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Distribution Pattern of Black Buck (*Antelope cervicapra*) at Gajner Wild Life Sanctuary, Bikaner (Rajasthan)

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ABSTRACT

The Gajner sanctuary lies 25 Km. South West of Bikaner, Rajasthan, at 27°57` N latitude, 73°03` E longitude and at about 233 m above MSL altitude covering a total area of 38 Km². In Gajner Sanctuary, the Black bucks were introduced by Maharaja Ganga Singh Ji in 1920. The blackbuck is a typical Indian animal in respect of its distribution. It is quite abundant in Rajasthan and Gujarat. The Thar Desert is the best potential habitat for Indian Blackbuck (*Antelope cervicapra*). In the 1920's Blackbucks were so abundant in the western Rajasthan.

The present study deals with the distribution pattern, population size and density of Blackbuck (*Antelope cervicapra*) at Gajner wild life sanctuary, Bikaner (Rajasthan). The Blackbuck (*Antelope cervicapra*) population in the *Gajner wild life sanctuary* is 86 individuals, grouped in two types of social groups. The decrease in populations of blackbuck may be due to the destruction of natural habitats, increases in human populations and poaching. . If appropriate steps for conservation are not immediately taken, then the blackbuck is likely to soon become extinct from this region.

KEY WORDS: Gajner, Blackbuck, Distribution pattern, Poaching.

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1. INTRODUCTION

The blackbuck is a typical Indian animal in respect of its distribution. It is quite abundant in Rajasthan and Gujarat, It also occurs in protected areas. Among the 13 states of India in which Blackbuck is found, the large number is found in Rajasthan¹ while Schaller had noted that the principal distribution of the blackbuck in India is limited to Western Rajasthan. Ranjit Singh estimated between 7600 and 8000 Blackbuck in whole of Rajasthan². The Thar Desert is the best potential habitat for Indian Blackbuck (*Antelope cervicapra*) in Rajasthan. In the 1920's Blackbucks were so abundant in the western Rajasthan. Indian Blackbucks were once dispersed locally throughout India wherever conditions were favourable³, and their numbers may have approximated four million³. The Thar desert is a zoologist's paradise with respect to the type of animal habitat and in the nature and man-animal relationship. The arid region of Rajasthan is the best potential habitat for Indian Blackbuck (*Antelope cervicapra*) in Rajasthan. As a result of almost continuous hunting and poaching and due to gradual degradation of its preferred natural habitats the present population of the Indian antelope may not be more than 4.6 percent of its earlier strength⁴.

The sportsman term "blackbuck", which characterizes the animal's striking sexual dimorphism, is synonymous with the Hindi name kala hiran translated as "black deer" or "blackbuck"⁵. The male Blackbuck (*Antelope cervicapra*) is particularly attractive and gracefully built with a wonderful pair of divergent, spiral horn. The coat colour in the male at dorsal and lateral parts is blackish-brown with white patches on the muzzle and white rings round the eyes. The under parts of both males and females are always white or pale white.

The present study about the distribution pattern, population size and density of Blackbuck (*Antelope cervicapra*) at Gajner wild life sanctuary Bikaner (Rajasthan).The Blackbuck (*Antelope cervicapra*) population in the *Gajner wild life sanctuary* is 86 individuals grouped in two types of social groups. The decrease in populations of blackbuck may be due to the destruction of natural habitats, increases in human populations and poaching. . If appropriate steps for conservation are not immediately taken, then the black buck is likely to soon become extinct from this region.



Adult Male



Adult Female

Figure-1 BLACK BUCK



Figure-2 Herd of Blackbuck at Gajner Sanctuary



Figure-3 Showing Migratory Birds at Gajner sanctuary

2. STUDY AREA

The Gajner sanctuary lies 25 Km. South West of Bikaner, Rajasthan, at 27°57` N latitude, 73°03` E longitude and at about 233 m above MSL altitude covering a total area of 38 Km². The name Gajner sanctuary is derived from village Gajner. The palace and artificial lake were made by Maharaja Gaj Singh Ji (18 century).

The climate conditions of the intensive study area typically hot and arid, characterized by extreme high and low temperatures during summer and winter respectively. The annual rainfall varies between 200 to 400 mm. The minimum temperature varies between -1° to 2.6°C, averaging 0.97°C. The maximum temperature ranges 43°C to 47.7°C, averaging 46.4°C.

The sanctuary is covered with dense, fairly dense as well as scrub forest, with xerophytic, thorny, stunted and sparse trees, herbs, shrubs and grasses. At present sanctuary contain black buck, chinkara, blue bull, wild boar, Indian hare, desert fox, and jackel among mammalian fauna⁶.



