



STUDY OF ANIMAL BEHAVIOUR IN ALIPORE ZOOLOGICAL GARDEN

ROLL NO: 193113-11-0121

REGISTRATION NO:113-1211-0217-19

EXMINATION :B.Sc (HONS)

SEMESTER : VI

SUBJECT : ZOOA

PAPER: DSE B -1 (ANIMAL BEHAVIOUR
AND CHRONOBIOLOGY)

RAMMANSINGH COLLEGE
C. U. Examinations
Department of Zoology



EXCURSION IN ALIPORE ZOO

SEMESTER 6



STUDY OF ANIMAL BEHAVIOUR IN ALIPORE ZOOLOGICAL GARDEN

Dated: (13/04/2022, 18/04/2022, 26/04/2022)

➤ INTRODUCTION:

Any zoo can become an exciting area for study of animal behaviour and principles of wild life conservations. A zoo provides an opportunity to learn how factors such as proximity of conspecifics (animals of the same species), availability of hiding places, food abundance, and presence of sleeping places can alter an animal's behaviours. The zoo can afford students to get a close up view of animals engaged in maternal behaviour, courtship behaviour, communication, grooming etc. A good understanding of abnormal behaviour will help to recognize that some of the behaviours that are observed in captivity are not part of the animals' natural behavioural repertoire.

In addition awareness of the critical role of the zoos in breeding and preservation of endangered species can be made. The zoo activities are designed to learn how to observe animals and apply their observations to a practical problem.

➤ LOCATION:

The Zoological Garden, Alipore (also informally called the Alipore zoo or Calcutta zoo) is India's oldest formally stated zoological park and a big tourist attraction in Kolkata, West Bengal. It is probably best known as the home of the now expired Aldabra giant tortoise *Adwaita*, who was reputed to have been over 250 years old when he died in 2006. It is also home to one of the few captive breeding projects involving the Manipur brow-antlered deer.

Since establishment of the Zoological Garden, Alipore on 24th September, 1875, zoo has passed through several phases. Initially, the citizens of Kolkata at that time came forward with generosity in the process of establishing the zoo with financial help and they also donated animals from their collections to the zoo.

To provide future direction for modernization & upgradation of the Zoological Garden, Alipore to such extent that in spite of being one of the oldest Zoos of India, it can be at par with one of the best Zoos of the country. For that purpose the available resources, planned breeding, research etc. would be the essential tools keeping in mind the constraints, limitations and inherent challenges of an old Zoo.

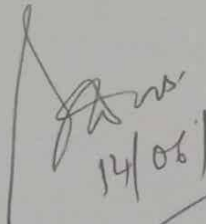
The zoo was among the first zoos in the world to breed white tigers and the common reticulated giraffe. While it has successfully bred some megafauna, its rate of breeding rare species had not been very successful, often due to lack of initiative and funding. One notable exception is the breeding programme of the Manipur brow-

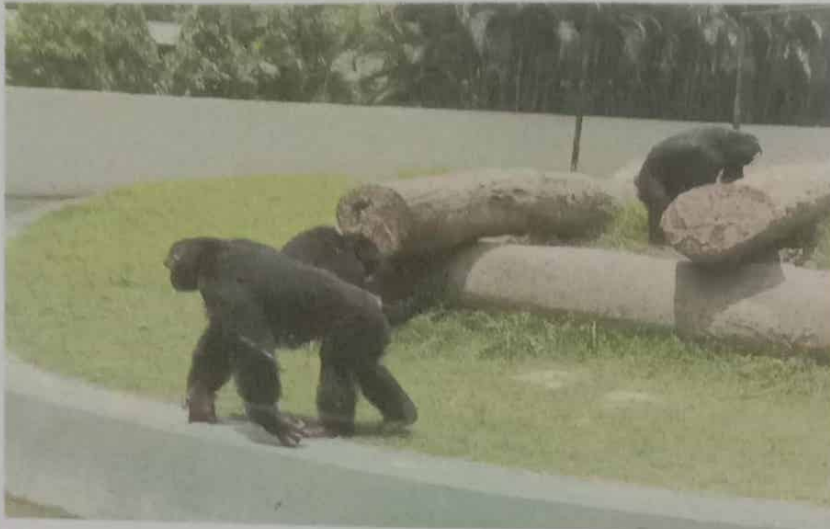
antlered deer, or thamin which has been brought back from the brink of extinction by the breeding program at the Alipore Zoo.

➤ COMPANION:

We were accompanied by -----

- ✓ Dr. Samarendra Nath Banarjee, Dr. Shantanu Das, Dr. Santi Ranjan Dey (13/04/2022).
- ✓ Dr. Kaustav Dutta Chowdhury, Dr. Samik Acharjee, Prof. Chayanika Roy (18/04/2022).
- ✓ Dr. Samik Acharjee, Prof. Sanjay Paul (26/04/2022).


14/06/22



CHIMPANZEE



STUDY OF ANIMAL BEHAVIOUR

3 DAY FIELD REPORT ON CHIMPANZEE (*Pan troglodytes*)

➤ INTRODUCTION:

Chimpanzees are highly social. Captive chimpanzees attack people far more often than their wild kin, because they can lose their fear of people altogether. During attack they target a person's face, hands, feet and genitals. They become very much aggressive in captivity than the wild.

Zoo officials should pay close attention to group composition as well as levels of human activity, when devising strategies to reduce captive Chimpanzee aggression.

➤ TOTAL NUMBER:

There are total four Chimpanzee present but three are present in display.

➤ NAME:

Babu, Buri (Basanti), Chotu, Mostan.

➤ ENCLOSURE:

- ❖ Enclosure is made up of glass to avoid zoonotic disease and for clear vision too.
- ❖ There are wooden log and shed.
- ❖ There are some rod structure for their playing.
- ❖ Water area or pool is present.

