

Status, Distribution and Management of Mountain Ungulates in Sikkim



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1. Introduction

One of the smallest states in India, Sikkim lies between 27°5' to 28°9' N and 87°59' to 88°56' E, covering an area of 7,096 km², extending approximately 114 km north-south and 64 km east-west. Wedged in between the Himalayan kingdoms of Nepal in the west and Bhutan in the east, Sikkim is bounded by Darjeeling District of West Bengal in the south and a stretch of Tibetan Plateau in the north. In this land of vast altitude variation (ca. 300m – 8,586m) within very short distances, elevation has played a major role in fashioning the various eco-regions. This is evident from the presence of the sub-tropical Rangit Valley Sal forests with Wild boar and Indian muntjac in the south, to the temperate fir forests harbouring Himalayan tahr and Musk deer in the north, beyond which lie the Trans-Himalayas and cold desert of the Tibetan plateau supporting Kiang and Nayan. Sikkim is classified as part of the biogeographic province 2C (Central Himalayas), which in India includes the Darjeeling district of West Bengal with Temperate-Broadleaf biome, with the north of Sikkim as biogeographic province 1B (Trans-Himalayas-Tibetan plateau) with biota of Palaeartic affinity. The latter area is high-altitude cold desert in the rain-shadow of the main Himalayan range with typically Tibetan flora and fauna.

As per the 2002 Annual Administrative Report of the Department, about 2,177 km² or 30.68 % of the total geographical area of the state is under wildlife protection, which is perhaps the highest in the country. The largest Protected Area (PA) in the state, the Khangchendzonga Biosphere Reserve was notified in February 2000. It is spread over North and West districts encompassing 1,784 km² of Khangchendzonga National Park (KNP) and 835.9 km² over four buffer zones totaling an area of 2,619.9 km². These buffer zones are Lhonak Valley, West Chungthang-Lachen, Tholung Valley and Rangit and Tista Catchments. Pangolakha Wildlife Sanctuary was recently declared on the Bhutan – China (Tibet) – India (Sikkim and West Bengal) tri-junction. There is also another proposal for declaration of a cold desert protected area in north Sikkim (Fig. 1).

2. Mountain Ungulate Surveys in Sikkim

Over the last three decades, the State Forest Department conducted sporadic management surveys of which no detailed records were kept. Some such patrols were anti-poaching or 'Operation Trap Demolition' expeditions in the Khangchendzonga National Park (KNP) to dismantle vast stretches of live rhododendron shrubs worked for kilometres into traps for Musk deer. In a

1993 Tiger Census in north and east Sikkim, other species of wildlife encountered including ungulates, were also recorded. The following areas were specifically covered in KNP (Lachungpa, C. pers. comm.):

- i. Yuksom – Dzungri – Goecha La, Lampokhari trekking trail (W)
- ii. Tholung Valley (N)
- iii. Chungthang-Menshithang-Bikmatar, Phimphu (N)
- iv. Lachen-Zema-Green Lake (N)
- v. Thangu-Muguthang-Green Lake (N)

In the last decades, two surveys were conducted specifically for mountain ungulates in Sikkim. Between 1995-1997, Mr. C. Lachungpa, Divisional Forest Officer, with assistance from WWF-India surveyed the Pangolkha range for the *Shou* or Sikkim stag. The areas covered included Rachela, Phadamchen, Rigyap, Menmoitso and Menla. No *shou* was recorded (Lachungpa, C. pers. comm.) but there was one indistinct sighting of the Takin. It was based on this survey that the proposal for declaration of the area as Pangolakha National Park was moved and in 2002 the Pangolakha Wildlife Sanctuary was declared. In 1996, Mr. C. Lachungpa as the first Kailash Sankhala Awardee, initiated another survey for the Himalayan Tahr locally called '*Shapi*', in the KNP. He confirmed the existence of the species not only in the Phimphu area in north KNP but also in the western part of the park. (Lachungpa, C. pers. comm.). Much earlier around 1986-87, a group of foreign trekkers had reported sighting of the Tibetan argali in west KNP above Goecha La, (report not traceable) in a note to the Department but their observations could not be confirmed. In 1988, Mr. S. Z.

