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NOTE

POPULATION SIZE, HERD STRUCTURE AND SEX RATIO OF THE BLACKBUCK ANTILOPE *CERVICAPRA* (MAMMALIA: CETARTIODACTYLA: BOVIDAE) IN A HUMAN DOMINATED AREA IN ODISHA, INDIA

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POPULATION SIZE, HERD STRUCTURE AND SEX RATIO OF THE BLACKBUCK *ANTILOPE CERVICAPRA* (MAMMALIA: CETARTIODACTYLA: BOVIDAE) IN A HUMAN DOMINATED AREA IN ODISHA, INDIA

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The Blackbuck *Antelope cervicapra* (Linnaeus, 1758) is a group-living animal native to India (Mallon 2008) and designated as Near Threatened in the Red List of Threatened Species (Mallon 2008). In India, it occurs in 80–100 isolated pockets along the plains and semi-natural habitats (Menon 2014). As most of its habitat falls outside protected areas, the population is vulnerable to shrinkage of habitat and competition with livestock (Mallon 2008).

I surveyed the Blackbucks in a human dominated area of Balipadar - Bhetnoi Blackbuck Conservation Area (BBBCA) (Fig. 1) in Odisha, eastern India from October 2012 to October 2013. I monitored the animals by walking along existing roads and trails (n=12; range: 0.75–2.5 km; total 263.4km) once a month from 06.00–10.00 hr and from 16.00–18.00 hr as per Ramesh et al. (2012) and Debata & Swain (2017). I classified the type of herds (single sex or mixed), age structure and sex ratio as per Herlekar (2014) and Prater (1980).

During the study, a total of 7,134 Blackbucks of

completely identifiable age and sex class were recorded in 366 groups. Average herd size was 19.49 ± 0.03 (SE) ranging from one to 51 individuals. Herd size varied significantly between seasons with large congregations during the monsoon (One way ANOVA, $F = 169.7$; $p < 0.05$; Table 1). Most herds had 11–20 individuals (Fig. 2) and female biased groups (Image 1) were more frequent (74.31%) than bachelor herds (Image 2) and solitary males (Image 3). Sex ratio was skewed towards females by 3:1 (Table 2). Herds consisted mostly of adults (44%), followed by sub adults (33%), yearlings (16%) and fawns (7%) (Table 3).

In BBBCA, the average herd size was higher during monsoon probably because of the fresh growth of grass (Ramesh et al. 2012; Debata & Swain 2017). Overall, a high percentage of adult female population (Table 3) indicates that the population can increase over time, due to lack of predators (excluding opportunistic and nominal predation by feral dogs) and protection by local communities (Kar 2001). Predation of Blackbucks by feral dogs, instances of crop raiding, particularly that of pulses were reported by local people. This could lead to antagonism towards this species. So it is crucial to declare the BBBCA as a 'Conservation Reserve', which will bring management interventions for their long term conservation.