➤ NUTRITION:

- ❖ Normally they are provided with seasonal and exotic fruits, leafy vegetables, onion, carrot etc.
- ❖ We came to know from Zoo officers that they start their day with milk and complain.
- ❖ In summer season, they are provided with Lassi, Curd as their food.
- ❖ They are provided with food 2 times per day (around 8:30 am and 2:30 pm).

➤ STUDY OF BEHAVIOUR:

❖ DAY 1:

- ✓ They are playing on rods.
- ✓ They are sometimes making sounds.
- ✓ Sometimes they are roaming around the enclosure .
- ✓ They sit in group under the shed to avoid the scorching heat of sun.
- ✓ They are getting into the pool for heat and sometimes for collecting food.
- ✓ They remain always in group.

❖ DAY2:

- ✓ They are clapping and running around the enclosure and making sound.

- ✓ They walk together by the pool.
- ✓ Sometimes they observe the crowd in front of their cage.
- ✓ They share food with each other.
- ✓ Otherwise they show more or less same behaviour as previous day.
- ❖ DAY 3:
 - ✓ They help each other by pulling one Chimpanzee from the pool.
 - ✓ Somehow they feel irritated, so that they show their teeth towards crowd.
 - ✓ Otherwise they show more or less same behaviour as previous days.

- N.B:
According to Zoo officers Chimpanzees show less activity due to extreme heat.

STUDY OF ANIMAL BEHAVIOUR:

3 DAY FIELD REPORT ON GIRAFFE (*Giraffa camelopardalis*)

INTRODUCTION

In the confined small enclosure, it is found that most of the giraffes are frustrated and often exhibit abnormal behaviour like repeatedly twisting their necks or licking the bars of their cage and the trees (covered by wire nets) within the cage. Though they are fed with proper nutritional diets, they occasionally suffer from numerous captivity-associated health problems including nutritional disease and lameness and their longevity is also reduced.

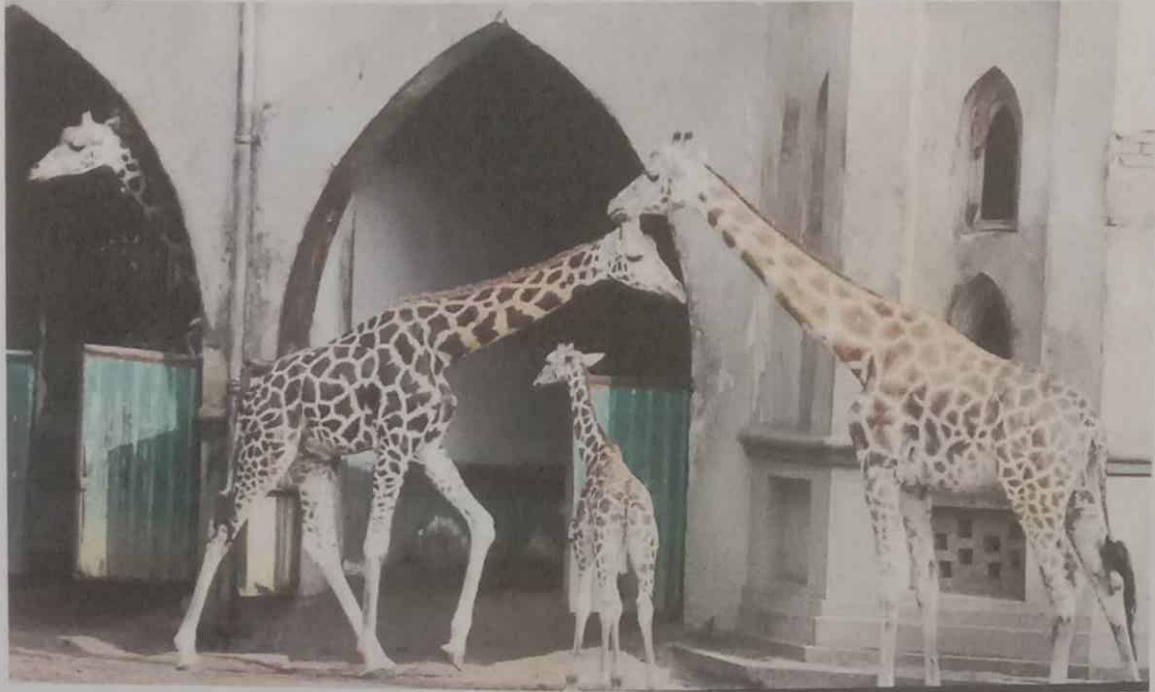
ORIGIN

- Giraffes are originally found in Africa – Sudan and Somaliland to South Africa, Westwards to Northern Nigeria.
- According to IUCN Red List, giraffes are critically endangered species.

