



Sighting of Tibetan Wolf *Canis lupus chanko* in the Greater Himalayan range of Nanda Devi Biosphere Reserve, Uttarakhand, India: a new record

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The Tibetan Wolf is reported to occur in the Trans-Himalayan regions of India (Fox et al. 1986; Chundawat 1992; Chundawat & Qureshi 1999). The Indian Trans-Himalaya is classified under Biogeographic Zone 1 and is represented by Ladakh in Jammu & Kashmir, Lahul & Spiti in Himachal Pradesh and northern Sikkim (Rodgers & Panwar 1988). Very small portions of the Trans-Himalaya are found in Uttarakhand, i.e., in Nanda Devi Biosphere Reserve (BR) and Gangotri National Park (NP). The presence of Tibetan Wolf in Ladakh, Lahaul and Spiti, and northern Sikkim, along with information on livestock depredation has been well documented (Fox et al. 1986; Fox et al. 1991; Chundawat 1992; Chundawat & Qureshi 1999; Jayapal 2000; Sathyakumar & Qureshi 2003). In India, two subspecies of wolf are recognized by Sharma et al. (2004): *Canis lupus pallipes* Indian Grey Wolf and *C. l. chanko* Tibetan Wolf. However, they are considered to be two distinct species by Aggarwal et al. (2007), viz. the Indian Grey Wolf *Canis indica* and the Himalayan Wolf

Canis himalayensis.

The Nanda Devi BR is an important landscape in Uttarakhand that encompasses the Greater and Trans Himalayan regions. Baseline information on the mammalian fauna of Nanda Devi NP and BR are largely from surveys by several naturalists and biologists such as Dang (1961), Khacher (1983), Lamba (1987), Tak & Kumar (1987), Sathyakumar (1993 & 2004), and ZSI (1995). None of the aforementioned studies had indicated the presence of Tibetan Wolf in Nanda Devi BR.

With this background, we report sighting Tibetan Wolf at Bedini-Ali (79°40'N & 30°12'E) located in the transition zone (Image 1) of Nanda Devi BR while conducting field research on wildlife-habitat interactions at Bedini-Ali during 2005 and 2006 (Bhattacharya et al. 2006, 2009). The Bedini-Ali area, located in the western region of Nanda Devi BR, falls within the Greater Himalayan region and encompasses upper temperate, subalpine and alpine habitats ranging from 3,000 to 5,000 m and a diversity of slopes and aspects due to the mountainous topography. Vegetation of Bedini-Ali includes: alpine meadows and scrub above the tree limit, dominated by *Rhododendron campanulatum*, and subalpine forests dominated by Brown Oak *Quercus semecarpifolia* and Silver Fir *Abies pindrow*. The average temperature of this area ranges between 18°C and -10°C; total annual rainfall is over 2,000mm. Wan is the main village lying west of Bedini-Ali. The subalpine and alpine regions of Bedini-Ali are subjected to high levels of livestock grazing, mainly goats and sheep (c. 5,000) during the summer months (Bhattacharya et al. 2006, 2009).

The first record of Tibetan Wolf was a pair encountered in the vicinity of the deserted tourist hut at Bedini (3,700m) during late November 2005 after the first snowfall in the area. These animals were larger than the Red Fox *Vulpes vulpes*, the only other canid encountered in the study area, and had longer crests of black hair on their back. Subsequently, one or two individuals were recorded on one or more occasions on 16 days between December 2005 and May 2006 in the alpine meadows of Bedini-Ali near the tree line (Image 2). In September 2006, scats of Tibetan Wolf in Nanda Devi BR were recorded from between Malari and Laptal (Trans-Himalaya), located in the eastern part of the BR (Images 1 & 3). Evidence of wolf was also recorded at Dung (near Milam) and Rimkhim, located in the eastern part of the BR in 2008 (Maheshwari & Sharma 2010). Local villagers and livestock herders confirmed the presence of wolf (locally called Bheriya) in the Bedini-Ali area and also reported livestock depredation by wolf in the recent past. There were no reports of the presence of feral dogs in this area. Livestock herders reported one instance of livestock killed by wolf in Bedini-Ali during May 2006.

