Report

of

Observation of post treatment and pre-release fitness of northern shovelers (*Anas clypeata*)

(03/12/2019 to 13/12/2019)

Submitted by

Mr. Tahir Multani

(M.Sc. Zoology, Semester-II)

Report compiled with inputs and guidance from

Dr. Rupal Vasant and Prof. Ujjval Trivedi

Submitted to

P.G. Department of Biosciences

Sardar Patel University

Vallabh Vidyanagar

Abstract:

The behaviors of northern shovelers were studied in captivity for checking their post treatment and pre-release fitness. Twenty five northern shovelers were kept in large aviary for two consecutive (4th & 5th December 2019) days and were observed for 12 hours a day. The order of observation of behavior of birds was performed randomly at every thirty minutes. These were statistical differences between morning and evening behavior.

Objectives:

Studies on behavior are important for evaluation of the fitness of birds before releasing them into the field or into their natural environment. It minimizes the effect the post releasing stress experienced by birds. The objective of this study was to evaluate the fitness of birds after treatment to observe whether they are fit to release or not.

Introduction:

Birds were rescued from the sambhar lake, the Sambhar Salt Lake, India's largest inland salt Lake, is located 80 km (50 mi) southwest of the city of Jaipur and 64 km (40 mi) northeast of Ajmer, Rajasthan. It surrounds the historical Sambhar Lake Town. Reason was Avian Botulism is a strain of botulism that affects wild and captive bird populations, most notably waterfowl. This is a paralytic disease brought on by Botulinum neurotoxin (BoNt) of the bacterium Clostridium botulinum. After rescue birds were treated by the veterans at Kachroda nursery where they were kept in a small aviary for one day and subsequently were transferred in large aviary for observation of pre-release fitness of the birds. For two consecutive days (4th & 5th December, 2019)

Northern shovelers feed by dabbling for plant food, o ten by swinging its bill from side to side and using the bill to strain food from the water. They use their highly specialized bill (from which their name is derived) to forage for aquatic invertebrates – a carnivorous diet as their wide and flat bill is equipped with well-developed lamellae – small, comb-like structures on the edge of the bill that act like sieves, allowing the birds to skim crustaceans and plankton from the water's surface. This adaptation, more specialized in shovelers, gives them an advantage over other puddle ducks, with which they do not have to compete for food resources during most of the year. Thus, mud-bottomed marshes rich in invertebrate life are their habitat of choices. This is a fairly quiet species. The male has a clunking call, whereas the female has a Mallard-like quack.

Wild behavior of Northern Shoveler feeds mainly by drawing water into its bill and then pumping it out through the sides with their tongue, filtering out minute food particles with long comb-like lamellae that line the edge of the bill. The particles mainly consist of tiny crustaceans, Molluscs, insects, and their larvae as well as seeds and pieces of leaves and stems of plants. In addition to the food particles, they also eat water beetles, small minnows, and snails. Social feeding is common. The shovelers are drawn to feeding areas by other birds feeding in an area. Shovelers take advantage of the food particles churned to the surface by the other birds swimming or wading in the area. Single birds may swim in a tight circle to create a whirlpool to cause food to come to the surface. Shovelers are also known to upend or dabble, usually for lengthier periods than other surface feeders, and also dive using their wings to swim underwater in shallow marshes.

Manner of enclosure (aviary):

Twenty five northern shovelers were kept into an outdoor concrete tank (18 ft*18 ft) constantly changing water. The tank was enclosed by high nets and on lower part it is covered by green translucent net. Besides the tank there is a platform covered with cardboard shits. Grass was spread over them for ease of birds. Also installed two IR lamps for making surroundings warmer during the night. Tank is in Kachroda nursery beside the tank there is ICU for treatment of diseased birds. so their human movement is continuous.

Diet provided:

Shrimps and turtle food were provided four times a day.

Methods:

For pre - releases observations we observed following seven behaviors :(S) swimming, (F) feeding, (P) preening, (s) stretching, (W) walking, (o) sitting and (B) basking.

Observation on behavior were made for two consecutive days and three different periods a day 8:00Am to 12:00pm, 12:00am - 04:00pm and 4:00pm-8:00 pm.

(Pre – release observation: Standing)

(Pre - release observation: Swimming)

(Pre - release observation: basking)

Post - release observations:

For checking post release behavior and conditions, we visited realizing site for another two consecutive days

(Day of release)

Post release observation: 6th December

Post release observation: 7th December

Observation table: Day one:

Sr.No	TIME	ACTIVITY OBSERVED
1	8:00-8:30	Swimming
2	8:30-9:00	Swimming
3	9:00-9:30	Feeding (1st meal)
4	9:30-10:00	Swimming
5	10:00-10:30	Swimming
6	10:30-11:00	Swimming
7	11:00-11:30	Basking, sitting
8	11:30-12:00	Swimming
9	12:00-12:30	Swimming
10	12:30-13:00	Preening, sitting
11	13:00-13:30	Feeding (2nd meal)
12	13:30-14:00	Sitting, preening
13	14:00-14:30	Swimming
14	14:30-15:00	Swimming
15	15:00-15:30	Swimming
16	15:30-16:00	Swimming
17	16:00-16:30	Feeding (3rd meal)
18	16:30-17:00	Swimming
19	17:00-17:30	Preening, sitting
20	17:30-18:00	Swimming
21	18:00-18:30	Swimming
22	18:30-19:00	Swimming
23	19:00-19:30	Walking, stretching
24	19:30-20:00	Swimming

Observation table: Day Two

Sr.No	TIME	ACTIVITY OBSERVED
1	8:00-8:30	Swimming
2	8:30-9:00	Feeding (1st meal)
3	9:00-9:30	Swimming
4	9:30-10:00	Sitting, basking, preening
5	10:00-10:30	Swimming
6	10:30-11:00	Swimming
7	11:00-11:30	Swimming
8	11:30-12:00	Swimming
9	12:00-12:30	Feeding (2nd meal)
10	12:30-13:00	Swimming
11	13:00-13:30	Preening, basking, sitting
12	13:30-14:00	Preening, basking
13	14:00-14:30	Swimming
14	14:30-15:00	Swimming
15	15:00-15:30	Swimming
16	15:30-16:00	Feeding (3rd meal)
17	16:00-16:30	Swimming
18	16:30-17:00	Swimming
19	17:00-17:30	Preening, sitting
20	17:30-18:00	Feeding (4th meal)
21	18:00-18:30	Swimming
22	18:30-19:00	Sitting, preening
23	19:00-19:30	Swimming
24	19:30-20:00	Swimming

RESULTS:

DAY ONE

Sr.no.	Activity	Total time
1	Swimming	8 hours
2	Feeding	1.5 hours
3	Preening and sitting	1.5 hours
4	Basking	0.5 hour
5	Walking and stretching	0.5 hour

Day two:

Sr.no.	Activity	Total time
1	Swimming	8.5 hours
2	Feeding	2.0 hours
3	Preening and sitting	1.75 hours
4	Basking	0.5 hour
5	Walking and stretching	0.25 hour

Inference:

Results show that shovelers spend time 66% swimming, 15% feeding, 13% preening and sitting and 6% of their time in basking and sitting. These behaviors are more or less the same as observed in wild conditions.as on observations and veterans call we released the birds into the Ratan talab pond near sambhar lake in their natural environment.

Conclusion:

Healthy swimming, preening, feeding and basking are some activities of shovelers which we can observe and declare them as fit to release. If these activities are good and frequent the birds in captivity are fit to release.