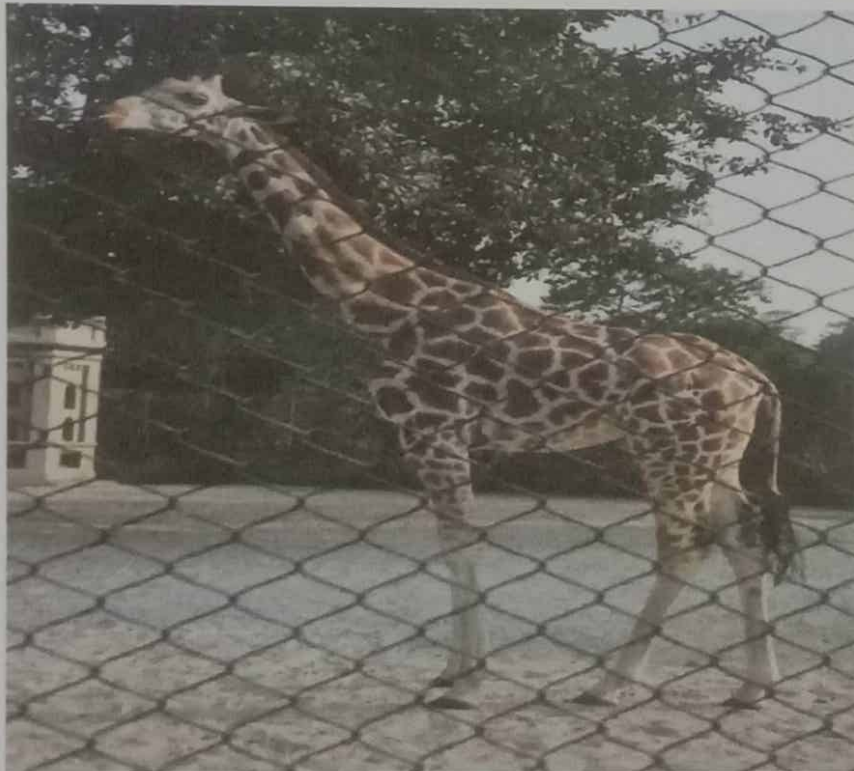
HABITAT

- Large caged area.
- Arid (sandy ground) – semi-desert area.
- Patches of grass present all over the ground.
- Trees present right in the centre of the ground.
- A shady shelter (Ezra House) present at the back of the captive area having water supplies.

ZOOLOGICAL DATA



GIRAFFE



✓

- Total number of giraffes present: 10
- 8 giraffes present on one side of captive area (larger area in front of Ezra House) and other two giraffes have been isolated for more than 2 months on the other side of Ezra house. They are schemed to be moved to Harinalaya Mini Zoo at New Town.
- Adults are more in number.
- Calves fewer in number (2) - one was born on 15th Feb, 2022 (2 months old) and the other on 25th March, 2022 (1 month old).

CHARACTERS

- They have long necks although this character is showing a down-curve recently due to in-breeding depression.
- Adults have dark pigmented patches on their bodies. Eldest one has the darkest patches. Calves have lighter patches (reddish brown spots). Patches radiate heat which may help in very hot weather.
- Large hoofed feet. Legs are almost of same size.
- Large brown eyes bordered by long black lashes.
- Long, black or blue prehensile tongue present to protect from sun-burn.
- Short and stiff mane present.

BEHAVIOUR

A. Locomotion:

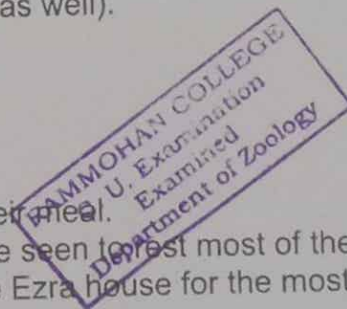
- ❖ Only few prefer strolling around, mostly the adults.
- ❖ Once observed running in group (calves as well).

B. Resting:

- ❖ Usually resting observed after having their meal.
- ❖ On scorching weather condition, they are seen to rest most of the time.
- ❖ Calves were observed to take rest in the Ezra house for the most part.

C. Sleeping habits:

- ❖ Most of the adult giraffes' sleep for an average period of 4.6 - 5 hours per day.
- ❖ They tend to sleep during the night, although they do get in some quick naps throughout the day (around 35 minutes).
- ❖ Adult giraffes rarely sleep for more than few minutes at a stretch.
- ❖ They can sleep in both positions: standing as well as laying down.



D. Neck Twisting:

- ❖ In general, this is a characteristic feature observed in captive animals, including giraffes.
- ❖ Neck twisting was observed only once in an adult giraffe.

E. Feeding:

- ❖ Herbivorous in nature. Prefer shrubs over trees (because they are unable to reach such heights). They prefer Banyan and Peepal trees (if they are not having shrubs).
- ❖ Sometimes, the adults were seen to stretch their tongues to reach the tree leaves.
- ❖ While feeding from ground, they stretch their forelimbs and bend their necks low.
- ❖ Vigorous usage of their long, black tongue during mastication.
- ❖ Mother giraffes were seen to milk feed their calves (seldom observed). Breast feeding is usually done for 3 - 4 months.
- ❖ Leaves are artificially supplemented to them in open tree branches.
- ❖ Feeding time: 8 - 8:30 in the morning and 2 - 2:30 in the afternoon. Keepers provide them their food (inside the Ezra House).
- ❖ Their food proportion is approximately: 5% of their total body weight.
- ❖ During pregnancy, female giraffes are provided with calcium and iron supplements.
- ❖ Water is supplied to them inside the Ezra House. Normal salt and black salt are often added to water. To avoid calcium deficiency, calcium carbonate is added to water sometimes.
- ❖ After sunset, feeding is usually not observed.
- ❖ Their diet chart is revised once in a year.

DIET CHART OF A GIRAFFE

1	Wheat Bran	2.250 kg
2	Crushed Oat	0.400 kg
3	Crushed Barley	1.000 kg
4	Crushed Gram	0.400 kg
5	Crushed Maize	0.400 kg
6	Boiled Lentil	0.400 kg

7	Onion	0.250 kg
8	Sweet Potato, Carrot	4.000 kg
9	Beans	1.000 kg
10	Banana	3.500 kg
11	Apple	2.500 kg
12	Orange	4 pcs
13	Molasses	0.200 kg
14	Ground Nut Cake	0.250 kg
15	Mustard Oil Cake	0.100 kg
16	Salt	0.010 kg
17	Leaves	Lump some

F. Reproductive behaviour:

- ❖ Courtship behavior: Male signals his readiness to mate by tapping on the female's hind leg with his foreleg or by resting his chin on her back.
- ❖ Duration of Estrous Cycle is 15 days.
- ❖ Breeding occurs throughout the year.
- ❖ Gestation period: 446 - 457 days on an average.
- ❖ Females give birth standing up. Newborns drop to the ground directly during parturition. Infants are able to stand up about 5 - 20 minutes after birth.

