
MUSK DEER SURVEY IN KABKOT NALA, PALAS VALLEY, DISTRICT KOHISTAN, NWFP, PAKISTAN

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INTRODUCTION

The Himalayan Jungle Project is working in Palas Valley in Pattan Tehsil, District Kohistan, Hazara Division, NWFP, Pakistan (see location map). Palas contains the most outstanding tract of pristine west Himalayan forest in Pakistan. These forests have been identified as a global priority for the conservation of biodiversity (ICBP, 1992). These outstanding forests, which are owned by the local communities, are threatened by logging, which provides an important source of local cash income. The Himalayan Jungle Project aims to conserve these forests and their wildlife by developing with the local communities alternative, sustainable sources of income.

The Himalayan Musk Deer *Moschus chrysogaster* is listed as a threatened species in IUCN Red Data Book and is regarded as a priority or key species for conservation in Palas.

The objectives of the survey were:

1. To determine the presence and relative abundance of musk deer in Kabkot Nala, Palas Valley.
2. To describe and estimate the extent of habitat occupied by musk deer in Kabkot Nala, Palas valley.
3. To record human impact on musk deer.
4. To record other wildlife species in this habitat.

The survey was conducted from August 15 to August 27, 1993.

Genus *Moschus* is distributed sporadically throughout the forested, mountainous parts of Asia, from just north of the Arctic circle southward to the northern edge of Mongolia and to Korea. Further south, avoiding the Gobi desert, the musk deer occurs in China, Burma, Assam and the Himalayan region (Flero 1930, 1952). It is also present in northern Vietnam (Dao 1977). Three species of musk deer are recognized, following taxonomic revisions of the genus by Grover (1975) and more recently by Grubb (1982); *M. moschiferus* in eastern USSR (former), northern China and Korea; *M. berezovskii* in southern China and northern Vietnam; and *M. chrysogaster* in western China, Tibet and the Himalaya. Green (1986) considers Himalayan Musk Deer to be *Moschus chrysogaster* and gives its distribution. It is considered rare in Afghanistan and is found between 1,500 and 3,000 meters in oak and scrub of Nuristan. In India it is rare in the Indian-held Jammu and Kashmir. Green estimated its density in Ferozpur/Gulmarg area to be less than 0.4 animals/sq.km. In Himachal Pradesh he reports to have recorded droppings and tracks on 13 occasions. In Uttar Pradesh the species is found in oak-birch forests of Kedarnath Sanctuary between 2,700 and 3,700 m. In Eastern Nepal the species occurs in the vicinity of Lake Rara. It is reported to be disappearing from the regions of Manaslu and Himal in Central Nepal. The species occurs in Everest region and Arun Valley in Eastern Nepal. A little evidence of the species was

found in Sikkim. In Bhutan mostly musk deer is found north of paro Valley, in thick bamboo forest between 2600 and 300m. In Burma the species is recognised as *Moschus fuscus* which according to Green may be sub-species of *M. chrysogaster* and it occurs only in Kachin state of Northern Burma.

In Pakistan, it is found in sub-alpine scrub zone. It remains usually above 10,000 ft even in mid winters and in summer it occurs but now it is very rare. It also occurs in the remote valleys of Hazara, Gilgit and Indus Kohistan. A captive male was seen at Naran in 1966. It is believed to be widespread in Baltistan particularly around Hushe Valley (Roberts 1977). Roberts considers the population at machiara Game Reserve, Azad Kashmir to be the best.

Musk Deer has previously been recorded in Kabkot Nala by Richard Grimmet in 1992, while Guy Duke observed Musk Deer droppings in the nearby Diwan Nala in 1991. Local shikaries (hunters) report the species to be widespread in Bar (upper) Palas, but declining due to hunting pressure.

Musk Deer habitat in Pakistan

Musk deer is found in the sub-alpine scrub zone, above coniferous forests (Roberts 1977). In the Western Himalya the altitude of sub-alpine scrub zone ranges between 11,000 ft. to 13,000 ft. with a mean annual temperature of about 50°F and annual rainfall between 8.5 cm to 65 cm, annual snowfall varies from 6 ft. to 18 ft. (Champion *et al.* 1965). Typical flora of this zone in Palas includes: *Abies pindrow*, *Pinus wallichiana*, *Betula utilis*, *Salix himalayensis*, *Juniperus communis*, *Viburnum*, *Rhododendron*, *Lonicera*, *Ribes*, *Berberis*, *Sorbus*, *Poa* and *Primula*.

Fauna of this zone includes

Royle's High Mountain vole *Alticola roylei*, True's Vole *Hyperacris fertilis*, Chinese

Birch mouse *Sicista concolor*, Musk Deer *Moschus moschiferus*, Snow leopard *Panthera uncia* and Markhor *Capra falconeri* (Roberts 1977).

