

THE DISTRIBUTION PATTERN AND POPULATION OF BLACKBUCK *ANTILOPE CERVICAPRA* LINNAEUS IN BIDAR, KARNATAKA

MOHAMMED ASIF AND SANJEEVAREDDY MODSE

Department of Zoology, Government First Grade College, Bidar, Karnataka
E-mail: mdasifserikar@gmail.com, sanjeevareddymodse@yahoo.co.in

ABSTRACT

Blackbuck is one of the Antelope species, once widespread across the Indian subcontinent now has become near threatened species. There are no reports of Blackbuck existence in Bidar district in the past hence, the study was conducted to record the distribution and population of Blackbuck in Bidar district for a period of two years from June, 2012 to May, 2014. There are 886 Blackbuck recorded in the district. It is the second highest number in Karnataka next to Ranebennur Blackbuck Sanctuary. In Bidar district, the Bidar taluka witnessed highest population of 503 Blackbuck followed by Aurad (155), Bhalki (120), Basavakalyan (67) and Humnabad (41). The combination of grassland and forest patches with agricultural fields is the ideal habitat for Blackbuck.

Key words: Blackbuck, Distribution, Population.

Introduction

An elegant Blackbuck *Antelope cervicapra* Linnaeus is a species of Bovidae family. Blackbuck groups are largely found in many regions of India, Pakistan, Nepal, Srilanka, except for the north-eastern region. It is also known by a number of other names like Kala Hiran, Krishna mriga. The conservation status of Blackbuck is listed in Red Data Book of IUCN (International Union for Conservation of Nature and Natural Resources) as near-threatened since 2003, in CITES (Convention of International Trade for Endangered Species of Wild Flora and Fauna) is categorized in appendix III. It is classified in schedule I of Wildlife Protection Act, 1972. Essentially a species of open plain, it is found in a wide range of habitats from arid grassland, scrubland to marshy coastal plains and open woodlands (Ranjitsinh, 1989). It is primarily a grazer and browser, in the absence of grass, it can be considered a mixed feeder (Schaller, 1967; Mungall, 1978; Jhala, 1997).

The Blackbuck can utilise a range of habitats including tropical and subtropical weed land, dry deciduous forest, open plain (grassland), river banks and semi-desert habitats, and can forage in cropland and pasture land. They are generally sedentary, but they may move for long distances in search of water and forage in summer (Rahmani, 1991). The average life-span of Blackbuck determined in captivity is 12 years and upper limit is 16 years (Crandall, 1964).

These bucks are scattered all over the country in many Sanctuaries and National Parks, (Rahmani, 1991) but their largest concentration is found at Visatpura in Gujurat,

where the people of Bisnoi community have been protecting them as holy creatures for the past few centuries. A similar kind of protection to the Blackbuck has been provided in Orissa by the people of Bhetanoi and its neighbouring villages for more than half a century and their successful community protection of this species has placed the area next to Visatpura, (Bikash Rath and Giri Rao, 2005). In 1982, its estimated population in India ranged from 22500 to 24500 (Ranjitsinh, 1989). As per Indian Environment Portal Report at the time of Independence the population of Blackbuck was estimated at about 80,000. Due to immense pressures of large-scale poaching and destruction of their natural habitat for cultivation, cattle grazing, and human habitation today they survive only in a few isolated pockets with this reduced population.

In Karnataka, currently due to immense pressures of large-scale destruction of Blackbuck habitat which is carried out in the form of cultivation, cattle grazing, human habitation, predation and poaching to some extent, Blackbuck is found surviving only in a few isolated areas. The Blackbuck is found in the grassland of Ranebennur Blackbuck Sanctuary which is located in Haveri District. This sanctuary had the population of about 2000 (Kararth and Singh, 1987; Rahmani, 1991). The Blackbuck has also been conserved in Jayamangali Blackbuck Conservation Reserve in Tumkur District of Karnataka. In this conservation reserve the periodical census conducted by Prasanna kumar and Bela Zutshi (2013) the population of Blackbuck in 1997, 2002 and 2009

New study revealing population of blackbuck *Antelope cervicapra* Linnaeus in Bidar, Karnataka.

was 408, 610 and 454 respectively. In northern part of Karnataka there are isolated herds sighted in Raichur district near Krishna River on Raichur-Hyderabad road (Ramanna and Prasad, 1982). The presence of Blackbuck in chincholi forest (Presently Chincholi Wildlife Sanctuary) was reported by Rahmani (1991).

