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A Study of the Behaviour of the Old Male and Female Indian Black Buck (*Antilope cervicapra*) Linn. (Mammalia Artodactyla) in the context of herd size at M.C. Zoological Park, Chattbir (Pb.)

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ABSTRACT

The herd size of Indian Black Buck (*Antilope cervicapra*) Linn. is studied at M.C Zoological park, Chhatbir (Pb). During the studies the behaviour of the old male and female black buck was contrary to the normal herd composition. The present studies revealed that the old male and female black buck remains lonely during most part of the year in comparison to the young bucks and does.

Key words: *Antilope cervicapra*, Herd size, Old male and female black bucks.

INTRODUCTION

The Indian black buck (*Antilope cervicapra*) is a social animal. It is always present in herd of 5-50 individuals of different age group and sex, but some old individuals of same species were found defying the normal social grouping (Chander Shekhar, 1987; Ranjitsing, 1989). Their behaviour in context of normal herd size was studied at the deer park of Mahendra Chaudhary Zoological park, Chhatbir (Pb.).

The Zoological Park is located at Chhatbir Reserve Forest about 19 km from Chandigarh and 23 km form Rajpura on Chandigarh Patiala Highway. 2.02 hectares of reserve Forest along the right bank of the river Ghaggar which has young to middle aged semi natural forest. This park was established in 1974 in Chhatbir District Patiala by Sh Mahendra Chaudhary, The Hon'ble Governor of Punjab at that time and was opened for public on 13th April 1977. It is the biggest zoological park in North Western India.

Methodology

The deer safari is unique in having old males and old females. The behaviour of old females was recorded with regard to the following activities: direction of activity, activity range diameter, company of them with young female, young male or with any herd, number of hours passed during day time (from 5:00 am. to 7:00 p.m.) in different activities like grazing, walking, lying and standing, sexual activities like woeing of females by males. The present study was conducted from October 2006 to September 2007. The observation was recorded fortnightly.

RESULTS AND DISCUSSION

The daily activity pattern of two old females throughout the study period October 2006 to September 2007 is shown in table 1. The two females were not seen in doing any type of sexual activity. They passed most of their time in walking and grazing. The time passed in grazing was more in summer than in winter and other seasons of the year. The two old females are remained together throughout the study period. They accompanied the old male during most of the study time except months of July and August. They were also seen in the company of young females during October and December. They were also observed in other herds on December through March. The activity of the female was observed in all the corners of the safari. The mean activity range diameter is 974 yards. The maximum activity range diameter i.e. 110 yards was observed during the months of June and July. The minimum activity range diameter i.e. 85 yards was observed during the month of January. The daily routine of the old male throughout the year is shown in table 1. It is clear from this table that animals remained away from herds of animals and from animals individually throughout the year. But it was observed roaming with old females during the months of October, December, January, February, March and April. It was never observed woeing the female or indulging in any type of sexual activity. The mean activity range is 25.8 m. The maximum activity range diameter i.e. 30 yards was observed during February, March, June, July and August. The minimum activity range diameter i.e. 20 yards was observed during November and December. The old male passed most of the day time in lying and standing idle. The animal passed most of the day time in grazing in summer than in winter and other seasons of the year.

Turning to changes in the herd composition seasonally, it was clear that mixed herd is most common. A large number of pseudo-harems were observed during the winter season as compared to other seasons. All female herds were seen in abundance during the peak of summer and peak of winter. In mixed herd, the male which was most strong, was always found at the rear end of the herd (Mungall, 1981). Chander Shekhar (1987) also never observed all male herds. It is evident from the table-1 that the rejected old male restricted its movement to south-east direction of the safari throughout the study period it never moved into north and west part of the safari. Also it is clear from this table that in the north-east direction too the movements of old male were localised. The animal seems to be highly senile in this age as maximum distance over travelled by the animal is nearly 30 yards from a point in all the direction and activity is concerned it is evident from the aforesaid account that a sphere of just 704 yards in south-east of the park is living place of the old black buck. The old black buck was never given company even once bites young female residents of the park. Similarly the young males were never seen in company of the old male throughout the study period. It is in accordance with the findings of Mungall, 1978. Therefore, as far as association of old male with other co-residents of park is concerned it seems that old black bucks are socially boycotted by the young males, females and alike other members of the herd except for the old females residents. As far as activity pattern of the old black buck during day-time is concerned it is clear from the table-1, that during winter it keeps lying for a total of 5:30 hours correspondingly it spends least time in grazing. One salient feature of the old black buck time budget is that it keeps standing for a considerable period of time (2:30 to 3:30 hours). This is nearly equivalent to time devoted by old black buck in walking (2:30 to 4:00 hours). In contrast to the minimum time devoted by young black buck for laying the old black buck passed maximum time in lying (Schaller, 1967). Therefore, it seems that senility of old blackbuck is multifaceted in rejection by young ones, no place in social organisation, end standing lethargically confined to one corner of the park having no place in the realm of the sexual manures taking place in the park (Dubost and François, 1981). Chander Shekhar (1987) observed old male remained away from all animals of the herd throughout the year.