Figure-4 Gajner lake and palace

3. METHODOLOGY

To find out the distribution pattern, population dynamics and density of Blackbuck in and outside protected area of the Gajner wild life sanctuary, a field binocular were used throughout the study for observation of the study animal in the field. For the purpose of the present study, a survey was conducted. The home ranges were marked and the respective groups were recorded for their total count along with age and sex composition throughout the study period.

4. RESULT AND DISCUSSION

The social groups at Gajner wild life sanctuary are of two types (1) a single resident male accompanying several females and immature males (yearling and Infants) (2) herd consisting of only males of various age groups (Bachelor group), though some males are seen alone not joining permanently any groups.

At Gajner the actual home range of these groups comes to 19.62 sq. Km.. The size of the home range may differ with the type of vegetation, availability of food and season to season. Thus the Blackbuck in the desert area has the larger home range.

In Gajner wild life sanctuary the total Blackbuck population is 86 individuals. The group size vary from 2 to 32. The group has been studied by Prasad, Nair as minimum 2 and maximum 129 at point calimere sanctuary at Tamil Nadu. Thus the group size fluctuates season to season and place to place, as well as depending upon the vegetations, waterhole and overall population of the Blackbuck in the area^{6,7}.

The adult female forms the main bulk of the population which comes to 48.83% at Gajner, Prasad has described it as 57.2% and Nair as 82.47% including sub – adult and immature females at point calimere sanctuary at Tamil Nadu. Adult males at Gajner are 9.3%, Prasad (1983) has described 11.29% at Mudmal in Andhra Pradesh and Nair has 17.52% including yearling at point calimere sanctuary at Tamil Nadu⁸.

The adult male and adult female ratio at Gajner is 1: 3.82, similarly at other places Prasad at Mudmal in Andhra Pradesh 1: 2.47, Nair 1:4.7 at point calimere sanctuary at Tamil Nadu and Daniel (1967) found it 1:2 at point calimere sanctuary. Acharjiyo has described the male population more than females 1.16: 1. The adult female and infant ratio at Gajner is 4.66: 1. Prasad has described 8.76: 1 at Mudmal in Andhra Pradesh and Daniel as 11: 1 at point calimere sanctuary. The immature including juvenile, yearling males and Infants (both sexes) is 24.41% at Gajner. Prasad has described it as 13.36% at Mudmal in Andhra Pradesh⁹.

The population density of 3.44 individuals/km² was found at Gajner. Gehlot and Jakher has described 9.6 to 11.71 individuals/km² Ren village and Guda bishnoi.

The new born were seen maximum in number at Gajner during the period of October, November and December. John F. Lehmkuhl has seen the maximum new born in October, Schaller has described the maximum new born in August, September at Kanha National Park. Thus it seems the birth season differs at places but mostly the peak is during the moderate temperature. Jarvis et al found no birth in a captive park in London^{9,10,11}.

Table 1: Density of Indian antelope (Blackbuck) in some area of western Rajasthan

District	Area/Village	Total number of transect	Density per sq km (Individual per sq km)
Jodhpur	Guda closed area	7	9.60
	Sathin closed area	2	4.33
	Dhawa closed area	6	7.75
Nagaur	Rotu closed area	2	14.0
	Jaroda closed area	2	15.2
Churu	Tal chhaper WLS	4	38.5

Table 2: Census data of Blackbuck population in closed or protected areas of western Rajasthan.

(Figures as per census report of Rajasthan Forest Department)

	Jodhpur			Nagaur		Churu
Year	Guda	Dhawa	Sathin	Rotu	Jaroda	Tal chhaper sanctuary
2002-03	4237	3714	976	615	842	1638
2003-04	1475	386	446	582	989	1281
2004-05	1885	953	844	645	876	1698
2005-06	1051	725	410	587	802	1680
2006-07	No census was done					1763
2007-08	811	407	87	2809	440	1780
2008-09	835	477	42	2291	659	1827
2009-10	838	188	100	2505	757	1910
2010-11	680	386	131	1625	519	2025

