

## STATUS REPORT ON WILD SHEEP IN INDIA

David P Mallon, 98 Wilbraham Road, Manchester M14 7DR, England.

### ABSTRACT

Two species of wild sheep occur in India. The distribution of both is restricted to the Transhimalayan district of Ladakh, in the northernmost corner of the country. The population of both species is small, but conservation prospects are reasonably encouraging. The status of both species in India should be regarded as vulnerable.

### INTRODUCTION

Two species of wild sheep are found in India: Ladakh urial (*Ovis orientalis vignei*) and Tibetan argali (*Ovis ammon hodgsoni*). Within India both species occur regularly only in Ladakh, in the northeast of the State of Jammu and Kashmir, on the border with Pakistan and Tibet. Neither species is found south of the main Himalayan watershed.

Several works on the fauna of India (e. g. Prater 1965) list a third variety, Marco Polo's sheep (*Ovis ammon poli*). This is known in the extreme north of Hunza, on the Chinese border. Since partition of the subcontinent in 1947 this area has been on the Pakistani side of the cease-fire line.

Ladakh covers an area of 98,876 square kilometres, of which 37,555 have been under Chinese administration since 1962. At the time of the last census, in 1971, the human population was 105,291, excluding a large military presence.

Ladakh lies to the north of the Himalayan watershed and is entirely Transhimalayan in character. The climate is continental, with hot summers and severe winters. Aridity increases northwards and eastwards, as one crosses the main ridge of the Himalaya.

The whole area is mountainous and most of the land lies above 3000 metres above sea level. The lowest point is around 2700 metres while the highest summits exceed 7000 metres. The east of Ladakh consists of a high tableland

4000 metres above sea level, which forms the western limits of the Tibetan plateau.

The vegetation consists largely of steppe and semidesert plant communities, made up of species from a number of widely occurring Central Asian genera. There are no forests, and trees are restricted to thick scrub in valley bottoms and a few junipers (Juniperus spp.).

The two sheep species occupy different habitats: urial are found in the lower hills along major river valleys, while argali prefer the highlands of the eastern plateau. Their ranges overlap slightly, but they are usually separated altitudinally. In the latter part of the last century there were reports of interbreeding between the two species in Ladakh. One head obtained in Ladakh which had at first been assigned specific status (as Ovis brookei) was later presumed to represent a hybrid form. There are no recent records of urial-argali hybrids in India, or even of direct contact between the two species, which even in winter are normally found at different altitudes.

#### METHODS

Information on the wild sheep was obtained in the course of a survey of the mammals and ecology of Ladakh. Survey work was carried out on five expeditions, between July 1980 and April 1984, covering a total of 17 months in Ladakh. Information on the wild sheep was collected on every visit; two expeditions, in the winters 1980-81 and 1981-82, had as a primary aim a survey of the distribution and numbers of the Ladakh urial. Information was also obtained from printed accounts, from Forest Department personnel and from a large number of local informants.

#### LADAKH URIAL

##### Distribution and Numbers

Ladakh urial are distributed in northern India and Pakistan, and in parts of the southwest Pamirs in Afghanistan and the U.S.S.R. In India they occur only within Ladakh and they are distributed in a narrow band of low hills along the Shyok, Nubra and Indus river valleys and their tributaries (see Figure 1). Their range along the Indus runs from approximately 78°E, downstream to the cease-fire line with Pakistan, a distance of some 200 kilometres.

Within this range the distribution of urial is not continuous. In some places there are good populations, while in others they are seen only occasionally. They are least common in the central section of the Indus valley, which contains most of the large villages and is the most developed part of Ladakh, although two urial were seen on the outskirts of Leh, the main town, in Spring 1982, and small resident populations exist within 20 kilometres of Leh.

In an earlier report (Mallon 1983) I noted the apparent disappearance of the urial from the area around the Fotu La pass, which lies to the west of the Indus. Subsequent observations have shown that a small population does in fact occur there, though it is unclear whether this represents a previously overlooked remnant or a recolonization.