General Animal Behaviour

It is solitary and territorial animal. Green (1987) found no overlap in male territory in his 27 month study in Kedarnath Sanctuary, North India. It uses latrines for defecation. Latrines are most frequently used during autumn rut but in summer (May-August) they are used less frequently and animals defecate wherever they happen to be. Latrines may be used by more than one animals. Droppings are covered with debris in autumn (Green, 1987). It adopts squatting position while urinating. It is carpuscular in habits i.e., active at dusk and dawn. (Green took direct observations at 600 hours and 1800 hours Indian Standard time). Rutting season in November-December. Males fight during rut and are wounded. They do not eat any thing during rut and use caudal scent glands to mark their territory (Roberts, 1977). The gestation period in 160 days. Birth of young (usually single) occurs in late May or early June. Young ones are weak at birth and suckling period in usually extended. Sexual maturity in females is 18 months and in males is 3 years.

METHODOLOGY

Surveys were carried out at dusk and dawn with the assistance of the local shikari/guide. Every effort was made to locate the musk deer directly but indirect evidences were also recorded. Droppings and hairs were collected and photographs of foot-prints were made. On an average six hours were spent in musk deer habitat every day. For all the evidences (droppings, hairs, foot-prints) notes were taken and date, time, altitude, were recorded.

RESULTS

Droppings: Droppings were collected from four different sites in upper regions of Kabkot Nala near Hobek and Kunaribek at an average altitude of 3500 to 400 meters. The identity of the droppings was confirmed by their peculiar shape and testimony of local shikaris. Droppings were collected and labelled giving their number, site from where collected, altitude, date and time at which there were collected.

Foot-prints: Foot-prints were observed at six different sites. No footprint was found on snow which was not fresh and too hard. The foot-prints of only the fore-feet were observed.

Predator's kill: A predator's kill was found near Hobek near the bank of Kabkot Nala. Remains like hairs, pieces of skin and bones were found at three different places in a radius of about 50 meters. Remains were collected, labelled and preserved. The musk deer predated was a young adult as confirmed from the remains of the lower jaw but its sex could not be confirmed.

DISCUSSION

Indirect observations made during the survey confirm the presence of Musk Deer in Kabkot Nala chiefly on eastern and southern aspects above 3500 meters.

The frequency of footprints and droppings indicates that the species is not common. Local evidence suggests that the species has been much hunted. No Musk Deer was actually seen. This may be due to the unsuitability of the season. Green (1985) states that it is most suitable in spring and less in autumn. Dawn and dusk times were chosen to look for the animal. Night surveys could not be conducted due to lack of equipment and poor weather conditions. Green had obtained

most observations with the use of night scope and torch. The average time spent looking for the animal per day was six hours. Most of the signs of Musk Deer were found in juniper forests above birch zone.

CONCLUSIONS

Frequency of foot-prints and droppings indicate that the musk deer is rare in the area. Evidence of Musk Deer's presence were found on eastern and western aspects near Hobek, Chenbek and Kunaribek in Kabkot Nala. Western aspect may also be a good habitat for the species but during the survey season it was occupied by sepherds and their livestock and thus no evidence of Musk Deer was found there. However, in August, Musk Deer is found in juniper scrub above the birch zone in Kabkot Nala as most of the indirect evidence of its presence was found in that habitat.

Besides natural predation the most serious threat to the species is hunting. Hunting is done mostly to get the musk pod but the skin is also used to make bags. It is essential that other habitats e.g., Diwan Nala should be surveyed. Surveys should be done in suitable seasons e.g., in spring (as suggested by Green, 1995). More sophisticated instruments like night-scope must be used. Hunting should also be monitored.

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APPENDIX I

Field Itinerary

Sun	August 15, 1993	Islamabad	--	Pattan
Mon	August 16, 1993	Pattan	--	Paro
Tue	August 17, 1993	Paro	--	Shukl Ser
Wed	August 18, 1993	Shuki Ser	--	Bar Ser -- Ilo Bek
Thu	August 19, 1993	Ilobek	--	Bhinbek
Fri	August 20, 1993	Chinbek	--	Hobek
Sat	August 21, 1993	Hobek		
Sun	August 22, 1993	Hobek	--	Kunaribek
Mon	August 23, 1993	Kunaribek		
Tue	August 24, 1993	Kunaribek	--	Hobek
Wed	August 25, 1993	Hobek	--	Paro
Thu	August 26, 1993	Paro	--	Pattan
Fri	August 27, 1993	Pattan	--	Islamabad