



Short Communication

Occurrence of Common Leopard (*Panthera pardus*) in Abbaspur Area, District Poonch, Azad Jammu and Kashmir

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ABSTRACT

The common leopard (*Panthera pardus*) is facing serious threats in many parts of its habitat. There is general lack of formal studies on the species. A survey was conducted from June to December 2014 to document existence of the leopard in Abbaspur area, Azad Jammu and Kashmir. Direct field observations (opportunistic survey) and indirect observations based on signs of the species were recorded. This was supplemented with information collected through questionnaire survey. Results confirmed the occurrence of leopard at six out of twelve sampling sites surveyed, in the form of evidences including pug marks, cave/ den, and dead bodies (two carcasses and one skin) of the animal. Moreover, three kill records of the animal in a short duration of six months are indicative of its illegal hunting for its skin or in self-defense. Therefore, immediate conservation measures are needed to protect the species. The other aspects of leopard ecology like habitat requirement, food and major threats are yet to be identified and addressed.

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Authors' Contributions

NI conceived the study and drafted the initial manuscript, IY conducted the field surveys and collected the data, TM and MS critically reviewed and revised the manuscript.

Key words

Common leopard, *Panthera pardus*, Distribution, Azad Jammu and Kashmir (AJ&K)

The common leopard *Panthera pardus* is one of the five 'big cats' belonging to genus *Panthera*, family Felidae. Nine different sub-species occur in Africa and Asia, including *P. p. pardus* (Africa); *P. p. nimr* (Saudi Arabia), *P. p. saxicolor* (Central Asia), *P. p. melas* (Java), *P. p. kotiya* (Sri Lanka), *P. p. fusca* (Indian sub-continent), *P. p. delacourii* (southeast Asia up to southern China), *P. p. japonensis* (northern China) and *P. p. orientalis* (far east Russia and North-eastern China) (Breitenmoser *et al.*, 2008).

In Southwest and Central Asia, common leopard formerly occupied a range of habitats, but now is confined to the more remote rocky areas (Henschel *et al.*, 2008). In Pakistan, it occurs in different forest types ranging from Himalayan forests (up to 5,200 m) to arid mountains and *Acacia* scrub forests (Nowell and Jackson, 1996). Its presence in Himalayan moist temperate coniferous forests was also reported by Roberts (1997). The distribution range of common leopard in the country includes hilly areas of Sindh (Kirthar hills), Balochistan (Toba Kakar range, Hingol National Park, district Uthal), Punjab (Salt Range, Kala Chitta Range, Margalla Hills to Murree Hills) and Khyber Pakhtunkhwa (Safed Koh, Takht-i-Suleiman, Swat, Kohistan, Dir, Chitral and Abbottabad) (Roberts, 1997).

As far as its occurrence in AJ&K is concerned, documented reports show its presence in Machiara National Park (Chattha, 2013), Pir Lasura National Park (Manzore *et al.*, 2013) and Toli Pir National Park (Faiz and Abbas, 2016) and newspaper reporting regarding its killing in some other areas; and Mirpur (Bhimber and Rawalakot (<http://tribune.com.pk/story/426739/villagers-kill-another-leopard-in-ajk/>)). The common leopard is listed as "Near Threatened" by the IUCN (IUCN, 2015) and placed in Appendix-I of the CITES (Henschel *et al.*, 2008). The occurrence of the leopard in different areas of AJ&K has not been fully documented as many areas need to be surveyed for its occurrence, therefore, the current study was conducted to record presence of leopard in one of the least studied potential area, Abbaspur, district Poonch of AJ&K.

Materials and methods

Abbaspur (33°48'48.40" N, 073°58'39.27"E, elevation 1160 m above sea level) is a small town located near the line of control (LOC) that divides Azad Jammu & Kashmir and Indian occupied Kashmir (Fig. 1). It is a tehsil of district Poonch, in western Himalayas. Twelve sampling sites were selected and surveyed to record distribution of common leopard including Check Post Abbaspur, Tangaran Bala, Kalla Bun, Seyo Wala Pahar Hill-I, Seyo Wala Pahar Hill-II, Chughtial, Kalli Kassi, Thandi Kassi, Old Check Post, New Check Post, Doba Mangora, Pattan Dhok and Danna Mangora (Fig. 1. B).