Table 1 also shows that old females are active in south, east and west directions of the park. During the study period it was seen in north part of the park only once and that was in October. The movement of old females was not as much localised as that of male. The maximum distance travelled by the animal is 110 yards in all directions in the

Table 1: Showing the activities of Old Male and Female Black Buck residing at M.C. Zoological Park, Chattbir (Pb.)

Date of Visit	Direction				Activity range Diam. (in yards) Old male & Old Female	Old male	Young Female	Young Male	Any Herd	Activity pattern during day time (5.00 Am to 7.00 PM) in hrs Activity with Sexual Sexual				
	N	S	E	W						Grazing	Lying	Walking	Standing	male
11.10.06	N	Y	Y	Y	95 Y	Y	Y	N	N	2.45	3.15	4.45	3.15	N
25.10 06	N	Y	Y	Y	95 Y	Y	Y	N	N	2.45	3.00	5.00	3.15	N
9.11.06	N	Y	Y	Y	90 Y	Y	N	N	N	2.30	3.00	5.00	3.30	N
27.11.06	N	Y	Y	Y	90 Y	Y	N	N	N	2.30	3.00	5.00	3.30	N
11.12.06	N	Y	Y	Y	90 Y	Y	N	N	Y	2.30	3.30	5.00	3.30	N
25.12.06	N	Y	Y	Y	90 Y	Y	N	N	Y	2.30	3.30	5.00	3.30	N
8.1.07	N	Y	Y	Y	85 Y	Y	Y	N	Y	2.30	3.00	5.30	3.00	N
22.1.07	N	Y	Y	Y	85 Y	Y	N	N	Y	2.30	3.00	5.30	3.00	N
12.2.07	N	Y	Y	Y	85 Y	Y	N	N	Y	2.45	3.00	5.15	3.00	N
26.2.07	N	Y	Y	Y	85 Y	Y	N	N	Y	2.45	3.00	5.15	3.00	N
13.3.07	N	Y	Y	Y	95 Y	Y	N	N	Y	3.00	3.00	5.00	3.00	N
27.3.07	N	Y	Y	Y	95 Y	Y	N	N	Y	3.00	3.00	5.00	3.00	N
11.4.07	N	Y	Y	Y	100 Y	Y	N	N	N	3.00	3.00	5.00	3.00	N
18.4.07	N	Y	Y	Y	100 Y	Y	N	N	N	3.00	3.00	5.00	3.00	N
9.5.07	N	Y	Y	Y	105 Y	Y	N	N	N	3.30	3.00	4.30	3.00	N
23.5.07	N	Y	Y	Y	110 Y	Y	N	N	N	3.30	3.00	4.30	3.00	N
6.6.07	N	Y	Y	Y	110 Y	Y	N	N	N	3.30	3.00	4.30	3.00	N
20.6.07	Y	Y	Y	Y	110 Y	Y	N	N	N	3.30	3.00	4.30	3.00	N
10.7.07	Y	Y	Y	Y	110 Y	N	N	N	N	4.00	3.00	4.00	3.00	N
24.7.07	N	Y	Y	Y	105 Y	N	N	N	N	4.00	3.00	4.00	3.00	N
8.8.07	N	Y	Y	Y	100 Y	N	N	N	N	3.30	3.00	4.30	3.00	N
22.8.07	N	Y	Y	Y	100 Y	N	N	N	N	3.00	3.00	4.30	3.00	N
7.9.07	N	Y	Y	Y	95 Y	Y	N	N	N	2.45	3.15	4.30	3.30	N
22.9.07	N	Y	Y	Y	95 Y	Y	N	N	N	2.45	3.15	4.30	3.30	N

south, east and west direction of the park. As far as direction and activity is concerned, it is evident from the aforesaid account that a sphere of 9075 yards in south, east and west part of the park is living place of old females. In contrast the old male had restricted its activities in south and east part of the park and activity range diameter 110 yards only. It depicts form the table 1 that old females were never given company to young males. Similarly young females also neglected them except few occasions during the study period. Therefore, as far association of old females with other co-residents of the park is concerned, it seems that old females were socially boycotted by young males and females and other members of herds also boycotted them except during November, December, January and February (Isvaran, 2005). Old male always accompanied them during most of the study period. As far as activity pattern of the old females during day time is concerned, it is clear from the table that during winter the females pass their maximum time i.e. 30 hours in walking. In contrast the old male passes its maximum time in lying. Correspondingly, females pass least time grazing i.e. 2:30 hours alike the old male. Old females keep standing for considerable period of time (3:00 to 3:30 hours). The old females devote nearly equal time in lying. So it is clear that old females are more active than old males. Old females are also very active but in contrast to young females these pass lesser time in walking and more time in lying. Old females were never seen in indulging in any sexual activity.

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