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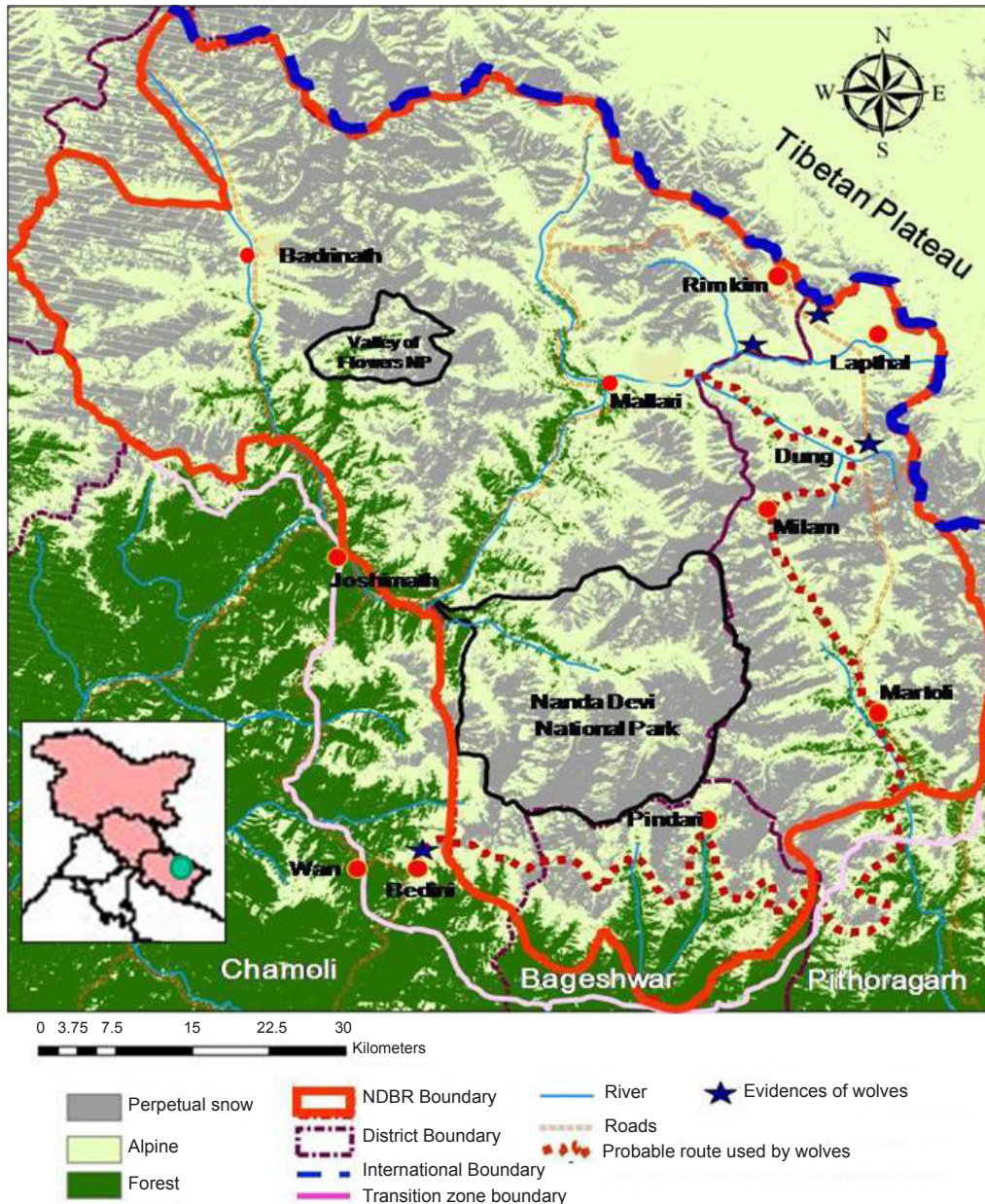