Blackbuck exists in Bidar, since its hunting was not a crime in India. Although a good number of Blackbucks are found in Bidar district of Karnataka, there is no mention of distribution and population as sighted by Ranjitsinh (1982a) except a small report by Rahmani (1991).

Hence, the study had been conducted in Bidar district comprising of five talukas namely Bidar, Bhalki, Aurad, Basavakalyan, and Humnabad. This report genuinely exhibits the distribution and population of Blackbuck in the district.

Study area

The study area comprises five talukas namely Bidar, Bhalki, Aurad, Basavakalyan, and Humnabad in Bidar district of Karnataka. The district is located on the Deccan Plateau about 669 m amsl. It is the northernmost part of Karnataka which is about 700 km away from Bengaluru. Bidar district covers an area of 5448 km² of land, and lies between 17° 35' and 18° 25' North latitude and 76° 42' and 77° 39' East longitude (Fig. 1 and 2). There are two rivers and one stream flowing in the district namely Karanja, Manjra and Naranja respectively. Karanja flows from the eastern part of the district. Naranja comes from the northern part and join Manjra near Bhalki flowing towards eastern side of the district.



Fig. 1: Study area: map showing Bidar district with five talukas.

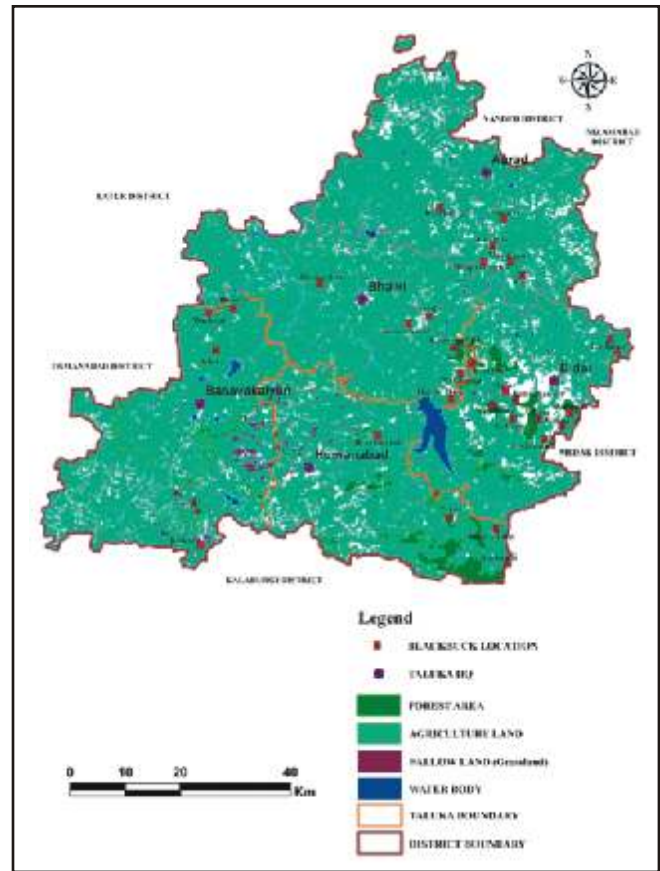


Fig. 2: Blackbuck distribution in Bidar district of Karnataka

Climate

The climate of the district is generally dry throughout the year, except during the southwest monsoon which lasts till the end of September. The month of October and November constitute the post-monsoon or retreating monsoon season. The total average annual rainfall during the year 2012 - 13 and 2013 - 14 was 774.72 mm and 980.54 mm respectively. The winter season is from October to January and the temperature begins to decrease from the end of November, December and January which are the coldest months with an average maximum temperature of 27.3°C and minimum of 16.4°C. From the middle of February both day and night temperature begins to rise rapidly. The month of May is the hottest with the average maximum temperature of 38.8°C.

