

THE STATUS OF PSEUDOIS NAYAUR AND OVIS POPULATIONS IN NEPAL

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ABSTRACT

The status of blue sheep (Pseudois nayaur) and great Tibetan sheep (Ovis ammon hodgsoni) in Nepal was ascertained from a review of the relevant literature and more recent personal investigations. At the time of observation, three blue sheep populations were increasing and one was stable. Great Tibetan sheep may range south into the northern regions of Nepal, but reliable verification is needed. A call is made to initiate more biological fieldwork throughout the country.

INTRODUCTION

Historically, bharal (or blue sheep Pseudois nayaur) have ranged throughout the main Himalayan axis and the Tibetan Plateau (Blanford 1888-91). At their extreme western distribution, bharal have been observed in considerable numbers in upper Hunza and north of the Karakoram range in Pakistan (Roberts 1977). Bharal then ranged southeast through the Ladak region of northern India, and through northwest Nepal with southern populations existing in northwestern Bhutan and possibly in Sikkim along the Kanchenjunga range (Schaller 1977). The eastern limit of the species' distribution lies in western China, along the Tibetan-Szechwan border (Clark 1964, Sheldon 1975).

The precise range of the Tibetan argali (Ovis ammon hodgsoni) remains obscure (Schaller 1977), but the species appears to be limited to the Tibetan plateau and does not range south of the Himalayan axis (Blanford 1888-91), as do some populations of bharal. In general the Tibetan argali inhabits higher, drier slopes than bharal and has adapted to the rolling high steppes of the plateau, whereas the shorter, stouter bharal inhabits slopes near rugged cliffs. The extreme range of the Tibetan argali appears to be west from northern Ladak and east through the Plateau to areas north of Sikkim and Bhutan

(Blanford 1888-91). At their southernmost range, argalis cross the Tibetan border in a few places into Nepal (Schaller 1977) and Bhutan (Gee 1967).

The objective of this report is to ascertain the current status of bharal and Tibetan argali populations in Nepal from published field studies and more recent personal investigations.

METHODS

Censuses of bharal populations in Nepal were via direct counts as bharal herds are invariably found above treeline. In general, south facing slopes were searched from promontory points with binoculars and spotting scopes (Schaller 1973 and 1977, Wegge 1976 and 1979, Wilson 1981 and 1984). Herds seem to have preferred ranges, thus a reliable census is attainable after repeated counts of a continuous ridgeline. Once located, herds were enumerated and animals were classified to sex and age class. The age classes of male bharal differed between published reports, and these minor differences have been discussed by Wilson (1981).

RESULTS AND DISCUSSION

BHARAL

Information on surveyed bharal populations are presented in Table 1.

Table 1. Summary of surveyed bharal populations in Nepal.

Location	Population Estimate	Area (km ²) Surveyed	date(s) Surveyed	Source
Lapche	50	35	March 1972	Schaller 1973
Kanjiroba	500 - 700	550	Oct - Dec 1973	Schaller 1977
Shey	175 - 200	20	Nov - Dec 1973	Schaller 1977
Dhorpatan	800 - 900	960	Apr - May 1976 Sept - Dec 1976 Apr - Jun 1977	Wilson 1977 & 1981
Langu	(under study)		1982 to 1985	Jackson (pers. comm.)

Locations of these populations plus the historical range of the species in Nepal are presented in Figure 1. Densities of sheep compare closely between the surveyed areas: 0.8 - 0.9 bharal/km² in Dhorpatan, 0.9 - 1.3/km² in the Kanjiroba Range, and 1.4/km² in Lapche. The bharal at Shey were concentrated during the winter breeding season at a density of 8.8 - 10.0 per km² (Schaller 1977). A more precise measure of sheep densities in the Dhorpatan area indicated about 2.7 bharal/km² on sheep habitat above treeline (Wilson 1981).

