion Breeding Centre, few sanctioned posts lying vacant at present should be filled up at the earliest. The Deputy Director of the Breeding Centre and Safari should be working full time.	Six Month		Proposal for filling vacant post has been sent to the appropriate authorities.
3. Development and Planning					
	3(1)	The revised master plan is under process for approval from the CZA, the effort should be made to get it approved as soon as possible.	Six Month		CZA has suggested certain amendment in revised master plan. The Master plan has been amended & The amended Master Plan has been sent to the CZA for approval.
	3(3)	An appropriate vehicle should be provided to the veterinary team to visit different enclosures along with their equipment, medicines and other necessary items.	Three Month		Vehicle has been provided to Veterinary team.
	3(7)	Quarantine facilities should be created as early as possible for deer.	Immediately		Quarantine facility has been created for Deer.
4. Animal Housing, display of animals and animal enclosures.					

4(2)	The size of the night house and their entry and exit is found to be too small. The safari Operator should maintain the entry/ exit gates of the night house at the height of 6.5 feet from ground and width to be 4 feet. Further instead of having four cubicles, they may be converted into two, in order to provide larger area for the movement of animals.	One Month		All the animals have been released in safari area & they are staying in safari in night also. However constriction agency in carrying out suggested changes.
4(3)	The size of disinfectant foot bath should be increased and liquid disinfectant should be used, instead of using powder.	Immediately		Disinfectant is being used as per direction.
4(3)	The design of the squeeze cage at the Lion Breeding Centre should be modified.	Two Month		Design of squeeze cage has been modified as per direction
4(6)	The environment of the enclosures of the Deer Safari should be enriched to	Two Month		Appropriate measures have been taken for deer safari enrichment along with salt licks and wallowing pools

		meet the species specific behavioral requirements of the animals. Efforts should be made to provide salt licks in the enclosure and wallowing pools.			
	4(10)	The signage for deer safari should be placed at the earliest. Warning signs should also be placed at various places.	One Month		Signage has been placed along with warning signs
5. Upkeep and Healthcare of animals					
	5(2)	The Safari Park is having underground water source for supply to all unit of safari. The safari Operator should get the water quality tested from reputed, recognised and approved laboratory.	15 days		Water Quality has been tested as per required specification
	5(2)	The feed/fodder store is under construction, which should be completed at the earliest.	Two Month		Feed/fodder store has been constructed
	5(3)	The size of food and water containers to be modified.	15 days		Food & water containess has been modified as per direction of CZA

		their depth should be reduced and the edges should be made rounded. The outside of these structures should be painted with nature merging colours rather painting them with white colour.			
6(3)	Post-mortem/ examination room should be provided with AC, almirah, wash basin and other necessary infrastructure.	Three Month		Post-mortem house has been equipped as per direction	
6(6)(b)	The staff should be trained at the instituted of National and International repute for exposure on zoo/ Safari management	One Year		Appropriate training, schedule is being followed for staff training	
6(6)(b)	The veterinarian and technician should be sent to refresher courses on animal restraint techniques and basic diagnostic techniques	Six Month		Appropriate training, schedule is being followed for veterinarian and technician	
6(6)(c)	Development of S O P for	One Month		S O P has been develop for better zoo	

		preventive medicines and vaccination should be made by the Zoo management			management
Other conditions					
		Centralized emergency system may be developed so that all staff can be contacted/ informed/ communicated immediately in case of any emergency situation	Three Month		Emergency system has been developed for meeting any emergency situation
		Mock drills may be organized periodically to keep the staff vigilant.	Once in Six Month		Mock drills are organized periodically to keep the staff vigilant.

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

a. Mammals

Common Name

Pangolin
Golden jackal
Common palm civet
Indian small mongoose
Indian great mongoose
Jungle Cat
Wild Boar
Samber
Nilgai
Nothern palm squirrel
Porcupine
Indian hare
Hedgehog
Chuha
Mus
Chhachhunder

Scientific Name

Manis crassicaudata
Conis aureus
Paradoxurus hermaphrodites
Herpestes auropunctatus
Herpestes edwardsii
felis chaus
Sus scrofa
Cervus unicolor
Boselaphus tragocamelus
Funambulus pennantii
Hystrix indica
Lepus nigricollis
Hemiechinus micropus
Rats rats
Mus susculus
Sancus murinus

