

Population and Conservation Status of Barking Deer (*Muntiacus muntjac*) in Pir Lasorha National Park and Other Areas of District Kotli, Azad Jammu and Kashmir, Pakistan

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Abstract.- To assess the current population and conservation status of barking deer (*Muntiacus muntjac*) in Pir Lasorha National Park (PLNP) and surrounding areas of District Kotli, a study was carried out from April to December, 2009. During the survey, direct (physical observations and signs) and indirect (information through questionnaires) methods were used to collect information about the population of barking deer. The study area was divided into three main localities (Choch, Pir Lasorha National Park (PLNP) and Tarkundi) and seven sub-localities. The study was conducted at dawn and dusk while day time was utilized for taking indirect data. A total population of 45 animals were estimated with the highest population in Choch (n=31), followed by PLNP (n=9) and Tarkundi (n=5). The overall population density was recorded as 2.14 animals/km² with the highest density index recorded at sub-locality Salgran (3.8/km²) while the lowest density (1.13/km²) was recorded in PLNP. Although the area of PLNP has been declared as protected but nothing is being done for the conservation of wildlife including barking deer. Forest damage, hunting, pouching and over grazing by livestock were the major threats to the conservation of barking deer in the study area.

Key words: Barking deer, Pir Lasorha National Park, Azad Jammu and Kashmir.

INTRODUCTION

Barking deer also known as Indian Muntjac (*Muntiacus muntjac*), is a small deer of the genus *Muntiacus* belonging to Cervidae family in order Artiodactyla of class Mammalia. They are native to South East Asia including India and Srilanka to Southern China, Bangladesh, Taiwan, Japan, Boso Peninsula, Oshima Island and Indonesian islands (Anonymous, 2002a, b).

In Pakistan this deer is restricted to a narrow range in Pakistan including Margalla Hills National Park, Kahuta and some adjacent areas (Anwar, 1997). In Azad Jammu and Kashmir (AJK), Barking deer is reported in Pir Lasorha National Park and Choch in District Kotli, along the borders of River Poonch in District Mirpur and in Thop Patni and Malni in District Bhimber (Iftikhar, 2006).

Although muntjacs are enlisted as least concern in IUCN list of endangered species, but they are facing several threats in different areas (IUCN, 2010). Among these threats, habitat

destruction, encroachment, habitat disruption, hunting and pouching is very common throughout its distribution range (Bennett and Gumal, 2001). In Pakistan, the Margala Hills National Park (MHNP) used to hold a good population of the species, which had declined to some 20-30 heads by the 1970s (Roberts, 1997). Due to its very narrow range of distribution and declining population, the barking deer has been regarded as endangered in Pakistan (Sheikh and Molur, 2005). In Azad Jammu and Kashmir, although muntjacs are distributed in the southern districts (Mirpur and Kotli) but they have never been studied in the area specifically with reference to their population and conservation status. Thus keeping in view the importance of the species with reference to AJK and Pakistan, the present study was carried out in Pir Lasorha National Park and other areas of District Kotli emphasizing on its population and conservation status in the study area.

MATERIALS AND METHODS

The study was carried out in Pir Lasorha National Park (PLNP) and Choch in Tehsil Nakyal District Kotli. The area is located in the south