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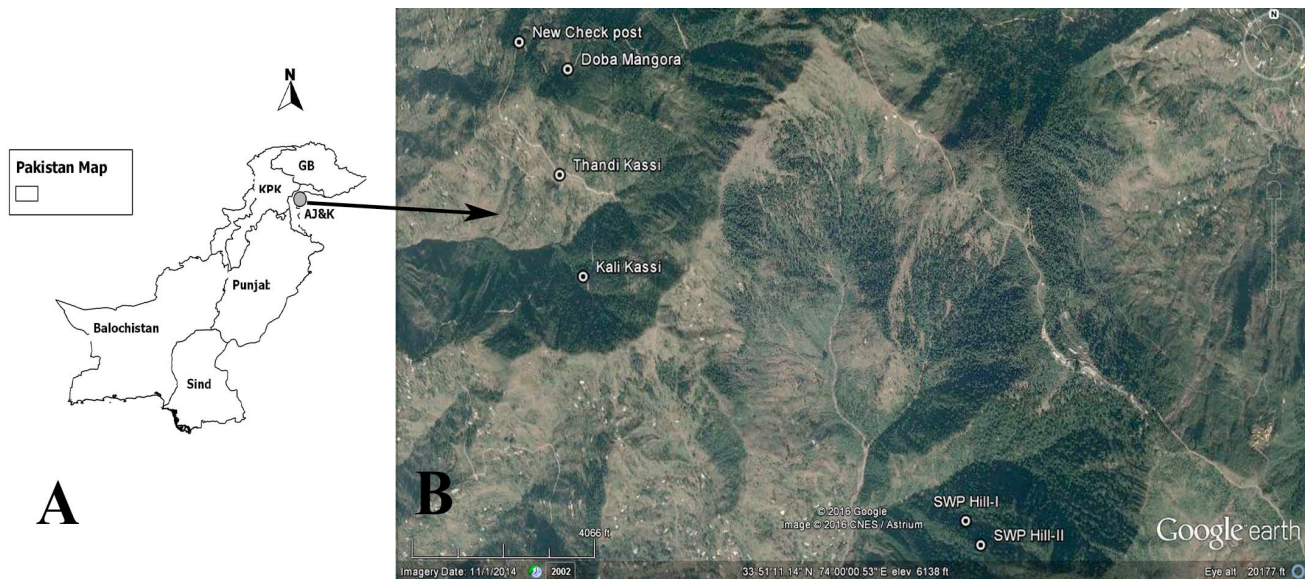


Fig. 1. Map of Pakistan showing the location of AJ&K (A), map of the study area where evidences of occurrence of common leopard (*Panthera pardus*) were found at six different sampling sites (B).

The distribution of common leopard was studied by conducting surveys of the study area to record its direct and indirect signs following Bora *et al.* (2014). In addition, questionnaire survey was carried out to collect information about the occurrence of the species in the area. In the former method, potential areas having dens (the most secret place of the carnivore where it hides itself and reproduces) / caves of the leopard and other evidences of its presence like pug marks, were identified by extensively walking the area on foot. The latter method employed included conducting interviews with the native people, local hunters, shopkeepers and the school children regarding their knowledge about the occurrence of common leopard in the area. During surveys, photographs of the killed common leopard and other signs in the field were taken along with the geographical coordinates of locations using Global Positioning System (GPS).

Results and discussion

In present investigation, sampling sites out of twelve were found positive as the direct and indirect evidences of leopard presence were recorded (Table I). The pug marks (Fig. 2.A), its den (Fig. 2.B), and skin of a killed leopard recovered from the local hunters (Fig. 2.C) were recorded at four different sampling sites of the study area; Seyo Wala Pahar Hill-I, Seyo Wala Pahar Hill-II, Kali Kassi and Doba Mangora. The leopard dens were also found located at two more locations; Kali Kassi and New Check Post. During a period of six months, three dead bodies (Fig. 2.D) were recovered, one each from Seyo Wala Pahar

Hill-I, Kali Kassi and Doba Mangora. Two carcasses and one skin were recovered from the custody of local hunters in the study area.