Lucksom as Field Director (KNP) was the first to film the Shapi in Sikkim from the Phimphu area.

Opportunistic sightings of mountain ungulates were also recorded during the following departmental research surveys between 1988-2002. Information from these was used in relevant short publications, papers presented during seminars or as short unpublished departmental reports. Tables 3, 4 and 5 are based on these as well as the above.

- Asian Waterfowl Counts in the Trans-Himalayan and alpine regions of north and east Sikkim, 1988-1994
- Short surveys for butterflies in all four districts, 1988 -1994 (information used in Haribal, M. 1992)
- Cold desert wildlife surveys in north Sikkim 1988, 1991-1995
- Survey of birds of Fambong Lho Wildlife Sanctuary, east Sikkim, 1989
- Wildlife expedition to Lhonak Valley-Green Lake, north Sikkim, 1990
- Wildlife survey of Lhonak Valley, Lashar Valley and Tso Lhamo Plateau, north Sikkim, 1992
- Wildlife survey including bird ringing studies at Lashar-Sebu La-Yumesamdong-Tembawa and Dongkia La-Tso Lhamo Plateau, 1995
- Royal Botanic Garden Edinburgh expedition to Lashar-Sebu La-Yumesamdong-Tembawa and Lachung Valley, north Sikkim, Fambong Lho Wildlife Sanctuary (WLS), east Sikkim, July 1996
- Oriental Bird Club bird survey in Kitam and lowland forests, south Sikkim and Barsey Rhododendron Sanctuary, west Sikkim, Mar-Apr and Sep-Oct 1996





- Biodiversity survey of Maenam Wildlife Sanctuary, south Sikkim, in collaboration with the World Pheasant Association in April-May 1998
- Red Panda pilot survey for the WWF in and around PAs, Sep-Dec 1998
- Bird ringing studies in Fambong Lho WLS, Kyongnosla Alpine Sanctuary, Himalayan Zoological Park, east Sikkim, 1992-93, 1995-96, 2000
- Alpine Grassland Ecology Project of BNHS in sub-alpine, alpine and Trans-Himalayan areas of north Sikkim, 2000-2002, study sites being Tso Lhamo plateau, Thangu, Lhonak and Lashar valleys, Yumesamdong, Yumthang

As many as 15 species of wild mountain ungulates were recorded from this small portion of the Himalayas, ranging from the Tibetan Wild Ass *Equus kiang* and the (Globally Threatened) Nayan or Great

Tibetan Sheep *Ovis ammon hodgsoni* on the Tibetan Plateau, to the Indian Muntjac *Muntiacus muntjac* and Wild Boar *Sus scrofa* in the sub-tropical south. So far the State Forest Department has not recorded some species such as the Mouse-Deer, Pygmy Hog and Hog Deer reported in literature from 'Sikkim Terai', area which is no longer within the present limits of the state. Some Chital *Axis axis* from the Rustomjee Deer Park, Gangtok, were released into the lowland forests in the last decade and are still occasionally sighted. Interestingly, single individuals of two other ungulates, Takin and Gaur were sighted as recently as 1999 and 2002 from Kyongnosla Alpine Sanctuary and the recently declared Pangolakha Wildlife Sanctuary both in east Sikkim (Departmental Report, *in prep.*). While the lone Takin was a novelty for most of the local people, the Gaur was found to be commonly called 'Mithun-Gai'. Both

Table 1A: Legally Gazetted Wildlife Protected Areas in Sikkim

Name of the PA	District	Area in km ²	Date of Notification
National Park			
1. Khangchendzonga National Park	North and West	1,784	26.08.1977
Wildlife Sanctuaries			
1. Shingba Rhododendron Sanctuary	North	43	05.12.1992
2. Barsey Rhododendron Sanctuary	West	104	08.06.1996
3. Kyongnosla Alpine Sanctuary	East	31	05.12.1992
4. Fambong Lho Wildlife Sanctuary	East	51.76	02.04.1984
5. Maenam Wildlife Sanctuary	South	35.34	09.03.1987
6. Pangolakha Wildlife Sanctuary	East	128	07.11.2002

Table 1B: Proposed PAs

1. Tso Lhamo Cold Desert Conservation Area	North	2.00
2. Kitam Bird Sanctuary	South	6.00
3. Rabdentse Bird Sanctuary	West	2.00

species are now known to occasionally stray over from the Bhutan border.

