Population Control By Segregation of Blackbucks at Kanpur Zoo

K. Praveen Rao*

The Indian Blackbuck *(Antilope cervicapra)*, is one of the three species of antelopes found in Northern India. The blackbuck is a medium-sized antelope native to the Indian sub-continent. Although native to the sub-continent, considerable numbers of black-buck are currently found in the U.S.A and Argentina, where they were introduced over 80 years ago. In the U.S.A, blackbuck are mainly found on game ranches in the state of Texas.

Blackbuck II enclosure at Kanpur Zoo

The Blackbuck is considered to be the fastest animal in the world next to Cheetah. It shows remarkable sexual dimorphism. Males are larger in size compared to females. The colouration of the skin coat in males is more conspicuous which is striking black (or dark brown) above and white under parts and have a pair of unbranched, 'corkscrew' and diverging horns on each side of head. While the coats of females and immature males are a more subdued light brown and white. The females are hornless.

The population has declined throughout the country due to rampant poaching and habitat loss. Subsequently within a short span of time this animal has suffered much reduction in numbers. In pre-independence India the animal was poached for its flesh and skin by the rulers of the princely states with the help of their pet Cheetahs. Due to habitat destruction the animal became restricted to limited areas increasing the liklihood of inbreeding in these animals. Post-independence the Blackbuck is included in the Schedule-I of Wildlife (Protection) Act, 1972 and is designated as Near Threatened as per Red List (IUCN 2010).

Social organisation: group-living

Blackbucks are typically found in groups which are variable in size. The main types of groups are female groups (adult females and immatures of both sexes), all-male groups (adult and immature males), and mixed-sex groups (adults and immatures of both sexes). Females, who leave their group to give birth and are solitary for a large part of the time, while their fawns are very young (Mungall 1978, Ranjitsinh 1982, Prasad 1983, Isvaran 2003). They may join, split and re-form several times during a day.

Breeding Biology and Population dynamics

Blackbucks are one of the important animals in the zoo collection. These animals breed very well when they are given proper protection. Female Blackbucks attain maturity in approximately 2 years and are ready to breed. They breed in all seasons but main rut takes place between February to May and August to October. The gestation period is about 5-6 months. Usually only one young is born at a time. About two weeks after giving birth, females become receptive again. Although an adult female can potentially give birth twice a year, average fecundity is reported to be 1 or 1.5 fawns per year (Schaller 1967, Mungall 1978).

The life span of Blackbuck is between 12 to 16 years. The female can start breeding from the age of two years and more. One female is expected to breed about nine to fifteen individual fawns in its life period. The rate of birth can be upto two fawns per year and the fecundity was 1.5 times. If this goes well then the above figures will go up by another half times.

In zoological parks the animals get proper protection, balanced diet and proper medication. Thus with the above breeding biology the numbers of the animals goes up very fast. Kanpur Zoological Park has at present about 70 animals in its collection. The numbers more than doubled in the last ten years. The mortality rate of the animals also has gone up as the space for the animals had crossed the carrying capacity of the enclosures.

According to the norms set by Central Zoo Authority the number of herbivores in an enclosure should be restricted to 15-20 animals. In Kanpur Zoological Park presently the Blackbucks are kept in two different enclosures. Thus, according to the norms, set by CZA, the total number of animals that can be exhibited should not be more than 30 – 40. The mortality in these animals also has gone up in the last few years. The main cause of deaths was due to infighting injuries. Thus it clearly indicates that the carrying capacity of the enclosures has been crossed and the death rate of the animals is on the rise. The total number of animals remaining is around 70, which may be the carrying capacity of these enclosures. To fulfill the norms set by CZA and to reduce the mortality and infighting of the animals, various population control methods were discussed at length and the best in the present circumstances appeared segregating the males and female Blackbuck populations.

Methodology of Separation of Blackbucks

Arrangements made before separation

In Kanpur Zoological park the Blackbucks are present in two different enclosures of about 3000 sq mts each. The enclosure which comes first on the visitor circulation road is called the Blackbuck I enclosure and the one which comes next is called Blackbuck II enclosure. In Blackbuck I enclosure the outdoor enclosure is in the form of an ellipse extending along the road. For the purpose of this article it is called the outdoor enclosure I. On the side away from the road is situated the animal house, on one side of the ellipse. There is some space between the enclosure and the boundary wall. This space has been utilised to prepare another enclosure for separating the gender. Chain link mesh has been erected in such a way that the space parallel to the enclosure and the boundary wall has been closed leaving a passage to reach the entry gate of the animal house. This for the purpose of this article is called outside enclosure II. Thus the animal house remained between the two outdoor enclosures. The animal house has a kraal and the treatment cells, all these are interconnected.

***Director, Kanpur Zoological Park, Kanpur, U.P., kanpurzoo@gmail.com**

The treatment cells on one side open into the kraal and on the other side open into a gallery. The treatment cells and the kraal open into the outside enclosure through two separate doors. The chain link mesh of the outdoor enclosure II has been placed in such a way that the door of the treatment cells opens into it. The door of the kraal opens into the outdoor enclosure I. Before separation all the animals were in outdoor enclosure I.