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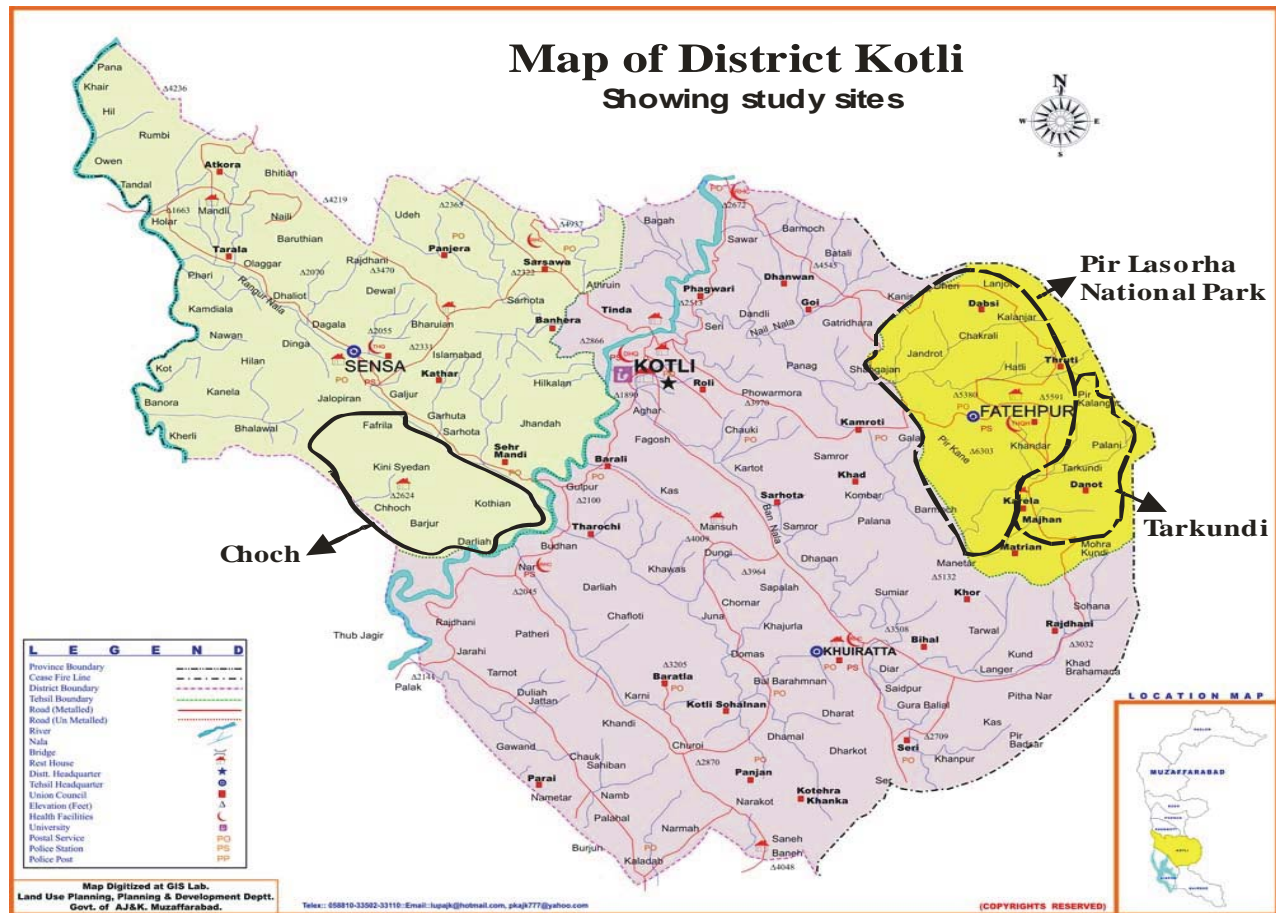


Fig. 1. Map of District Kotli showing study sites.

eastern part of the State, close to the Line of Control between $33^{\circ} 25.92$ N to $33^{\circ} 29.31$ N and $74^{\circ} 05.64$ E to $74^{\circ} 03.02$ E. The park includes about 1080 ha. area with elevation ranging between 500m-2000m above sea level. During the present study, the area was divided into three main localities; Choch, Pir Lasorha, and Tarkundi, on the basis of topographic and geographic conditions. Locality 1 (Choch) was divided into three sub-localities; Navna, Thelisnot and Salgran. Locality 2 (Pir Lasorha National Park) was divided into three sub-localities; Topiya, Pir Kanna and Khali. The names of localities and sub localities were assigned on the names of the nearby villages given by the local people.

Survey was carried out by using direct as well as indirect methods. The timing of the observation at each site was adjusted in a way to avoid the chance of duplication of observing the same

animals. Thorough transect surveys were conducted in potential barking deer habitat areas in the study area to confirm its presence by observing foot prints, dropping or actually seeing the animal. 52 transect of 1 Km length were conducted (22 in Choch, 20 in PLNP and 10 in Tarkundi) in the study area. Besides, information were also collected indirectly through interviews and discussions with local peoples, hunters, and wildlife and forestry staff working in the area. Barking deer tracks at water points were used as index to estimate the population. Within determined range of barking deer in the study area, sample sites were randomly selected and deer tracks on these sites were calculated following Anwar (1997). Habitat quality and extent of disturbance in and around these areas were also considered while estimating the population. Animal signs, such as hoof, deer tracks,

Table I.- Average population and population density of barking deer at different sub-localities of study area during 2009.