There are seven PAs in Sikkim (Table 1A), but none so far either in the lowland forests or Trans-Himalayan Sikkim, though Kitam Wildlife Sanctuary for peafowl in the south and a Cold Desert protected area for trans-border ungulates like nayan, kiang and Tibetan gazelle in the north have been proposed (Table 1B). The state also has feral ungulates in some of the PAs.

3. Status and distribution of Mountain Ungulates of Sikkim.

Table 2 summarizes the occurrence of wild ungulate species in different existing PAs of Sikkim. Available information on their status is also given. Information on other ungulate species such as wild boar and chital, that occur outside the mountain zone is also included.

4. Wildlife management in Sikkim

In the biodiversity hotspot that is Sikkim, wildlife management practices are area and not species specific. The present management practices followed are:

1. Habitat oriented management:
 - a. Habitat improvement: afforestation of wildlife amenable species using gap plantation in degraded areas and block plantation in forest blanks
 - b. Water regime improvement: creation of waterholes, revitalization of existing lakes and ponds
 - c. Reducing fire hazards: with help from the Eco Development Committees around PAs
2. Law enforcement: implementation of Wildlife (Protection) Act (1972, 2002), creation of information network with help from Ecodevelopment Committees (EDC), reduction of

grazing, liaisoning with the Indian Army, Border Roads Organisation

3. Research and Development: field surveys, mapping of PAs using remote sensing & GIS (newly initiated)
4. Survey and demarcation: installation of boundary pillars around PAs

The Department carries out regular patrolling for monitoring of habitat to control wildlife offences inside the PAs. However there is no effective monitoring of ungulate populations outside PAs.

One of the main threats being faced by wildlife (especially mountain ungulates) as perceived by the State Forest Department is lack of awareness, especially in the remote areas. Barking deer, Goral, Serow occasionally fall prey to traps laid for crop protection and their hides were used to make small stools (*mudas*) for domestic use. There have also been instances of discarded wire and metal being used to snare Blue Sheep in restricted areas where road construction and maintenance take priority and temporary settlements of non-native labourers are located. Along the international border where national defence takes priority, Nayan fall prey along with Kiang and Yak to land mines. Also, all wildlife especially ungulates are plagued by the problem of stray and feral dogs near army installations. These and other issues are being addressed in a study presently underway for development of a conservation strategy for the alpine grasslands of Sikkim, in collaboration with the Bombay Natural History Society. The issue has also been addressed in the National Biodiversity Strategy and Action Plan (NBSAP) where a separate SAP has been written for the Indian Army in Sikkim.



Table 2: Occurrence of ungulate species in different PAs of Sikkim. Information based on departmental surveys and records.

[District name given in parenthesis. Status: R = Rare; C = Common; A = Abundant; ? = Occurrence uncertain. PAs: SRS = Shingba Rhododendron Sanctuary (N), KAS = Kyongnosla Alpine Sanctuary (E), FBL = Fambong Lho Wildlife Sanctuary (E), PGL = Pangolakha Wildlife Sanctuary (E), KNP = Khangchendzonga National Park (N & W), BRS = Barsey Rhododendron Sanctuary (W), MNM = Maenam Wildlife Sanctuary (S)]