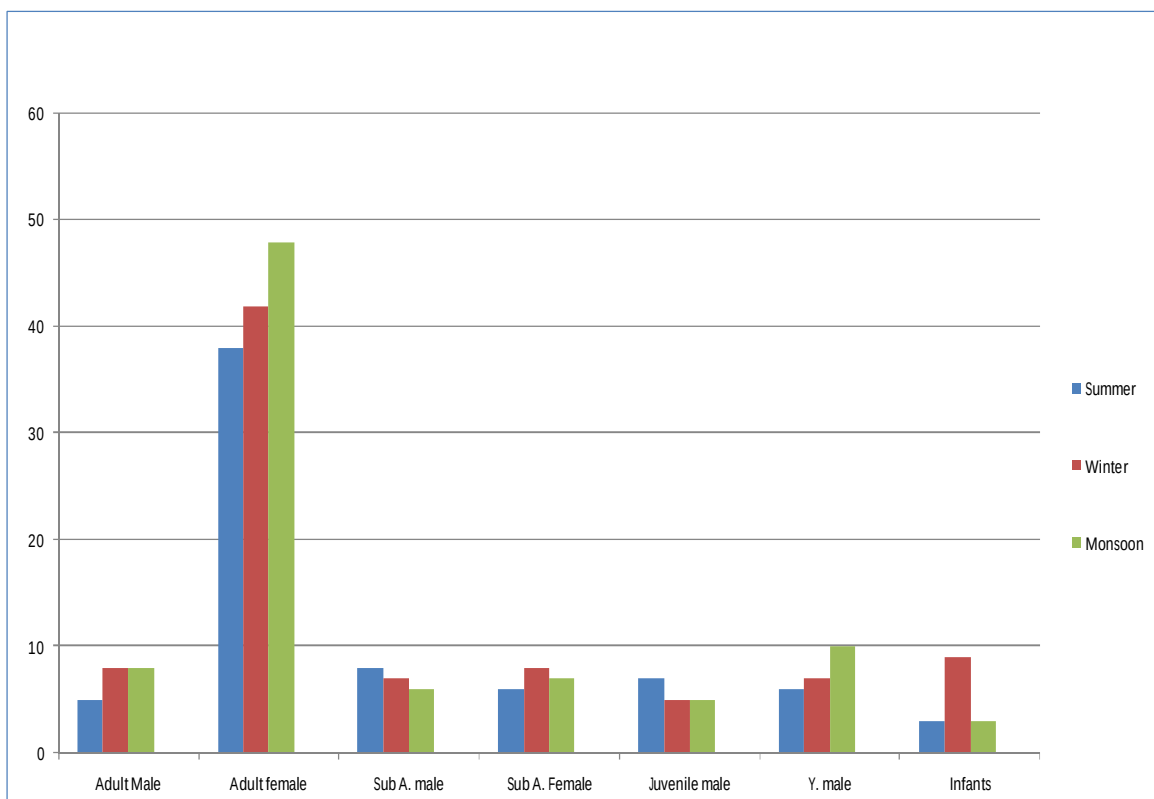


Figure-5 Distribution pattern of Black buck (season wise) at Gajner Sanctuary

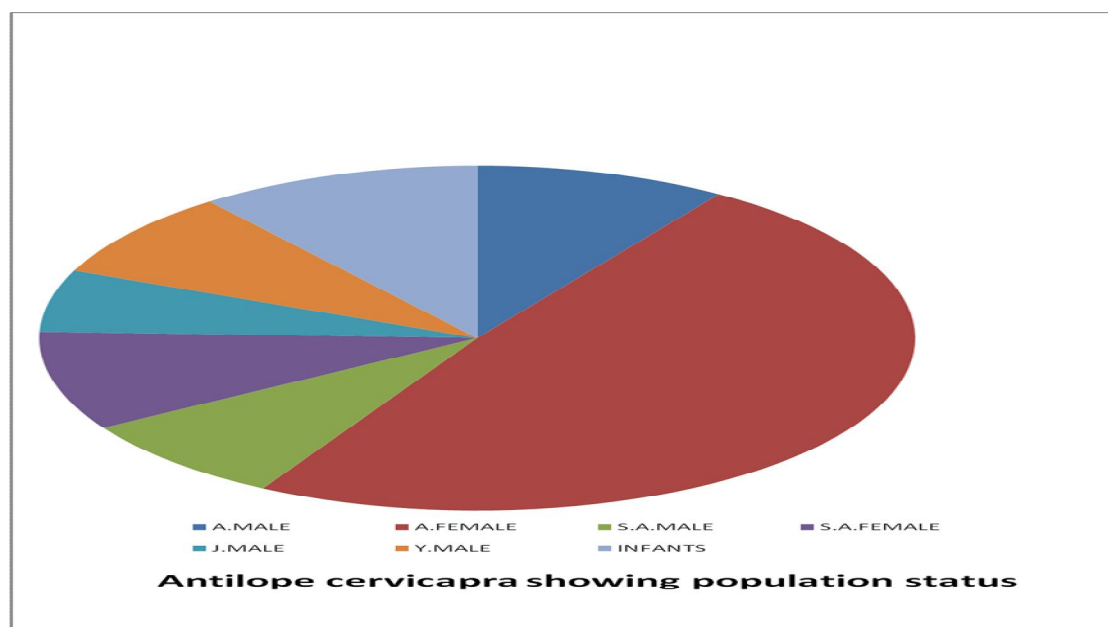


Figure-6 Population status of Black buck at Gajner Sanctuary

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