S.No.	Locality	Sub-locality	Elevation above sea level (m)	Area surveyed (km ²)	Average population	Population density (No. of animals/Km ²)
1	Choch	Navna	780	2	6	3
		Thelisnot	1210	3	10	3.33
		Salgran	1145	4	15	3.8
2	Pir Lasorha	Topiyan	1528	2	0	0
		Pir Kanna	1245	2	3	1.5
		Khali	850	4	6	1.5
3	Tarkundi	Tarkundi	1206.88	4	5	1.25
		Total		21	45	2.14

droppings, foot prints etc. being some of major indicators, were also noted and photographed and used for the estimation of the current status of the animal in the study area.

RESULTS AND DISCUSSION

Barking deer was distributed thoroughly in three main localities of the study area including Choch, Pir Lasorha National Park and Tarkundi. All the results and findings are given in the following heads:

Population status

A total number of 45 animals were estimated in the study area with an overall density of 2.14/km², distributed over about 21 km² surveyed area including three main localities and seven sub-localities (Table I). The locality 1 (Choch) was the most favorite habitat of the animal containing about 69% (n=31) of the total deer population with a density of 3.4 animals/km² (Table I, Fig. 2). This locality comprises three sub-localities in which Barking deer was distributed as Salgran (n=15), Thelisnot (n=10) and Navna (n=6) (Table I). Population density of locality 2 (Pir Lasorha National Park) was recorded as 1.12/km² comprising 20% (n=9) of total population (Fig. 2). The population was distributed in its two sub-localities, Pir Kann (n=3) and Khali (n=6), however, no evidences of barking deer were found in Topiyan sub-locality. The third locality (Tarkundi) had an average density of 1.25/km² (n=5), which was 11.11 % of total population of study area (Table I, Fig. 2).

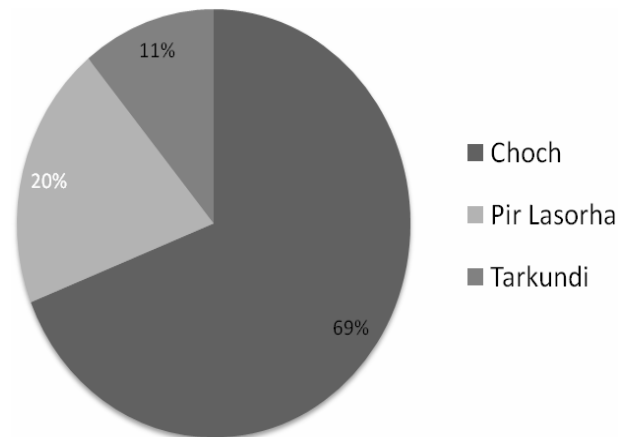


Fig. 2. Population percentage of barking deer at different localities of study area.

PLNP and adjacent areas hold a reasonable population density (3.44±1.12/km²) of the deer. The present study is the first estimates appearing on the barking deer population in PLNP and adjacent areas. The population density of barking deer was maximum in the locality Choch because of very thick vegetation cover and low disturbance in the area. The locality Tarkundi has low population density because it is located along the LoC and due to the high level of disturbance caused by shelling between Pakistan and India, the deer has migrated to the surrounding comparatively peaceful areas. PLNP showed minimum population density that might be due to high disturbance and other threats operating in the area including habitat degradation, deforestation, grazing and grass cutting and illegal

hunting etc. Other reason for the difference in population density is the availability of the tree and herb cover as these factors have been reported to directly affect the deer population (Hameed *et al.*, 2009).

Conservation status and threats

In IUCN red list, the Muntjac is enlisted as least concern because it remains common throughout its distribution range but they are facing several threats in different areas including habitat destruction, encroachment, habitat disruption, hunting and poaching (IUCN, 2010; Bennett and Gumal, 2001). This deer is regarded as endangered in Pakistan due to its declining population and very narrow range (Sheikh and Molur, 2005). In Azad Jammu and Kashmir, although, this deer is included in the third schedule (protected animals *i.e.* animals which shall not be hunted, killed or captured) of Wildlife Act of Azad Jammu and Kashmir 1975, and its potential habitat has also been declared as protected area (National Park) but unfortunately no conservation and management practices are actually in place and its population is still decreasing with an alarming rate due to the following factors:

Deforestation and encroachment

Local people use timber for construction of houses, cattle sheds and other buildings. Trees are also cut for extending cultivation land. Girdling of trees is carried out to give it a look like a naturally dead tree and thus clear the land for future encroachment. Similarly, due to harsh climatic conditions in winters, fuel wood needs for domestic energy are very high. The people of surrounding villages mostly fulfill their needs of fuel through the wood collected from the potential habitat of barking deer. Lopping for firewood purposes is common around densely populated villages.