G. Grooming or Parental care:

- ❖ Parents were seen to care the calves.
- ❖ Parent giraffes clean their calves' noses with the help of their tongues.
- ❖ Sometimes they were also seen to lick their bodies.
- ❖ Mother giraffes were sometimes seen to milk feed their calves.
- ❖ Calves prefer to stay in their natal groups for most of their juvenile period.



DANCING DEER



RAMMOHAN COLLEGE
C. U. Examination
Department of Zoology

- ❖ Non mothers also support (care) the calves in rearing.

H. Random and social behaviour:

- ❖ Alongside neck twisting, another interesting behaviour is demonstrated by giraffes which is oral stereotypy. It is actually seen in captive animals. It is the excessive and vigorous tongue movements observed more so often.
- ❖ Crows perch themselves on giraffe's back (seldom observed) to pluck out worms from their bodies.
- ❖ An interesting feature was observed while giraffes were urinating or defecating on the open ground. Their tails instinctively rose to their body level lying perpendicular to their legs (parallel to the ground).
- ❖ Sometimes, adults were observed to scratch their bodies against the walls and gates of the 'Ezra House'.
- ❖ Apparently, they showed no such response to humans (visiting the zoo) around their captive ground.

STUDY OF ANIMAL BEHAVIOUR: 3 DAY FIELD REPORT ON (DANCING DEER) *Cervus eldii eldii*

ENCLOSURE :

- In the enclosure, there are green grass land with small herbs and big trees too.
- In the enclosure, there are one shelter and also a small land surrounded with fences, it's called cared area and there are 2 to 3 artificial reserve water bodies (24 hours water supply).

HABITAT :

- It is summer time that's why there are dry places all over the land, but zoo staff created artificial muddy place for deers to rest and enjoy mud, because *Cervus eldii eldii* lives in a wetland habitat.

FEEDING HABIT:

- The deer feeds twice a day on aquatic plant species, grasses, herbs and shoots and also fruits, etc.
- The zoo staff provides proper diet plan to deers.

OBSERVATION BASED ON FIRST DAY OF EXCURSION DATED 13/4/2022

- There were 2 spots and we observed both.
- Spot A habitat is same as Spot B.
- In Spot A, there are 3 males; where 2 are adult enough while one is young. There are 5 females seen.
- In Spot B, there are 3 males and 4 females. Fawns can also be seen here.

- Size:- Here males are larger in size and females are smaller in size (body).
- Males have larger antlers while females have smaller ones.
- The males only possess antlers which are shed annually and they grow again.

OBSERVATION BASED ON SECOND DAY OF EXCURSION DATED 18/4/2022

- The males are seen resting and a bit of playing can be seen in muddy places while females are seen to be different than males in terms of behaviour.
- Due to excessive heat of summer, they can be seen resting in shaded area and are not seen to be playing much. We see them drinking water from the artificial water body.
- In both the spots, there is one male leader which is big in size and relatively older than other males.
- Fawns are observed hanging out with adult ones since adults do not hurt fawns and they are seen to be familiar in nature.
- While relaxing they are seen to be chewing, or scratching their body and head using their legs and antlers. They are found to be licking their body.

OBSERVATION BASED ON THIRD DAY OF EXCURSION DATED 26/4/22

- In the mid - day female deers are found to be sitting under the shadow of big trees while male deers are sitting in muddy places.
- The males cover half of their body with mud to reduce their body temperature and keep their body cool.
- Males are much more active than females. They can be seen fighting and drinking water. Females on the other hand are active in playing with other female and indulge in a bit of running
- They flip their ears and tail to keep the flies and insects away from their body.

TREATMENT:

For weak and sick deers there is an enclosed area referred to as Cared area where they are given proper treatment and medicines. This place is also used to isolate a deer from others.

BREEDING:

- ❖ Cervus eldii eldii breed once a year and their breeding season is observed in summer. We observed male deers fighting with their rival males, the duration of which is seen to be 1 min (more or less).
- ❖ Usually after the gestation period of 8 month, a single fawn is born.



SPOTTED DEER



✓

CONCLUSION :

- ❖ *Cervus eldii eldii* is an endangered subspecies of Eld's deer found only in Loktak lake at Manipur, India.
- ❖ They live on floating biomass locally , called "Phumdi" in the southeast part of Loktak lake.
- ❖ They are protected under Wildlife Protection Act.

STUDY OF ANIMAL BEHAVIOUR: 3 DAY FIELD REPORT ON SPOTTED DEER (*Axis axis*)

- Found in forest at the base of the Himalayas and particularly throughout the peninsula and Sri Lanka.
- Gregarious, herbivores.
- Males only possess antlers which are shed annually and grow again.
- Usually after a gestation period of 6 months, gives birth of a fawn.

MAINTENANCE

- Virkon S= disinfectant
- Blow lamp is used to burn the iron net to overcome the iron deficiency and also used as disinfectant.
- Food bath is given to the keepers by giving Potassium Permanganate (KMnO₄) in water so as to prevent infection.
- Yearly vaccination is given under the provision of veterinary officers.

ENCLOSURE

- The habitat was enclosed in a cage which consists of shade and sandy ground. It was a large area. The shade is made up of straw and bamboo.

FIRST DAY ACTIVITY OF SPECIMEN

- Date – 13/4/22
- Time – around 10:00 am
- No vegetation is there as they have eaten all the grasses, so area has been deserted (only sand).
- 2 males are rubbing their horns with each other (in fight form).
- It is seen that they (many of them) are chewing a piece of . Their pile/twigs of tree in order to clean their teeth because the grasses they eat, get stuck in their teeth.
- Females are seen to be grooming themselves by licking their body.
- Crows are found to be sitting on the posterior part of them eating lice / worms (commensalism).
- Babies are seen to be sitting surrounded by adults or found running/ jumping here and there.
- Males are also licking their body.
- Some of them are seen to be using their mouth to lick their genital area.