Forest

The forest of Bidar consists of dry deciduous and scrub type vegetation. Most of the existing forest of Bidar is manmade. Forest of Bidar division is classified as Reserve forest, protected forest and unclassified forest. Bidar has 43,558.16 ha of forest and it is about 8.5% of total geographical area of the district (Forest Atlas, 2006). The district has many patches of grassland most of which is

under forest land and a few patches are of private ownership.

Bidar taluka is also known as Bidar Range Forest which contains land with scrub, and mixed forest plantation. It has six reserve forests Bidar, Honnikere, Kamthana, Chitta, Bagdal and Shahpur spread in 8422.92 ha land (Forest Atlas, 2006). Ten Blackbuck locations are identified in Bidar taluka they are Bellur, Chitta, Zamistanpur, Kaplapur, Yedlapur, Kamthana, Godampalli, Shahpur, Gunalli and Chillargi.

Bhalki taluka (Bhalki Range forest) has seven reserve forests, they are Mehkar, Bhalki, Halbarga, Khanapur, Khatak-Chincholi, Dhannura, and Malchapur. The total forest area of this range is 2819.82 ha. (Forest Atlas, 2006). It has scrub and manmade forest. The range forest is located in the eastern side of the taluka. This taluka has six Blackbuck locations; they are Malchapur, Halhalli PG center, Khanapur, Kone melkunda, Tegampur and Bhatambra.

Aurad taluka (Range forest) has two reserve forests namely Jambgi and Sangam. The entire range is open dry land with very few patches of forest amounting to 0.80% in the district. The total forest area of this range is 2291.21 ha. (Forest Atlas, 2006). This taluka has six Blackbuck locations. They are Alur, Dhupatmahagaon, Mustapur, Chatnal, Korekal and Santpur.

Basavakalyan taluka has seven reserve forests, they are Basavakalyan, Chandkapur, Matala, Rajeshwar, Nirgudi, Mudbi and Landwanti. The total forest area is 8330.69 ha. (Forest Atlas, 2006). This taluka has Kalkora, Belura, Machanal and Hulsoor as Blackbuck location.

Humnabad taluka (Range forest) has seven reserve forests they are Chinkhera, Ben-chincholi, Mangalgi, Basirapur, Karknalli, Changler and Chandenhalli. Spread in 21693.52 ha. land (Forest Atlas, 2006). It has four Blackbuck locations they are Karknalli, Nirna, Bhimalkhed and Benchincholi. This taluka has greater forest cover in the district. Apart from reserve forest there are many forest patches in the entire taluka.

Crops

Bidar district is mainly covered by agricultural fields with varieties of crops. The major crops are Sugar cane, Jowar, Pigeon pea, Chick pea, Soya bean, Black gram, Green gram. Some millets are also grown; they are pearl millet, foxtail and finger millet. Kharif and Rabbi are the two season of cropping in a year and maximum land is non irrigated in this area. For the past few years sugar cane is considered as leading crop which was not so before 2000. Many new breeds of sugar cane have been developed.

Material and Methods

The study of distribution pattern and population of Blackbuck is carried out in the entire district of Bidar from June 2012 to May 2014. The observations were made for 5 days in every month visiting all the talukas. Bidar district has five talukas namely Bidar, Bhalki, Aurad, Basavakalyan and Humnabad. Each taluka is covered in a single day by using motor cycle. In this study we followed the method used by Khanal *et al.* (2002).

Initially, the information about the presence of Blackbuck in the study area was collected through interviews and discussions with villagers, farmers and school teachers at Panchayat level. On the basis of the information gathered, the actual sightings of Blackbuck were made by repeatedly visiting the same location in different months and seasons of the year. The highest number counted during the study period is considered for population estimate. The presence of Blackbuck is confirmed by reaching the Blackbuck location. The complete count was done in the early morning when most of the Blackbuck comes out in the grassland area for grazing.