Image 1. A map of Nanda Devi Biosphere Reserve showing the Nanda Devi National Park (core zone), Bedini-Ali where wolf sightings were recorded, and other localities in the buffer zone where wolf evidences were recorded. The probable path that the wolf would have taken to reach Bedini-Ali is also shown.

Two factors need to be addressed while considering this sighting outside its known range. The first factor is obviously the unusual sighting of the Tibetan Wolf (a Trans-Himalayan species) in the alpine regions of Bedini-Ali, which represents moist habitats close to tree line in the Greater Himalaya. The mammalian fauna of Nanda Devi NP and BR has been reasonably well documented through several surveys since the early 1980s (Khacher 1983; Lamba 1987; Tak & Kumar 1987; ZSI 1995; Sathyakumar 1993, 2004; Kandpal 2010;) and it is very unlikely that a large carnivore such as the Tibetan Wolf would have remained unrecorded. Moreover, with

substantial historical and current presence and movements of herders and their livestock in the subalpine and alpine regions of Bedini-Ali, at least secondary reports on the presence of this species should have been reported earlier. However, the absence of records of Tibetan Wolf during earlier scientific surveys, and lack of past reports from local herders and villagers in Bedini-Ali does not necessarily imply that the wolf did not occur in this area in the historical past. The Tibetan Wolf ranges over large areas and a few itinerant individuals may visit peripheral parts of their natural distribution range very occasionally (Y.V. Bhatnagar pers. comm. 2010). Hence, it is likely that



Image 2. A pair of Himalayan Wolves at the 'treeline' in Bedini-Ali, Nanda Devi Biosphere Reserve, November 2005.



Image 3. Wolf scat on *Caragana* scrub recorded from Malari-Laptal areas in Nanda Devi Biosphere Reserve, September 2006

the wolf may not have been detected in the past.

Therefore, we hypothesize that the Tibetan Wolf would have probably moved from the Trans-Himalayan parts to the Greater Himalayan parts of Nanda Devi Biosphere Reserve. If this hypothesis is proved to be right, then there is another interesting aspect to these observations. The Trans-Himalayan regions in Nanda Devi are confined to the northern, north-eastern and eastern parts of the BR. There are no reports on the presence of Tibetan Wolf in the vicinity of Bedini-Ali and also from inside the Nanda Devi NP (Lamba 1987; Tak & Kumar 1987; Sathyakumar 1993, 2004). The rim of snow capped high peaks (> 6,000m) along the boundary of Nanda Devi NP (Image 1) is presumed to be a barrier for the movement of the Tibetan wolf through the NP and, therefore, it is likely that the Tibetan Wolf inhabiting the Trans-Himalayan regions of Nanda Devi BR (Malari-Laptal) would have moved around the Nanda Devi NP in the buffer zones along the alpine regions towards the west, following migratory livestock herds that graze in these areas during summer (Image 1).

We recommend that field surveys be carried out in Bedini-Ali, Pindari, Milam, Ralam, Malari, Laptal, Rim Kim and similar habitats in the Nanda Devi BR, using camera traps and use of non-invasive DNA sampling (from scats) to confirm the presence of the Tibetan Wolf in these areas and delineate its distribution in Nanda Devi BR. Simultaneously, thorough surveys should be carried out in villages of transition zone to investigate the extent of local knowledge about presence of wolf and their attitude towards wolf presence. Such investigations will be of great significance in enhancing our understanding of a possible range extension of this species and has implications for conservation and management, as wolf-human conflicts are a serious issue in other parts of the Indian Trans-Himalaya.

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