- They eat in groups. Dominant males
- They roll their excretory waste with their tongue and throw it away.
- According to zoo manager this type of wild behaviour is shown because for they always try to wet their teeth.
- They are eaten till 1 minute 19 seconds.
- Dominant males may indulge with keepers who comes to give food and water.
- They clean their antlers.

SECOND DAY ACTIVITY

- Date – 18/4/22
- Time – around 10:00 am
- 43 in number
- They almost show the same behaviour like previous day.
- Mud bath and dust bath
- They are eating grass/ food together in a group. Food includes carrot, vegetables, beans or seasonal vegetables also etc.
- Food is provided at dawn and dusk. At 8 am and at 5 pm. There was a stand in the mid of the ground on which the leaves were placed.
- They are chewing the wooden twigs like the previous day. It may help them for cleaning and sharpening their teeth and for jaw movement.

REPRODUCTIVE PERIOD

- They breed every time.
- Naturally they are mostly like to reproduce their babies in warm weather.
- Males shed their antlers annually at an interval of 10-12 months. Aggressive behaviour is found in males and difficult to manage. Females became aggressive only while feeding.

THIRD DAY

- The keepers have given food and they are eating within group.
- After eating they take rest under shade.

STUDY OF ANIMAL BEHAVIOUR: 3 DAY FIELD REPORT ON

Aquatic Birds

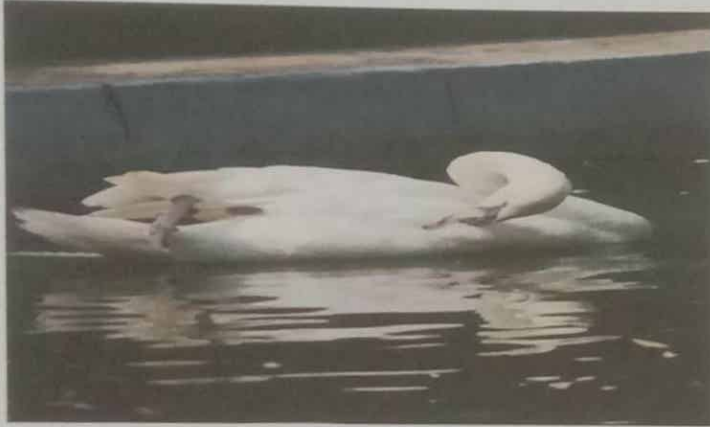
EMPEROR GOOSE (*Anser canagicus*)

Habitat: It is restricted to the Bering Sea. It can be found within the arctic and the subarctic region of Alaska, United States and the north-east coastal region of Russia. During the winter season, they are found along the ice-free coastal region of Canada and Alaska Peninsula. They usually live in rocky beaches and brackish wetland.





AQUATIC BIRDS



Appearance: Small, stocky body, short pink bill and yellow orange legs with webbed feet. The body is covered with bluish grey plumage with black and white marking on the tips of the wings, head and neck are white.

Emperor goose can reach 27 inches in length and 38 kgs of weight. Males are slightly larger than females.

Food: It is an omnivore. Diet is based on grass, berries and leaves during the breeding season and on algae, mussels and clams during winter.

Breeding: Emperor goose form monogamous pairs and produce one brood per season. Female lay 1-8 eggs and only female takes part in the incubation of eggs, which lasts for 24-26 days.

They can live upto 12 years in the wild, but majority of geese die before they reach the age of 6 years.

13/04/22

10:46 am

1. 4 of them are cleaning their feathers and moving around the cage.
2. At 10:50 am 3 of them go to swim and clean their body.
3. At 10:53 am they flapping after swim for 10 seconds.
4. Another rest of 4, they again go to swim. It continues for 10.15 minutes.
5. After swim they clean their body for 58.69 seconds

11:12 am

6. At 11:12 am in 1 min 05 sec 1 put its head into water around 8 times.
7. They don't rest for long time.
8. 2 of them continuously cleaning their feathers on land. 3 of them are not come from water they continuously swim and cleaning their feathers.

11:37 am

9. At that time they rarely take food.
10. They are mainly omnivore.
11. Their food is mainly grains, veggies, rice which are provided by zoo authorities.
12. Commonly known as beach goose or painted goose.

18/04/22

10:25 am

1. Today they are rarely in water till 10:37 am .
2. 2 of them go into water st 10:38 am .
3. They put their head into water for 5/6 times.

11:02 am

4. Comes to the land for 3 times.
5. They are mainly in swampy area.
6. 4 Of them are eating their food.

11:20 am

7. All are on the land and cleaning their feathers.
8. Roaming and eating.

26/04/22

10:14 am (temperature 36°C / mostly sunny)

1. They are mainly in resting condition.
2. 3 are almost in their sleep for whole time.
3. 1 is taking bath.

10:37 am

4. They are taking rest.
5. Not taking any food.

11:12 am

6. They show some movement from resting condition.
7. At 11:17 am 2 are going to bath.
8. Rest of moving around the cage.

*Last day (26/04/22). They rarely move. Mainly they were seen in resting condition.

WHITE FACED WHISTLING DUCK (*Dendrocygna viduata*)

Habitat: Found in Zimbabwe, Mozambique, Northern Namibia, Eastern Botswana and eastern side of South Africa. They actually live in dams and flood plains.

Appearance: It has a black neck and head, distinctive white face, back and wings are darker brown to black, and under parts are black with a fine white barring on flanks. Neck is chestnut. Males and females have similar plumage.

Diet: Grass, seeds, aquatic plants, insects, molluscs, crustaceans.

Breeding: They breed during rainy season in the wild, in captivity they normally breed in spring when it gets warmer. Female lays 8-12 eggs and both incubate the eggs for 28 days.

GENERAL DIET: Crushed maize, grains, oats, wheat, vegetables trimmings and peas are mixed together and kept in large bowls in the morning.

In evening, the swans and ducks are fed with Azolla and sometimes larva and pupa of certain insects.