b. Birds

Common Name	Scientific Name
Black francolin (Black Partridge)	Francolinus francolinus
Grey francolin (Grey Partridge)	Francolinus pondicerianus
Common Quail	Coturnix coturnix
Rain Quail	Coturnix coromandelica
Indian Peafowl	Pavo cristatus
Brown Headed Barbet	Megalaima zeylanica
Coppersmith Barbet	Megalaima haemacephala
Indian Grey hornbill	Coccyzus birostris
Common Hoopoe (Hoopoe)	Upupa epops
Indian Roller	Coracias bengalensis
Green bee eater	Merops orientalis
Blue tailed bee eater	Merops philippinus
Sirkeer malkoha	Phaenicophaeus
Greater coucal (crow-pheasant)	leschenaultia
Lesser coucal (small coucal)	Centropus sinensis
Rose Ringed Parakeet	Centropus benghalensis
Rosy starling (Rosy Pastor)	Psittacula krameri
Pied myna	Sturnus roseus
Common myna	Sturnus Contra
Jungle myna	Acridotheres tristis
Sand Martin	Acridotheres fuscus
Streak throated swallow	Riparia riparia
Wire-tailed swallow	Hirundo fluvicola
Red whisked Bulbul	Hirundo daurica
White eared Bulbul	Pycnontus jocosus
Zitting Cisticola	Pycnontus leucotis
Rufous fronted prinia	Cisticola juncidis
Jungle prinia	Pinia buchanani
Oriental white-eye	Prinia sylvatica
Common tailer Bird	Zosterops palpebrosus
Hume's warbler	Orthotomus sutorius
Greenish warbler	Phylloscopus humei
Tickells leaf warbler	Phylloscopus trochiloides
Puff throated Babbler	Phylloscopus affinis
Common Babbler	Pellorneum ruficeps
Large grey Babbler	Turdoides caudatus
Jungle Bubbler	Turdoides malcolmi
Yellow eyed Babbler	Turdoides striatus
Rufous-winged Bushlark	Chrysomma sinense
Ashy-crowned sparrow Lark	Mirafra affinis
Rufous-tailed lark	Eremopterix grisea
Crested Lark	Ammomanes phoenicurus
Indian Bush lark	Galerida cristata
Oriented sky lark	Mirafra erythropra
Thick-billed flower pecker	Alauda gulgula

Purple sunbird	<i>Dicaeum agile</i>
House sparrow	<i>Nectarinia asiatica</i>
White wagtail	<i>Passer domesticus</i>
White browed wagtail	<i>Motacilla alba perso</i>
Citrine wagtail	<i>Motacilla maderaspatensis</i>
Yellow wagtail	<i>Motacilla citriola</i>
Grey wagtail	<i>Motacilla flava</i>
Paddy field pipit (Indian pipit)	<i>Motacilla cinerea</i>
Tree pipit	<i>Anthus rufulus</i>
Black breasted weaver	<i>Anthus trivialis</i>
Streaked weaver	<i>Ploceus benghalensis</i>
Baya weaver (Baya)	<i>Ploceus manyar</i>
Asian Koel	<i>Ploceus philippinus</i>
Common Kingfisher	<i>Eudynamys scolopacea</i>
White throated Kingfisher	<i>Alcedo atthis</i>
House Swift (Little Swift)	<i>Halcyon smyrnensis</i>
Spotted owl	<i>Apus offinis</i>
Eurasian Eagle owl	<i>Athene brama</i>
Laughing Dove	<i>Bubo bubo</i>
Spotted Dove	<i>Streptopelia Seneglansis</i>
Red collared Dove	<i>Streptopelia chinensis</i>
Brown Rock chat	<i>Streptopelia tranquebarica</i>
Red wattled Lapwing	<i>Cercomela fusca</i>
Grey Bush Chat	<i>Vanellus indicus</i>
Black kite/ Pariah Kite	<i>Sexicola ferrea</i>
Egyptian vulture	<i>Milvus migrans</i>
Oriental Honey buzzard	<i>Neophron percnopterus</i>
Black shouldered kite	<i>Pernis ptilorhyncus</i>
Shikra	<i>Elanus caeruleus</i>
Pallid harrier	<i>Accipiter badius</i>
Cattle egret	<i>Circus macrourus</i>
Rufous Tailed Shrike	<i>Babulcus ibis</i>
Grey shrike	<i>Lanius issabellinuss</i>
Rufous Tree pie	<i>Lanius meridionalis</i>
House crow	<i>Dendrocitta vagabunda</i>
Jungle crow (black crow)	<i>Corvus splendens</i>
Golden oriole	<i>Corvus macrohynchos</i>
Large cuckoos shrike	<i>Oriolus oriolus</i>
Small minivet	<i>Coracina macei</i>
Scarlet minivet	<i>Pericrocotus cinnamomeus</i>
White-browed fantail	<i>Pericrocotus flammeus</i>
Black Drongo	<i>Rhipidura aureola</i>
Yellow bellied fantail	<i>Dicusus macrocercus</i>
Common iora	<i>Rhipidura aureola</i>
Dark throated thrush	<i>Aegithina tiphia</i>
Orange-headed Thrush	<i>Turdus ruficollis</i>
Grey headed canary flycatcher	<i>Zoothera citrina</i>
Red throated fly catcher	<i>Culicicapa ceylonensis</i>
Blue Throat	<i>Picedula parva</i>
Oriental magpie Robin	<i>Luscinia svecica</i>

Indian Robin	Copsychus saularis
Black redstart	Saxicoloides fulicata
Common stone chat	Phoenicurees ochruros
Pied Bush Chat	Saxicola tarquata
Brahmni starling	Saxicola caprata
Rock pigeon	Sturnus pagodarum

c. **Reptiles**

Common Name	<u>Scientific Name</u>
Goh (Monitor Lizard)	Varanus indicus
Python	Paython molurus
Indian cobra	Naja naja
Common Kraits	Bungarus sindonus
Rat snake	Ptyas mucosus
Common Wolf snake	Lycodon aulicus
Common Sand Boa	Gongylophis conicus
Red Sand Boa	Eryx johnii