The location of the Blackbuck sites is mapped by using the survey number of the land provided by Tahsil office of the respective talukas. The meteorological data from June 2012 to May 2014 is procured from District Statistical Department, Bidar and the district map is collected from PWD, Bidar.

The material used for the observation is maps, Forest Atlas, Bushnell Binoculars (8x48), Canon 5D Mark II, Canon Power Shot Sx150 IS and Canon Power Shot Sx50x HSCamera.

Results and Discussion

Land of Bidar district is covered mainly by Agricultural fields, with a few patches of scrubby forest and grassland. It is considered as most ideal habitat for Blackbuck (Rahmani, 1991) the Blackbuck is known to prefer open habitat (Ranjitsinh, 1989). The distribution of Blackbuck in Bidar district is uneven. They are widely distributed in Bidar taluka compared to other four talukas of the district (Fig. 2). Humnabad and Basavakalyan have very sparse distribution. The highest number of 503 Blackbuck in 16 herds was recorded at Bidar taluka (Table 2 and Fig. 3). Bellur area alone has 120 Blackbuck (Table 1). It is the highest congregation in small grassland area measuring less than 200 hectare. They freely roam near the village and in grassland. This small grassland is a private land surrounded by the Air Force boundary from two sides and the remaining two sides by the village. The Air Force guards never allow any person to come near the

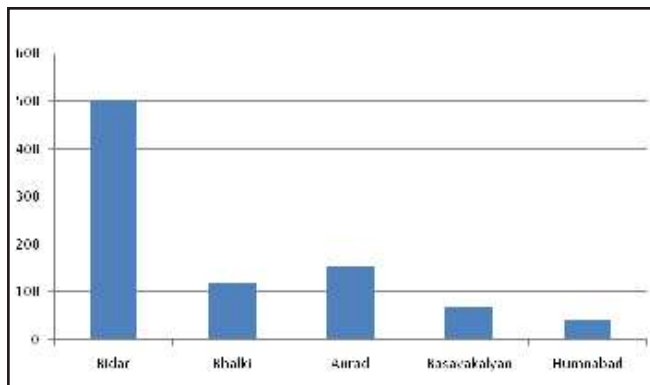


Fig. 3: Blackbuck population in Bidar district during the year 2012-13 to 2013-14.

fencing wall and they also keep vigil on the Blackbuck. The attack of predators like stray dogs and jackals is prevented by the villagers and the Air Force guards. This is the reason for highest number of Blackbuck in such a small area of grassland. The habitat in Bidar taluka is suitable for the Blackbuck as it contains patches of grassland surrounded by forest and agricultural land. This type of habitat supports the Blackbuck with food in grassland; the forest patch provides protection from enemies, and agricultural fields provide water and food. The Blackbuck, though an animal of dry open country, requires water regularly (Ranjitsinh, 1989). In Bidar taluka, the Blackbuck frequently invades agricultural fields during the night as it

Table 1: Blackbuck distribution and population in Bidar district during the study Period from June, 2012 to May, 2014.