Geese also consume wide variety of plant materials including grass, leaves, roots etc. They also feed on molluscs, crustaceans and even small fishes.

Many large bowls of water is also given for drinking purposes.

SHELTER: The shelter of swans, ducks and geese are made of wired mesh. The roof is made up of green shed which allows passing of light. The shed also prevents passing of heat to some extent, thus keeping the shelter cool. Water sprinklers are also present in their roof to allow cooling of the birds. These features help the migratory birds to adapt to the hot tropical climate of India.

13/4/22

10:45 am

1. They eat only the leaf hanging with the pole.
2. One is resting for 40 to 45 minutes, rests are moving and walking.
3. They rarely goes to the water.
4. They show rarely various activity.

18/4/22

10:27 am

1. 2 are swimming.
2. Cleaning their feather during swimming.
3. Male and female moving together.
4. They are moving in unity.

*They are mainly transported worldwide by human.

26/4/22

10:18 am

1. Most of them are on the land.
2. They moving mainly in bushy area.
3. At 11:30 am they are moving and go to near the water.
4. They eat only leaf.

MANDARIN DUCK (*Aix galericulata*)

Habitat: Found in Europe and Asia also in China, Japan, Korea and parts of Russia.

Prefers freshwater, coastal lagoons and estuaries, dense, shrubby, forested edges of rivers and lakes.

Appearance: I. Male Mandarins have elaborate plumage with orange plume on their cheeks, orange "sails" on their backs, and pale orange side.

II. Female are dull in comparison, with grey heads, brown back, and white eye stripe.

Food: Feed on water plants and seeds (mainly paddy seeds), snails, crabs, prawns, insects and small fish and small snakes.

Breeding: A single mate of 9-12 eggs is laid in April or May which hatch after nearly a 30-day incubation period during spring.

CALL DUCK (*Anas platyrhynchos domesticus*)

13/4/22

10:47 am

1. At 10:45 am 2 of them are near their nest and roaming.
2. There are 4 eggs.
3. They watching continuously to their eggs.
4. Around 11:16 am they are going to take bath.
5. Approximately after 4 to 5 minutes they comes out.

13/4/22

11:26 am

1. Two of them are eating.
2. There is not any egg today. As the keeper takes the egg for incubate artificially.
3. 3 of them are going to take bath, at 10:56 am.
4. They were scattered, moving around not in unity.

*It is a breed of domestic duck. They are friendly in nature. (Said by Zoo).

26/4/22

10:17 am (High temperature 36°C)

1. They are mainly in rest.
2. 3 of them are moving and eating frequently.
3. At 11:06 am they (3) are going to swim.

MUTE SWAN (*Cygnus olor*)

Habitat: Found mainly in temperate areas of Europe and Asia.

Live in tidal and freshwater wetlands can found in ponds, shallow rivers, coastal bays and inland lakes.

Appearance: I. Large, all white swan with an orange bill which is black at the base. Curved neck held in S-shaped, with the bill pointed downwards while bird is swimming.

II. The average length of this bird is 140-160 cm with a wingspan of 200-240cm. The mute swan can weigh 9.3 -14.3 kg.

Food: Primarily feed on grain and the leafier parts of aquatic vegetation. They also eat grasses, small amphibians, molluscs insects and worms.

Breeding: Mute swan are monogamous and remain together for atleast one season. The breeding starts in march and in early April.

13/04/22 1st day

10:51 am

1. Total number of mute swan are 5. Two of them continuously feeding around 30 minutes.
2. They were eating veggies, rice, grain etc.
3. Two are taking bath continuously.
4. Around 12 or 13 second they put their head into the water. And after that they repeatedly taking bath.
5. They are cleaning their feather properly.
6. They drinking freshwater that provided by zoo authority.
7. 11:21 am: - One is continuously standing on one leg around 2 minutes.

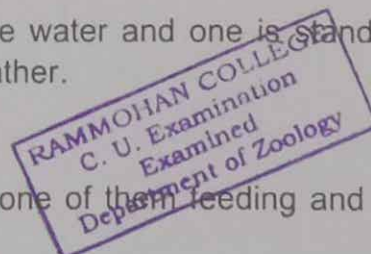
18/04/22 2nd day

10:17am

1. 4 are swimming in the water continuously around 15 minutes.
2. One is feeding around 7 minutes and after that this one also go to the water for taking bath.
3. 10:35 am:- Two of them come from water and dry their feather.
4. 10:47 am:- one mute swan is taking bath in the drinking water.
5. 10:55 am:- 2 are taking bath, one is feeding food and two of them cleaning their feather in the land.
6. 11:06 am:- 4 are taking bath in the water and one is standing around 4 minutes and sometimes cleaning feather.

26/04/22 3rd day

1. 10:24 am: - 3 resting in the water, one of them feeding and one cleaning feather.
2. They feeding vegetables, rice and grains.
3. They putting their mouth in the food around 12 to 15 seconds and found something specific which they are like.
4. 10:38 am: - 4 hour swim in the water and one is resting in the land.
5. They are fighting with other species and show may be agonistic behaviour.



6. 10:47 am: - 2 are swimming and 3 are cleaning their feather on the land.

BAR HEADED GOOSE (*Anser indicus*)

Habitat: Found in Mongolia, China (summer) and Northern India (winter). They are highest flier, flies well above the peak of Mount Everest. The bird inhabits altitude wetland (summer), lowland swamp, lakes, river.

Appearance: The bird is pale grey and is easily distinguished from by the black bars on its head.

They live in group and colonies.

Food: Feeds on variety of grasses, roots, stems, grains, tuber, etc.

Breeding: They are monogamous. They breed between late April and July. Female usually lay 3-8 eggs at a time and incubate around 28-30 days.

The life span of bird is around 20-30 years.