On 11th November 2014, we monitored Seyowala pahar hill I and II: the area was thoroughly searched for the existence of leopard. The survey started from Check Post Abbaspur (1154m), where leopard signs were not found, similar situation was faced at Tangaran Bala (1488m). But after six hour walk in the study area, we finally found the footprints of common leopard that led to the leopard dens at Seyo Wala Pahar Hill-I and Seyo Wala Pahar Hill-II at an elevation of 1763 m and 1912 m respectively. The den of common leopard included a labyrinth of small chambers in the stony areas of the mountain: almost seven partitions were observed in a den, about 4 m long at Seyowala pahar hill I. It may be due to the fact that the animal, although solitary, may use these chambers during the period when its cubs are born, but it needs further confirmation. Solitary life style of the leopard has been reported by Hunter *et al.* (2003). The width and height of the den compartments varied from 0.25-0.5 m and 1-2 m respectively. These findings indicate that the common leopard preferably lives at higher elevations, the highest point of its existence being recorded at about 2013 m asl (Seyo Wala Pahar Hill-I). The lowest range of its occurrence was 1763 m, below which no evidence was found. Earlier on, the common leopard was also reported by Roberts (1997) occupying the altitude of 2000 m to 2600 m whereas a greater altitude of 5,200 m in the Himalayas was reported by Nowell and Jackson (1996) and 4,600 m in Kenya (Hunter *et al.*, 2003).

Table I.- Record of surveys conducted to determine the occurrence of common leopard (*Panthera pardus*) in Abbaspur, district Poonch.

Sr. No	Sampling site	Latitude	Longitude	Elevation (m)	Animal occurrence	Traces/evidences
1	Check post Abbaspur	N 33°48.711"	E 073°58.709"	1154	-	-
2	Tangaran Bala	N 33°50.370"	E 073°59.911"	1488	-	-
3	Seyo Wala Pahar Hill-I	N33°50.569"	E 074°00.414"	1763	+	dens, foot prints, kill record
4	Seyo Wala Pahar Hill-II	N 33°50.513"	E 074°00.461"	1912	+	dens, foot print
5	Chaughtial	N 33°51'06.4"	E 073°58,32.2"	1792	-	-
6	Kali Kassi	N 33°51'13.7"	E 073°59'03.8"	2004	+	dens, kill record, skin
7	Thandi Kassi	N 33°51'30.0"	E 073°58'59.8"	1926	+	foot print
8	Old Check Post	N 33°51'35.7"	E 073°58'52.9"	1947	-	-
9	New Check Post	N 33°51'50.4"	E 073°58'51.9"	1993	+	Dens
10	Doba Mangora	N 33°51'46.0"	E 073°59'02.8"	2013	+	dens, foot print, kill record
11	Pattan Dhok	N 33°52'00.6"	E 073°58'54.0"	1852	-	-
12	Danna Mangora	N 33°51'57.1"	E 073°58'40.1"	1827	-	-

+, presence of any direct or indirect sign of common leopard; -, absence of leopard signs.



Fig. 2. Pug mark of common leopard at Seyo Wala Pahar Hill-I (A), cave of common leopard at Seyo Wala Pahar Hill-I (B), skin of common leopard recovered from the custody of local hunters at Kali Kassi (C), killed common leopard found at Seyo Wala Pahar Hill-I (D).

The questionnaire survey further strengthened the evidence of occurrence of leopard in the study area, 50% (60/120) of the interviewees reported to hear the growl of leopard, whereas 30% (48/120) respondents had seen the animal dead and 20% (25/120) alive.

The human-leopard conflict adversely affects leopard population and also the economy of the country (as it kills or injures domestic animals and is also killed by local community in revenge). Regarding human-common leopard conflict in the study area, at least 12 domestic animals (3 goats, 4 sheep, 2 buffaloes and 3 dogs) and 2 human beings were reported killed by common leopard within a period of about six months. On the other hand, 3 common leopards were killed by local people in retaliation. It not only imposes adverse impacts on leopard (Sillero-Zubiri and Laurenson, 2001) but in general causes great economic loss. Bibi *et al.* (2013) studied the ethno-carnivore relationship in Dhirkot AJ&K and concluded that common leopard was the major predator (70.8%) of livestock. Apart from this, the human casualties are the primary motive of confrontation (Baldus, 2004). The current study also highlights that the leopard is not killed merely in self-defense but also by local hunters for their hides to raise money (Fig. 2.C).

The large carnivores (such as common leopard) are central characters in keeping a dynamic ecosystem (Gittleman *et al.*, 2001) by being top predator in the food chain. Therefore, conservation of such species is essential for the maintenance of biodiversity equilibrium. In this regard, the foremost step is to have baseline data about distribution range, habits and habitat requirements of the species so that human – common leopard conflict could be minimized. Also it is crucial to launch campaigns by concerned wildlife departments to control illegal hunting of the species and to make local communities aware of its ecological significance.

Statement of conflict of interest

Authors have declared no conflict of interest.

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