Taluka	Location	Number of herds	Herd population	Area	Habitat	Area owner
Bidar	Bellur village	01	120	200 ha	Grassland	Private land
	Chitta village	03	31	356 ha	Scrub forest and agricultural land	Govt. and private land
			19			
			34			
	Zamistanpur village	01	22	98 ha	Grassland	Private land
	Kaplapur village	01	15	2 ha	Scrub forest	Govt. land
	Yedlapur village	01	30	06 ha	Grassland	Govt. and Private land
	Kamthana village	05	25	72 ha	Grassland	Private land
			28			
			35	502 ha	Scrub forest	Govt. land
			45			
			25			
	Godampalli village	01	20	04 ha	Scrub forest	Govt. land
	Shahpur village	01	35	560 ha	Scrub forest	Govt. land
	Gunalli village	01	13	17 ha	Grassland and agricultural land	Private land
Bhalki	Chillargi village	01	06	14 ha	Grassland agricultural land	Private land
	Malchapur village	02	12	10 ha	Scrub forest and agricultural land	Govt. and private land
			16			
	Halhalli PG Center	01	29	12 ha	Forest patch and grassland	Govt. and private land
	Khanapur village	01	10	22 ha	Scrub forest	Govt. land
Aurad	Konemelkunda village	01	23	48 ha	Grassland and agricultural land	Govt. and private land
	Tegampur village	01	15	-----	Grassland	Private land
	Bhatambra village	01	15	15 ha	Agricultural land	Private land
	Alur village	01	20	93 ha	Agricultural and grassland	Private land
	Dhupatmahagaon thanda	01	08	341 ha	Grassland	Govt. and private land
	Mustapur village near Dhari hanuman mandir	01	30	130 ha	Scrub forest and grassland	Govt. and private land
	Chatnal village	01	35	181 ha	Grassland and agricultural land	Govt. and private land
	Korekal village	01	25	87 ha	Agricultural and grassland	Private land
	Santpur village	02	23	17 ha	Agricultural and grassland	Private land
			14			
Basavakalyan	Kalkora village	01	02	33 ha	Grassland	Govt. land
	Belura village	01	25	30 ha	Agricultural land	Private land
	Machanal village	01	20	35 ha	Small forest patch and agricultural land	Govt. and private land
Humnabad	Hulsoor village	01	20	33 ha	Agricultural land	Private land
	Karknalli village	01	10	104 ha	Scrub forest	Govt. land
	Nirna village	01	08	98 ha	Agricultural land	Private land
	Bhimalkhed village	01	15	110 ha	Agricultural land	Private land
	Benchincholi village	01	08	10 ha	Agricultural land	Private land

Table 2: Consolidated data of Blackbuck distribution and population in Bidar district during the study period from June, 2012 to May, 2014

Taluka	Locations	Number of herds	Population
Bidar	10	16	503
Bhalki	06	07	120
Aurad	06	07	155
Basavakalyan	04	04	67
Humnabad	04	04	41
			Total = 886

is the only source of water in summer. They also damage crop by feeding on tender saplings.

Aurad taluka has second highest population of 155 Blackbuck from 7 herds. The habitat is more or less similar with less forest cover than Bidar. The distribution is confined to the southern part of Aurad town (Fig. 2). The southern part of Aurad has large area of grassland and farmland compared to the other part of the taluka, which is covered by small hillocks with boulders. This may be the reason for restricted distribution of Blackbuck in the southern part.

In Bhalki taluka 7 herds with 120 Blackbuck has been counted. The distribution is mainly restricted in and around Khanapur reserve forest. This area has mainly forest with patches of agricultural fields but grassland is very much reduced.

Basavakalyan has very small and isolated population of 67 Blackbuck. It has 4 herds one each in Kalkora, Belura, Machnal and Hulsoor. The entire taluka is covered by agricultural fields with very small patches of grassland and scrub forest.

In Humnabad taluka the Blackbuck distribution is in the eastern part particularly at Nirna, Bhimalkhed, Karknalli and Benchincholi. This area is covered mainly by small patches of dry deciduous and scrub forest with agricultural fields. It has 4 small herds with a population of 41 Blackbuck (Table 1 and 2).

It clearly shows that the Blackbuck prefers the habitat with patches of grassland and farmland. The forest patch in the Blackbuck habitat is not essential part for the survival but it has an advantage in having protection from predators.

Acknowledgement

The first author is grateful to research supervisor Dr. Sanjeevareddy Modse, Associate Professor and Head, Department of Zoology, Govt. First Grade College, Bidar for guidance. Thanks to Principal of Govt. First Grade College, Bidar for providing facilities for research, and also thanks to Karnataka Forest Department, Bangalore and Deputy Conservator of Forests, Bidar for granting permission to conduct research work on the Blackbuck in Bidar forest. Thank to the villagers, farmers, teachers and Panchayat officers of the district for their valuable inputs on the Blackbuck. The first author indebted to the Public Work Department, Zilla Panchayat, District Statistical Office and Meteorological Department for their help in providing necessary data.