13.04.22 1st day

10:57 am:-

1. Threes are taking bath continuously around 37-39 mins.
2. Other three are taking rest and cleaning their feather continuously.
3. Those who are taking bath they are put their body into the water around some times and again cleaning their feather.

4. 11:06 am: - One is taking bath, twos are eating food and other threes are resting in the land.

5. They eat rice, grains and veggies mixes which is provided by zoo authority.

18.04.22 2nd day

1. 10:21 am: - 3 are moving around the cage.

2. One is feeding and 2 are resting under the tree.

3. 10:33am: - 3 are observing resting and 3 are swimming in the water.

4. 10:57 am: - One is resting in the water and three are in the cage and 2 are resting in the land.

26.04.22 3rd day:-

10:43 am

1. All are taking rest all the time.

Overview:

1. At 11:20 am: 3/4 th birds are in the water.

2. At 11:27 am: 2/4th birds are on the land and flap their wings only 2 or 3 swans are floating.
3. At 11:37 am: 3/4th birds are on the land.
4. At 11:45 am: 3/4th birds are mainly taking rest. Otherwise eating food.
5. Food: Morning: Grains, rice, veggies, কলমি শাক
Evening: Put azota in water.
6. Eggs: Zoo keeper takes the eggs and incubate artificially.
7. Water: Zoo keeper changes the water twice (2) in a week.
8. Health care: Daily checking is done.
9. Disinfectant: keeper always put food after disinfect the container. They also use potassium permanganate.
10. New species: Before adding some new species zoo authority examine the health status of that new one. If all is good then it added to the cage.
11. Rivalry: Bar headed goose and emperor goose showing rivalry behaviour. Bar headed comes towards the emperor goose, and the emperor goose attack them by their beak.

CHILOE WIGEON (*Mareca sibilatrix*)

Habitat: The distribution of the Chiloe wigeon is South America, from Southern Brazil, Uruguay, Paraguay, Northern Argentina and Central Chile to Tiera del Fuego and the Falkland Islands. It is fresh water, frequenting lakes and marshes, preferring open water.

Appearance: They have a black and greenish head and neck while the cheeks and front of the face are white. The sides of the body are chestnut coloured, back and chest are patterned in black and white and the belly and rump are whitish.

Food: Eat aquatic plant and grasses and sometimes coastal algae.

Breeding: Breeding season is between September and December. Female lay 5-8 white eggs and incubate for 24-26 days.

Body length of 46-56cm and a wingspan of 75-86 cm. The average weight is approximately 800 gm.

Average life span is around 20-30 years.

LESSER WHITE WHISTLING DUCK (*Dendrocygna javanica*)

Habitat: The species is distributed widely across Pakistan lower river valleys, India, Nepal, Terai, Sri Lanka and Bangladesh. They like to live in still freshwater lake.

Appearance:

- I. This species has a long grey bill, long head and longish legs.
- II. II. Back and wings are darkish grey, and there are chestnut patches on the wings and tail.

III. Males and females looks alike.

Food: I. Feed mainly on plants taken from the water as well as grains from cultivated rice.

II. Apart from this they feed on small fishes, frogs and invertebrates such as molluscs.

Breeding: Breed during monsoon or rainy season, female lays 7 to 12 white eggs which are incubated by both parents for 22-24 days.

Avg lifespan: 8-10 years.

DAY 1: 13/04/22

Species	Behaviour	Time Span					
		11:00 to 11:30am	11:10 to 11:20am	11:20 to 11:30am	11:30 to 11:40am	11:40 to 11:50am	11:50 am to 12pm
Mute Swan (<i>Cygnus olor</i>) Total-5	Swimming	✓(2)	✓(2)	✓(1)			✓(2)
	Preening		✓(1)	✓(3)	✓(4)	✓(2)	✓(1)
	Resting	✓(1)			✓(1)		
	Feeding	✓(1)	✓(2)	(1)		✓(3)	✓(2)
	Following		✓				
Bar headed Goose (<i>Anser indicus</i>) Total-4	Swimming		✓(4)	✓(2)			✓(3)
	Preening	✓(1)		✓(2)	✓(2)		
	Resting	✓(2)			✓(2)	✓(1)	
	Feeding	✓(1)				✓(3)	✓(1)
	Following		✓	✓			
Emperor Goose (<i>Anser canagicus</i>) Total-6	Swimming	✓(4)	✓(2)	✓(3)			✓(2)
	Preening	✓(2)	✓(4)	✓(1)	✓(3)	✓(1)	✓(3)
	Resting			✓(1)		✓(2)	✓(1)
	Feeding			✓(1)	✓(3)	✓(3)	✓(1)
	Following			✓			
Chiloe Wigeon (<i>Mareca sibilatrix</i>)	Swimming			✓	✓	✓	
	Preening	✓		✓			✓
	Resting	✓	✓	✓			✓
	Feeding		✓		✓	✓	
	Following						
Lesser Whistling Duck (<i>Dendrocygna javanica</i>)	Swimming	✓					✓
	Preening					✓	
	Resting	✓	✓			✓	
	Feeding		✓	✓	✓		
White faced Whistling duck (<i>Dendrocygna viduata</i>)	Swimming	✓					
	Preening		✓	✓	✓		
	Resting					✓	✓
	Feeding			✓			✓
Mandarin Duck (<i>Aix galericulata</i>)	Swimming			✓	✓		✓
	Preening						
	Resting	✓	✓				
	Feeding				✓	✓	