Productivity of bharal in Nepal has been discussed by Wilson (1981), as have been differences between populations in herd structure, lamb production,

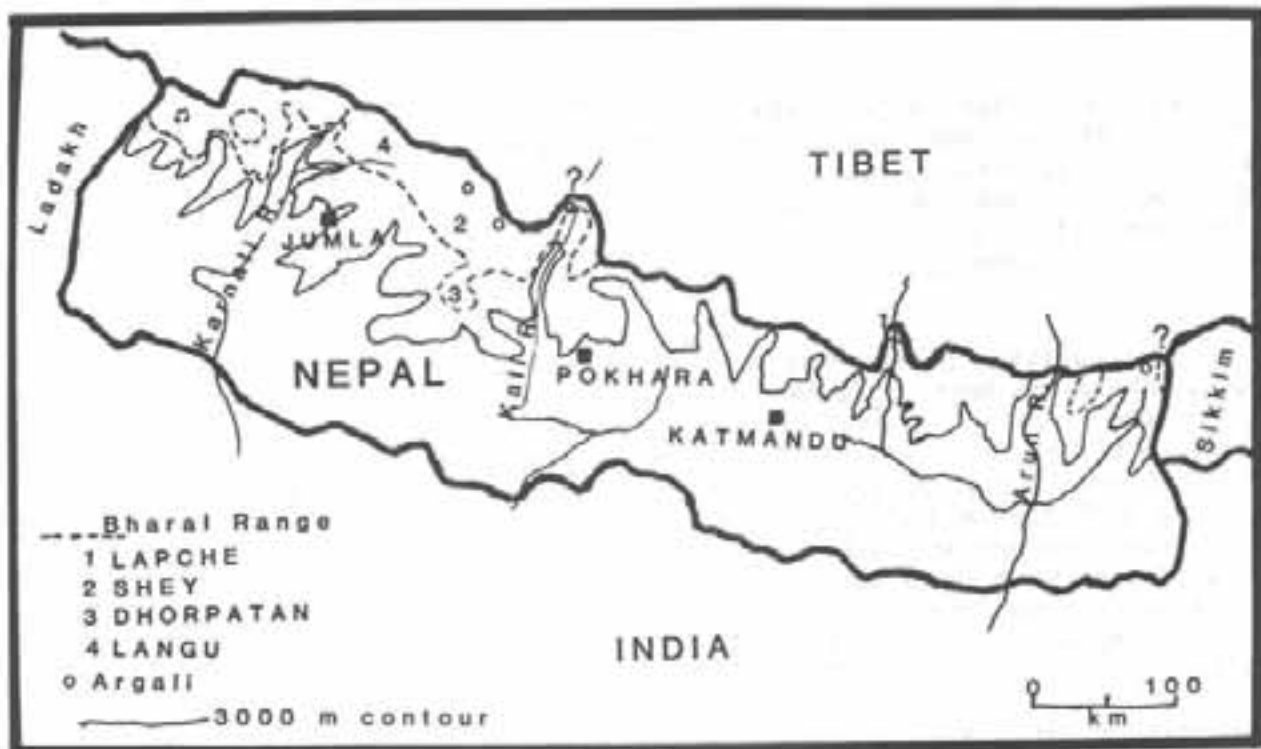


Fig. 1: The Status of *Pseudois nayaur* and *Ovis* populations in Nepal

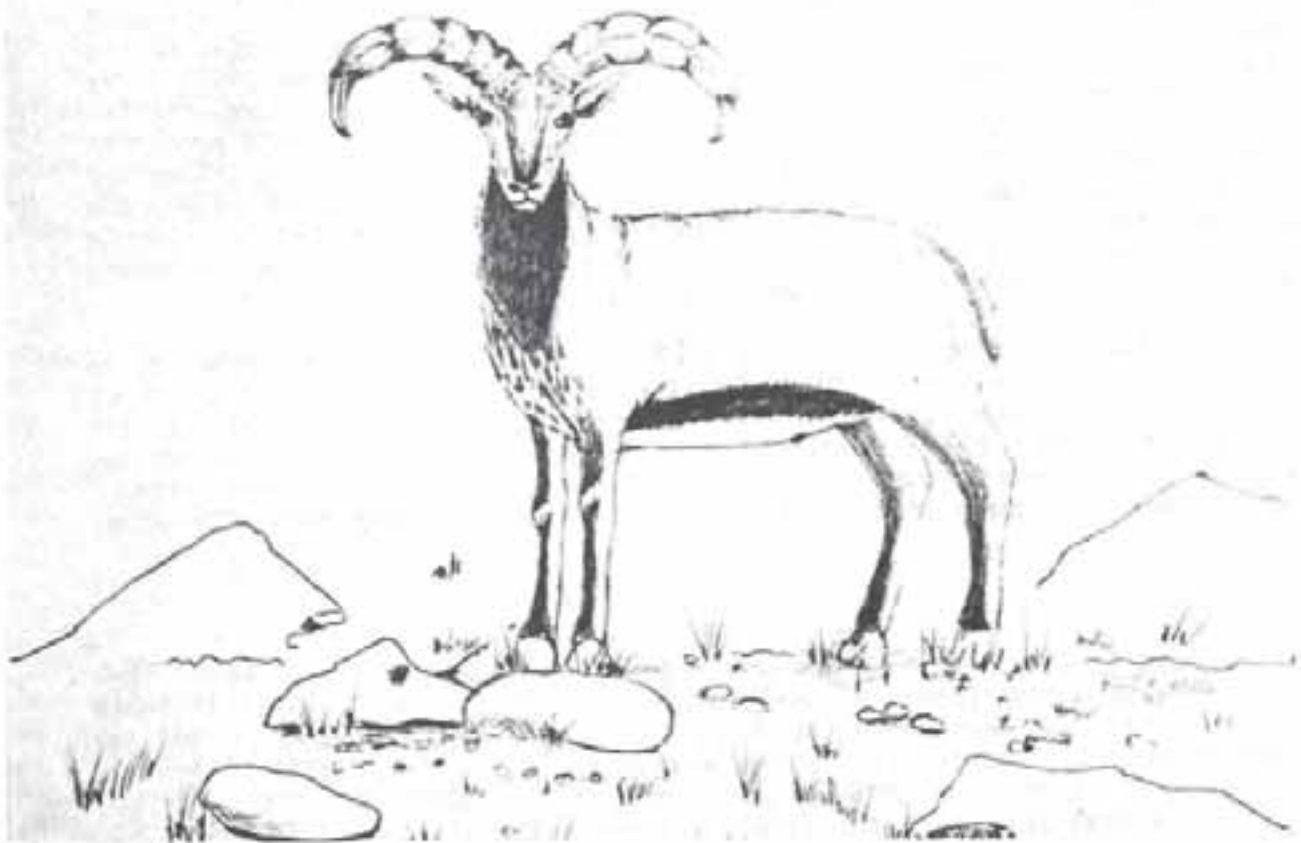


Fig. 2: Drawing of blue sheep by Rose A. Szabo

and sex ratios (Wilson 1984). Data from Schaller (1977) indicate that the male composition of the Shey population was more skewed than reported by Wilson (1984) (R. Jacks, pers. comm.). Analyses by R. Jackson and G. Alborn resulted in 42.3% males in the Shey population (Classes I - V) with 10% yearlings, 34.2% females, and 13.7% young. This resulted in a ratio of 124 males per 100 females, which compares closely with the Sun Dah population in Dhorpatan (Wilson 1984).

These population differences may assist in an explanation of the current status of bharal in Nepal. To briefly review: Dhorpatan and Lapche herds all had high pregnancy rates and high lamb/ewe ratios (75 - 83 young per 100 females) (Schaller 1973, Wilson 1981). These populations have also shown high yearling survival, e.g. 80 yearlings per 100 ewes in the Dhorpatan area (Wilson 1981). In addition, a small percentage of yearling females may possibly come into oestrous and produce lambs at 2 years of age (Wegge 1979). In contrast, reproduction at Shey Gumpa was reduced (40 young/100 females), probably due to range deterioration from overgrazing by domestic livestock, and also possibly due to predation by wolves (Canis lupus) and snow leopard (Panthera uncia) (Schaller 1977).