बिदार, कर्नाटक में ब्लैकबक एन्टिलोप सीर्विकापरा लिन्यूस का वितरण पैटर्न एवं आबादी

मोहम्मद आसिफ और संजीवारेड्डी मोडसे

सारांश

ब्लैकबक एन्टिलोप प्रजातियों में से एक है जो कभी भारतीय उपमहाद्वीप में व्यापक रूप से थी किन्तु अब लगभग संकटस्थ प्रजाति बन गई है। पूर्व में बिदार जिले में ब्लैकबक के अस्तित्व की कोई रिपोर्ट नहीं है, इसलिए जून 2012 से मई 2014 तक दो सालों की अवधि के लिए बिदार जिले में ब्लैकबक के वितरण एवं आबादी का अभिलेखन करने के लिए अध्ययन किया गया। जिले में 886 ब्लैकबक अभिलिखित किए गए। यह रानीबेन्नूर ब्लैकबक अभयारण्य के बाद कर्नाटक में दूसरी उच्चतम संख्या है। बिदार जिले में बिदार तालुका में 503 ब्लैकबक की उच्चतम संख्या देखी गई, इसके बाद औराड (155), भाल्की (120), बासावाकल्याण (67) और हुम्नाबाद (41) की रही। कृषि खेतों के साथ वन खण्ड और घासभूमि के संयोजन ब्लैकबक के लिए आदर्श आवास हैं।

References

- Bikash Rath Y. and Giri Rao. (2005). Bhetanoi-Balipadara Blackbuck Habitat. www.vasundharaodisha.org
- Crandall L.S. (1964). The management of wild mammals in captivity, University of Chicago Press, Chicago 769.
- Forest Atlas of Bidar Division. (2006). Part B: Maps and Statistical Data, Karnataka State Remote sensing applications centre, Bengaluru.
- Jhala Y.V. (1997). Seasonal effect on the nutritional ecology of Blackbuck (*Antilope cervicapra*). *J. Applied Ecology*, 34: 1348-1358.
- Kararth K.U. and Singh M. (1987). Status survey report Ranebennur Blackbuck Sanctuary. WWF India Southern Region office, Bengaluru, India 59.

- Khanal P., Khanal S.N., Jhawali S.R. and Pathak S.R. (2002). Study on the land use of proposed Blackbuck conservation area, Khairapur, Bardia district, and habitat options for translocation of Blackbuck (*Antelope cervicapra*) at Royal Suklaphant Wildlife Reserve in Kanchanpur district, Nepal. Local Governance Programme United Nations Development Programme, Nepal.
- Mungall E.C. (1978). The Indian Blackbuck Antelope: A Texas View. The Caesar Kleiberg Research Program in Wildlife Ecology and Department of Wildlife and Fisheries Science, The Texas Agricultural Experiment Station, The Texas A & M University System, College Station, TX.
- Prasanna kumar D.R. and Zutshi B. (2013). Periodical census to monitor Blackbuck population at Jayamangalli Blackbuck Conservation Reserve Mydanahalli, Tumkur District Karnataka. *Inter. J. Environmental Protection*, 3: 27-30.
- Rahmani A.R. (1991). Present distribution of the Blackbuck *Antelope cervicapra* Linn. In India, with Special Emphasis on the lesser known population. *J. Bombay Natural History Society*, 88: 35-46.
- Ramanna Rao J.V. And Prasad N.L.N.S. (1982). Management and husbandry of Blackbuck. 75. FAO No. RAPA 53, Bangkok.
- Ranjitsinh M.K. (1982a). Ecology and Behaviour of Indian Blackbuck (*Antelope cervicapra* Linn.) with special reference to the Velavadar Park, Saurashtra, India Ph D thesis, Saurashtra University Rajkot, India.
- Ranjitsinh M.K. (1989). The Indian Blackbuck, Natraj Publisher Dehradun.
- Schaller G.B. (1967). The Deer and the Tiger, Univ. Of Chicago Press, Chicago.
-