Collection of fodder

All the fodder requirements of domestic livestock are fulfilled from the Park area either by direct grazing or by grass cutting. The park area is used from May to early November, to meet the fodder requirements of livestock. Grazing may be one of the reasons for low regeneration in the park area.

Illegal hunting and poaching

Hunting and poaching was assessed as a serious threat to Barking deer in PLNP and surrounding areas (Choch). Due to ruthless hunting from these invaders population of barking deer is declining critically. During the study various cases of illegal hunting of barking deer were observed and reported (Fig. 3), which were highlighted and brought under the notice of Wildlife Department Government of Azad Jammu Kashmir and other conservation related organizations.

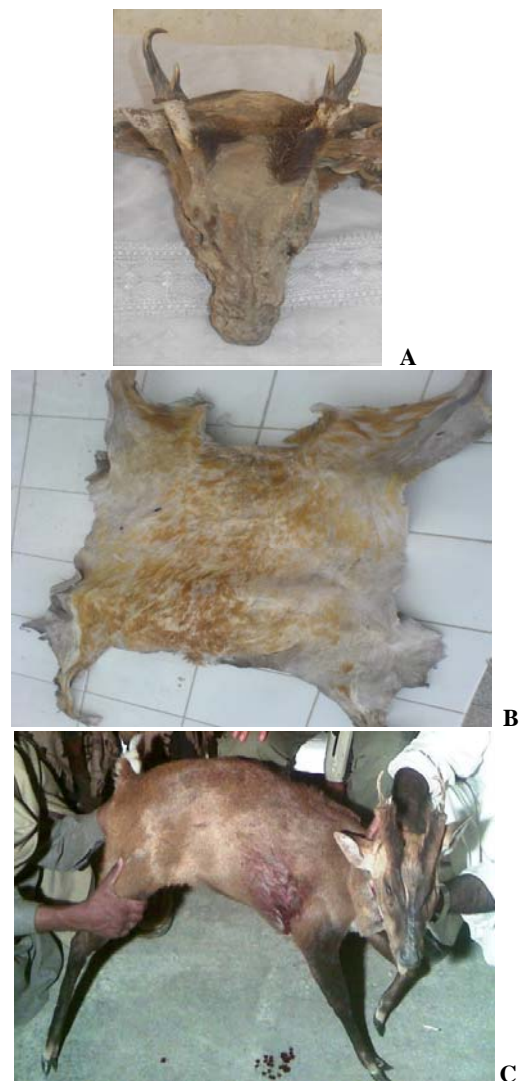


Fig. 3. Barking deer found at Chock; A, front view of skull of male; B, preserved skin; C, freshly hunted/captured animals on 13-10-2009 (Photograph collected from hunters).

Disturbance by the cross border shelling

Shelling and firing were the main reasons for the disturbance of barking deer population from locality 3 (Tarkundi) of study area as this locality runs along the Line of Control (LoC).

CONCLUSIONS

A total population of 45 animals was estimated in the study area which was distributed into different localities and sub-localities. Locality Choch has maximum population (n=31) of the deer followed by PLNP (n=9) and Tarkundi (n=5). However, the maximum value of density index (3.44 animals/km²) was recorded at Choch and minimum (1.125 animals/km²) at PLNP. Although the animal is protected by law and PLNP is declared as National Park, the population of barking deer is decreasing at an alarming rate. Due to poor enforcement of law and management, the Wildlife department of Azad Jammu and Kashmir has failed to conserve and protect the wild animals in PLNP. If conservation agencies like World Wide Fund for Nature-Pakistan (WWF-Pakistan), International Union for the Conservation of Nature resources (IUCN), initiate nature conservation attempts in PLNP, they would recover the ecological habitat and wild fauna which is now on the verge of expiration.

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