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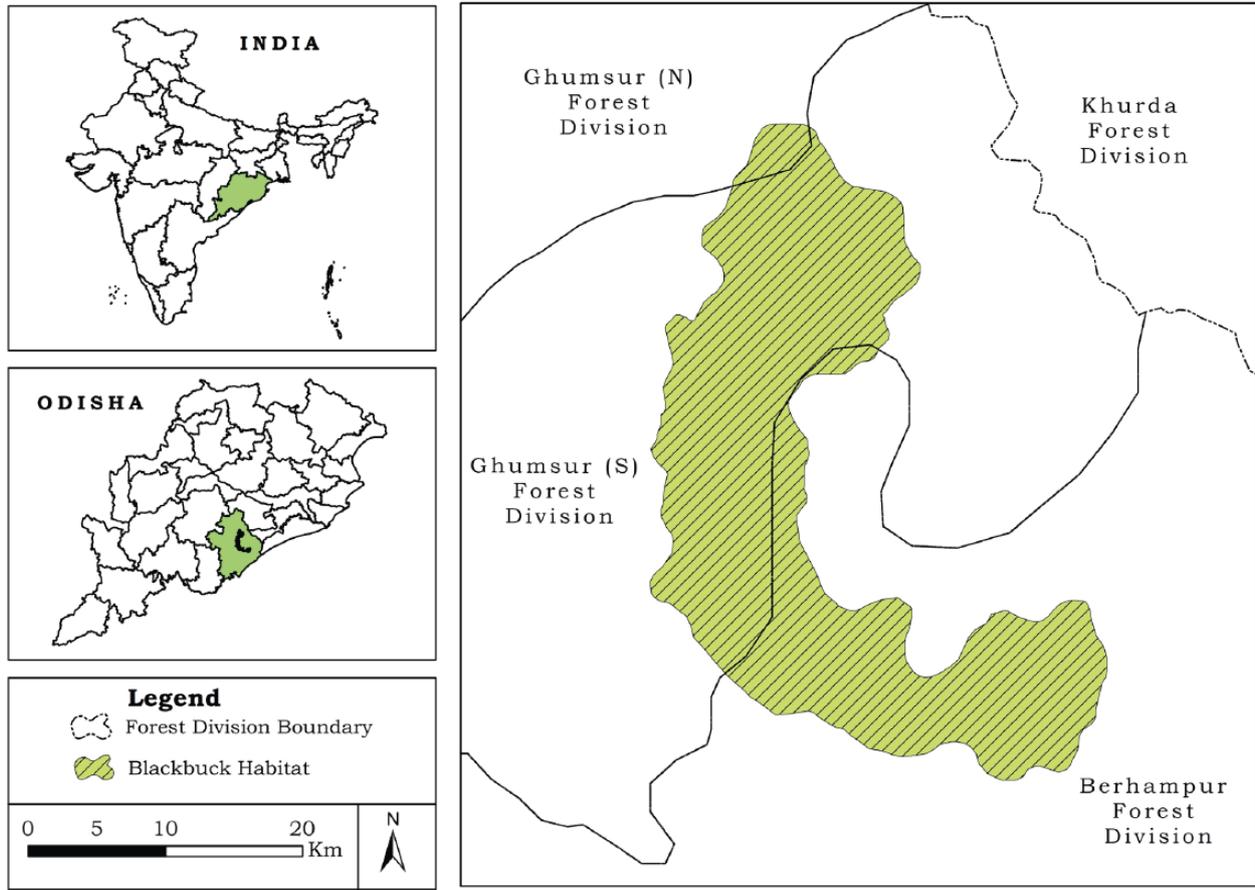


Figure 1. Location of Balipadar-Bhetnoi Blackbuck Conservation Area in Odisha, eastern India. The coordinates are 19.5833–19.9166 N & 84.5833–84.8333 E.

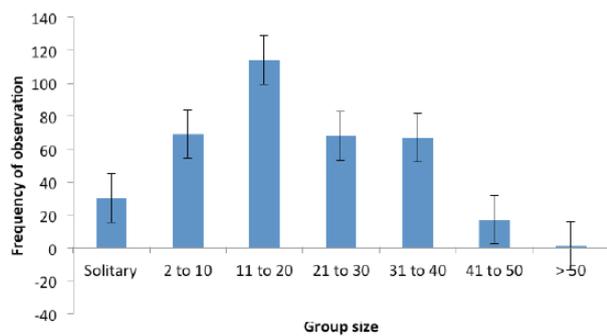


Figure 2. Group size class of Blackbuck *Antelope cervicapra* in Balipadar-Bhetnoi Blackbuck Conservation Area, Odisha, eastern India (Total number of Blackbuck is 7,134 in 366 sightings)

Table 1. Seasonal grouping pattern of Blackbuck *Antelope cervicapra* in Balipadar-Bhetnoi area of Odisha, eastern India during 2012–2013

Season	NG	NA	GR	MGS	SE
Summer	138	1841	1-37	13.34	0.06
Monsoon	120	3824	1-51	31.86	0.07
Winter	108	1469	1-46	13.60	0.07
Overall data	366	7134	1-51	19.49	0.03

Table 2. Sex ratio of Blackbuck *Antelope cervicapra* in Balipadar-Bhetnoi area of Odisha, eastern India during 2012–2013

Season	Adult male	Adult female	Fawns	Number of individuals classified
Summer	34.20	100	15.54	915
Monsoon	19.72	100	22.22	1993
Winter	51.18	100	19.43	720
Overall data	28.84	100	20.09	3630

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Table 3. Age structure of Blackbuck *Antelope cervicapra* in Balipadar-Bhetnoi area of Odisha, eastern India during 2012–2013

Season	Adult		Sub-adult		Yearling		Fawn
	M	F	M	F	M	F	
Summer	209	611	128	505	83	210	95
Monsoon	277	1404	215	1015	96	503	312
Winter	216	422	140	379	78	152	82
Overall data	702	2439	483	1899	257	865	489



Image 2. A bachelor herd of Blackbucks comprising all age classes.



Image 1. A female biased social group of Blackbucks.



Image 3. A solitary adult male Blackbuck patrolling the territory.

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