Species	Wildlife Protected Areas							Outside		
	SRS (N)	KAS (E)	FBL (E)	PGL (E)	KNP (N&W)	BRS (W)	MNM (S)	Lowland Forests (S)	Trans-Himalaya (N)	
Equidae										
<i>Equus kiang</i> Tibetan wild ass	-	-	-	-	-	-	-	-	R	
Suidae										
<i>Sus scrofa</i> Wild boar	-	-	C	C	C	C	C	A	-	
Moschidae										
<i>Moschus chrysogaster</i> Himalayan musk deer	R	R	-	R	R	R	R	-	-	
Cervidae										
<i>Axis axis</i> Chital, Axis deer	-	-	-	-	-	-	-	R	-	
<i>Cervus elaphus</i> Shou	-	-	-	?	-	-	-	-	-	
<i>Cervus unicolor</i> Sambur	-	-	-	R	?	-	?	?	-	
<i>Muntiacus muntjac</i> Indian muntjac, Barking deer	-	R	C	C	C	C	C	A	-	
Bovidae										
<i>Bos gaurus</i> Gaur, Indian bison	-	-	-	R	-	-	-	-	-	
<i>Bos grunniens</i> Domestic yak	C	C	-	R	C	C	-	-	C	
<i>Budorcas taxicolor</i> Takin	R	R	-	R	-	-	-	-	-	
<i>Procapra picticaudata</i> Tibetan gazelle	-	-	-	-	-	-	-	-	R	
<i>Naemorhedus goral</i> Himalayan goral, Common goral	C	C	R	C	C	C	C	R	-	
<i>N. sumatraensis</i> Southern serow, Mainland serow	R	R	R	R	C	R	C	R	-	
<i>Hemitragus jemlahicus</i> Himalayan tahr	-	-	-	-	R	-	-	-	-	
<i>Ovis ammon</i> Nayan Great Tibetan sheep, Argali	-	-	-	-	R	-	-	-	R	
<i>Pseudois nayaur</i> Bharal, Blue sheep	C	R	-	R	C	?	-	-	R	

With newer areas under the PA network, many more management initiatives are being proposed such as intensive scientific research, strengthening of EDC network, training of forest staff, creation of alternative livelihoods for people dependent on forest resources and preparation of detailed management plans for the PAs.

Mountain ungulates such as Goral and Bharal are also covered under an *ex situ* management programme in the Himalayan Zoological Park at Bulbuley, Gangtok.

There are however many limitations for wildlife conservation in Sikkim, the leading one being those imposed by international border restrictions (Nepal, Tibet and Bhutan), difficult terrain and harsh, high altitudes, followed by lack of awareness, of motivation, of infrastructure and logistics (barracks, range offices, vehicles, ammunition and communication), lack of skilled manpower, lack of research and lack of funds. This severely limits options for patrolling wildlife outside PAs especially in the Trans-Himalayan area of north Sikkim.



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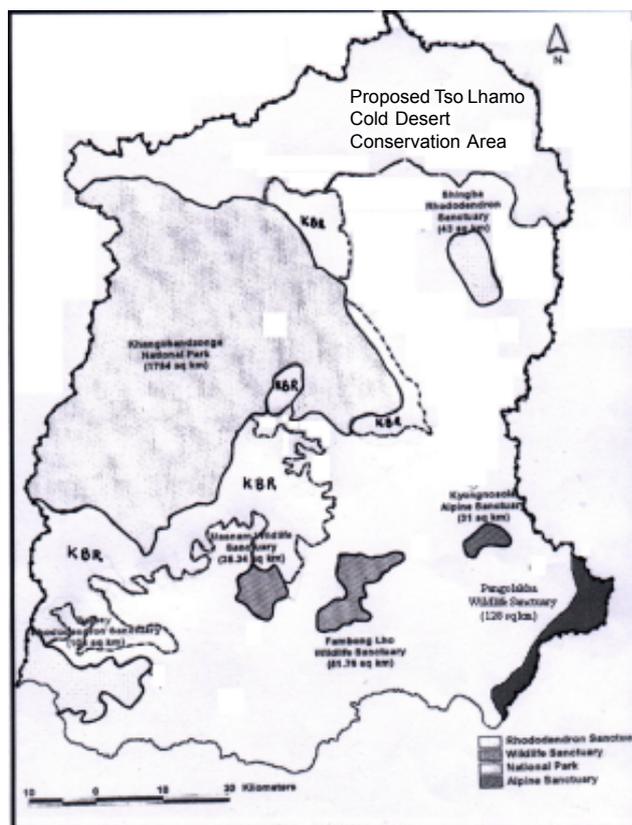


Fig. 1 Protected Areas of Sikkim