Blackbuck in seperate enclosures at Kanpur Zoo, thus controlling population

The Blackbuck II outdoor enclosure is square in shape. On one end of the enclosure, the animal house is located. The house has a big kraal and cells for treatment of the animals. The kraal is divided into two halves with the help of chain link mesh. The two kraal compartments are Kraal 1 and Kraal 2. The kraal compartments have a sliding door of 5x4 ft in between. This slider door can be operated from outside the enclosure with the help of long handle, without disturbing the animals. This door helps in separating the animals according to need and giving the preferential feed to the animals. Two doors one from each kraal open into the outdoor enclosure. The outdoor enclosure has been divided into two equal halves with the help of chain link mesh of 2.10 mts height. This height was preferred as the blackbucks do not generally cross the other side of the fence with this height. Chain link mesh construction started from one end touching the visitor side wall and the moat to the animal house on the other end. The two outside enclosures are Outside enclosure 1 and Outside enclosure 2. Platforms for green fodder and tank for drinking water have been developed on each side of the fence in the outdoor enclosure. The fence was extended up to the animal house, so that one door of the kraal opens into one side of the chain link and the other door opens onto the other side of the chain link fence. Before finally erecting the chain link fence all the animals both males and females were driven to one side of the fence into Outside enclosure 1, so that the other half open enclosure is free of animals.

Modus Operandi

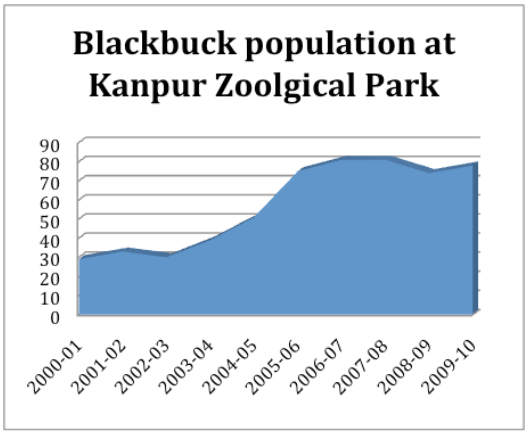
The feed in the form of soaked Bengal gram and the feed mix prepared by the Zoo, which has various pulses, cereals etc., in its composition is given to the animals around 10.30 am every day. The animals regularly visit the kraal for the feed daily. Advantage of this situation was utilised for separating the males and females very easily.

Blackbuck I Enclosure

On the day of separation the door of the kraal and the treatment cells opening into the enclosure were closed. The feed was placed in the kraal. The animals were allowed in small groups of three to four. These animals were then taken into the treatment cells, where the males were separated in the cells. The door of the cells opens into the gallery, from where the door opens in to the enclosure - II. So the cells in which males are present have been opened and were allowed to escape through the gallery to the door of the treatment cells leading into the enclosure II. Thus all the males were sent into the enclosure II.

Blackbuck II Enclosure

On the first day of separation, the doors of the kraal opening into the outside enclosure 1 and 2 were closed. When the feed arrived the feed was placed in both the kraal compartments 1 and 2 and the slide door between the kraal compartment was closed. The animals started collecting near the kraal door. About three to four animals were allowed inside the kraal -1. All permutation and combination of sexes entered in to the kraal. Making use of the sliding door the preferred animals (males) were allowed to enter into the other compartment of the kraal -2. Once the male enters the other compartment the slide door was pushed and the male was separated. The door opening into the outside enclosure -2 was opened and the animal is sent in to the other side of the enclosure fence. The remaining females in the kraal - 1 compartment was sent back in to the outside enclosure -1. This was repeated several times and the animals were separated very easily without injuring any of the animals. But after few operations the animals started avoiding the kraal, once this situation arose the operation was discontinued for the day and was repeated the next day. Thus with repeated operations all the males were separated.



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References

Isvaran, K. 2003. The evolution of lekking: Insights from a species with a flexible mating system.

Mungall, E. C. 1978. The Indian Blackbuck Antelope: A Texas View. Kleberg Studies in Natural Resources, College Station, Texas, USA.

Prasad, N. L. N. S. 1983. Seasonal changes in the herd structure of blackbuck. *J. Bombay Nat. Hist. Soc.*

Prater, S. H. 1971. *The book of Indian animals*. 3rd ed. Bombay Natural History Society.

Ranjitsinh, M. K. 1982. Ecology and behaviour of the Indian blackbuck (Antilope cervicapra Linn. 1758) in the Velavadar National Park, Gujarat. *J. Bombay Nat. Hist. Soc.*

Ranjitsinh, M. K. 1989. *The Indian Blackbuck.* Natraj Publishers, Dehradun.

Schaller, G. B. 1967. The deer and the tiger. The University of Chicago Press, Chicago.

IUCN 2010. IUCN Red List of Threatened species. Version 2010. <www.iucnredlist.org> downloaded on 15 March 2011.