Mortality rates also differed considerably between populations. Due to the difficulty in aging females, all reported information has been on mortality rates of males. The Shey population appeared to be stable as the number of yearling males entering the adult age class was roughly equal to the number of adult males disappearing through death and emigration (Schaller 1977). In contrast, two populations were probably increasing at the time they were surveyed: Lapche (Schaller 1977) and Dhorpatan (Wilson 1981). A recent estimate (M. Busynat, pers. comm.) of 200 sheep in the Dogadi block of the Dhorpatan reserve compares closely with the 1977 census (Wilson 1977). In addition, the more recently studied Langu population is probably increasing (R. Jackson, pers. comm.). Major sources of mortality were snow leopard predation in Lapche (Schaller 1973), wolf and snow leopard predation in Shey (Schaller 1977), snow leopard and aboriginal hunters in Langu Valley (Jackson 1979), and trophy and aboriginal hunters in the Dhorpatan area (Wilson 1981). Common leopard (Panthera pardus) was present in the Dhorpatan area, but did not have a significant impact on the bharal population (Wilson 1981).

Trophy hunters select large adult male bharal, and the number of males in at least one Dhorpatan hunting block was seriously reduced after five years of heavy hunting pressure (Wilson 1984). Probably more detrimental is the selective harvesting of male bharal by aboriginal hunters who place poison stakes in areas where sheep frequent. Adult male bharal in rut race between herds of ewes and impale themselves more frequently than wary ewes with young (Wilson 1981).

TIBETAN ARGALI

The long-legged Tibetan argali inhabits open, rolling plateaus where they can observe and outrun potential predators (Clark 1964). Such habitat is found only in remote northern areas of Nepal, e.g. northern Dolpo district and Mustang district. Schaller (1977) saw several skulls in Dolpo district and was informed by villagers that argalis were once fairly common but their numbers had declined drastically in the past 10 years (approximately 1965 to 1975).

Reasons for the decline are unknown, but any argalis found in Nepal were at the extreme southern edge of their range and were probably at very low densities. In addition, severe winters with heavy snowfall and heavy wolf predation could possibly have decimated the population (Schaller 1977).

In April of 1977, I conducted interviews of villagers as they crossed the Jangla Bhanjyang pass enroute to their homes in Dolpo district. Photographs of snow leopard, common leopard, bharal, and Tibetan argali were individually shown to villagers and the villagers were asked to identify the species. I determined that residents of Dolpo could distinguish the different species whereas Nepali villagers in the Dhorpatan area could not separate the two species of leopard nor the two species of wild sheep. Dolpo residents informed me that Tibetan argalis were present but in small herds (4 - 6 sheep) and at very high altitudes (4700 m). The villagers indicated that argalis inhabit terrain in the northern reaches of the district which is probably near the Nepal - Tibet border.

Another area of Nepal where Tibetan argalis were once observed is Mustang district. Mustang is on the Tibetan plateau north of the Himalayan rain shadow. The area was most well known for the main trade route which ran north through the district into Tibet. I interviewed a Nepali who shot an argali in 1965 at 5325 m in a valley somewhere in southern Mustang. The argali was a full-curl ram - with broomed horns - that supposedly weighed close to 180 kg. I do not know how the weight was determined but I verified the species, sex, and age from four photographs taken by the hunting party. More recently, Mahesh Busnyat conducted a survey in the southern half of Mustang and found no evidence of argali populations being present in the area.

Locations of suspected Tibetan argali populations (Figure 1) are based on interviews by Schaller (1977) and this author. From available information, I assume that argalis have not been observed in Nepal since 1965.

CONCLUSIONS

The information currently available suggests that of four bharal populations surveyed during the 1970's and 1980's, two were stable and two were increasing. With the exception of the Langu Valley population (currently under study in Mugu district), information is old and is in need of updating.

Information on the status of Tibetan argali is in more serious need of immediate verification by scientists. The Tibetan argali has been virtually ignored by Indian and Nepalese biologists. Studies of the southern populations of this species may be the first step in more long-term population studies on the Tibetan Plateau.

An increasing number of Nepalese biologists have received training and/or education in Europe and the United States. Unfortunately, new research and fieldwork have not been forthcoming. Hopefully, the new Nepal Wildlife Trust, with input from the World Wildlife Fund, will improve both the quality and quantity of biological studies in Nepal. Such results will be dependent on biologists initiating fieldwork and utilizing their new skills and knowledge.

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