DAY 2: 18/04/22

Species	Behaviour	Time Span					
		10:00 to 10:10am	10:10 to 10:20am	10:20 to 10:30am	10:30 to 10:40am	10:40 to 10:50am	10:50 to 11am
Mute Swan (<i>Cygnus olor</i>) Total-5	Swimming	✓(4)	✓(1)	✓(2)	✓(2)		✓(1)
	Preening	✓(1)		✓(3)	✓(1)		
	Resting		✓(2)			✓(2)	✓(3)
	Feeding		✓(2)		✓(2)	✓(3)	✓(1)
	Following			✓	✓		
Bar headed Goose (<i>Anser indicus</i>) Total-4	Swimming	✓(2)	✓(1)	✓(2)	✓(2)		
	Preening		✓(1)				✓(1)
	Resting	✓(2)	✓(2)			✓(1)	✓(2)
	Feeding			✓(2)	✓(2)	✓(3)	✓(1)
	Following	✓		✓	✓		
Emperor Goose (<i>Anser canagicus</i>) Total-6	Swimming	✓(3)			✓(3)		✓(2)
	Preening	✓(1)	✓(4)	✓(2)	✓(1)		✓(3)
	Resting			✓(4)		✓(4)	✓(1)
	Feeding	✓(2)	✓(2)		✓(2)	✓(2)	
	Following				✓		✓
Chiloe Wigeon (<i>Mareca sibilatrix</i>)	Swimming			✓	✓	✓	
	Preening		✓			✓	
	Resting	✓			✓	✓	✓
	Feeding			✓			✓
Lesser Whistling Duck (<i>Dendrocygna javanica</i>)	Swimming		✓	✓			✓
	Preening				✓		
	Resting	✓	✓			✓	✓
	Feeding			✓	✓	✓	
White faced Whistling duck (<i>Dendrocygna viduata</i>)	Swimming			✓			
	Preening		✓				
	Resting	✓			✓		
	Feeding		✓			✓	✓
	Following			✓			
Mandarin Duck (<i>Aix galericulata</i>)	Swimming			✓	✓		
	Preening						
	Resting	✓	✓			✓	
	Feeding						✓

DAY 3: 26/04/22

Species	Behaviour	Time Span					
		10:15 to 10:25am	10:25 to 10:35am	10:35 to 10:45am	10:45 to 10:55am	10:55 to 11:05am	11:05 to 11:15am
Mute Swan (<i>Cygnus olor</i>) Total-5	Swimming		✓(1)	✓(3)		✓(2)	
	Preening	✓(1)	✓(2)		✓(1)	✓(2)	✓(2)
	Resting	✓(1)	✓(2)		✓(2)		
	Feeding	✓(2)		✓(2)	✓(2)	✓(1)	✓(3)
	Following			✓			
Bar headed Goose (<i>Anser indicus</i>) Total-4	Swimming				✓(2)	✓(4)	
	Preening				✓(2)		✓(1)
	Resting	✓(4)	✓(3)	✓(4)			✓(3)
	Feeding		✓(1)				
	Following						
Emperor Goose (<i>Anser canagicus</i>) Total-6	Swimming	✓(3)					✓(3)
	Preening	✓(1)	✓(4)	✓(2)			✓(1)
	Resting	✓(2)	✓(2)		✓(3)	✓(1)	✓(2)
	Feeding			✓(4)	✓(3)	✓(5)	
	Following						✓
Chiloe Wigeon (<i>Mareca sibilatrix</i>)	Swimming		✓			✓	✓
	Preening		✓	✓			
	Resting	✓				✓	
	Feeding		✓	✓	✓		
	Following						
Lesser Whistling Duck (<i>Dendrocygna javanica</i>)	Swimming	✓					
	Preening				✓		
	Resting		✓			✓	✓
	Feeding			✓	✓		✓
	Following						
White faced Whistling duck (<i>Dendrocygna viduata</i>)	Swimming	✓	✓				
	Preening				✓		
	Resting			✓		✓	✓
	Feeding		✓		✓		
	Following						
Mandarin Duck (<i>Aix galericulata</i>)	Swimming		✓	✓			
	Preening				✓		
	Resting	✓		✓		✓	✓
	Feeding				✓	✓	
	Following						

SPECIAL FEATURES OBSERVED:

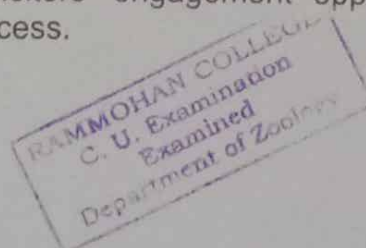
- The male swans, ducks and geese are very bright colored, while the females are dull in color. The bright color in males help them in attracting the females. The dull color in females is an adaptation of camouflaging, so that they do not get spotted by predators during incubation of eggs. Thus, it is a survival strategy for the females.
- Except Lesser Whistling Duck, all the other birds are migratory. To help them to stay cool and adapt in the tropical climate of India, light passing sheds are present, which have water sprinklers. The water in the pond is also changed twice a week.
- Rivalry is seen in mixed species during egg laying.
- The Bar-headed goose and Emperor goose generally tend to move together in flock.
- The swans lay whole set of eggs and then incubate them when the clutch is complete. They generally do not leave the eggs unattended, even if they do, they cover them with loose nests.
- The health of the swans, ducks and geese are kept under check by daily checkups by vets of the Zoological Garden. Various protocols are maintained by the zookeepers by wearing clean clothes and keeping their hand sanitized while attending the birds.

CONCLUSION:

Animals have evolved over millennia and their physical, physiological and behavioural traits are specifically adapted to their natural habitat.

However, life in captivity like zoos differs substantially from life in the wild. Space, social interactions, diet, climate, presence of humans and many more aspects of their life may be completely alien compared to what they would encounter in the wild. Captive animals cannot choose their environment, or carry out behaviours necessary to enhance their welfare or survival. Rather than having a safe and easy life in captivity, animals may face a number of challenges which evolution has not prepared them for. This can result in Zoochosis, a phrase used to describe the stereotypic behaviour that captive animals exhibit.

These studies can assist in more clearly identifying animal and captive characteristics that facilitate either negative or positive human-animal interactions and allow zoos to manage accordingly. This information will provide zoos to make decision on better management for visitors' engagement opportunities that will ultimately contribute to conservation success.



[Handwritten signature]
14/6/22