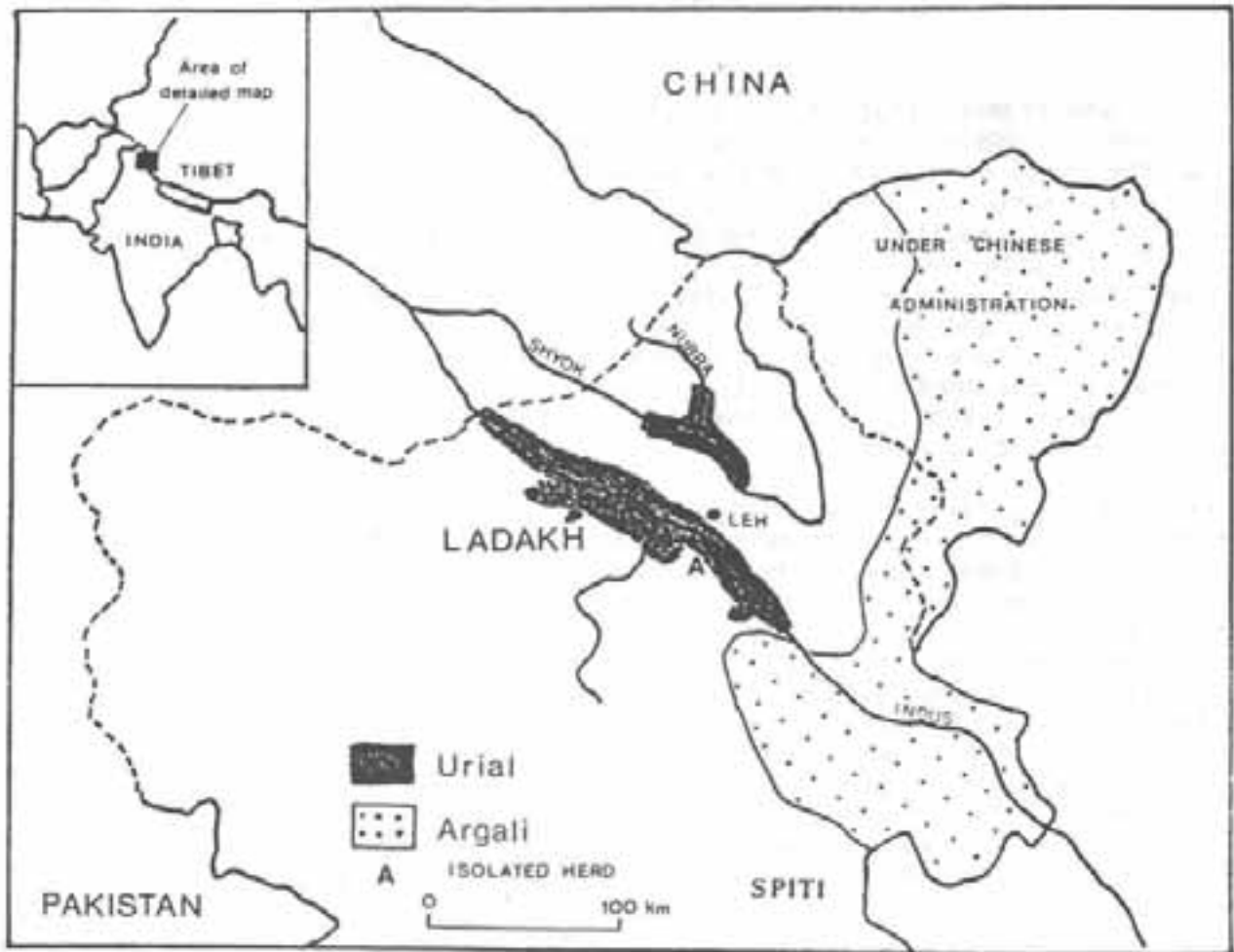


Figure 1: Distribution of Wild sheep in India.



Figure 2: Ladakh urial in the Indus valley.

There are reports that Ladakh urial also occur in Zaskar and northern Tibet (Blanford 1888-90; Prater 1965). I made several visits to Zaskar, an area to the south of Ladakh, where I found neither suitable habitat nor any trace of this species. Furthermore it was unknown to the Forest Department and to all the local inhabitants I spoke to. It seems likely that there has been some confusion with the Zaskar Range, whose northeastern end contains some urial territory. The occurrence of urial in Tibet was based upon a report by a single traveller, and was doubted by another visitor to Ladakh and Tibet (Rawling 1905). There have been no other reports or sightings since, and the species was not included in the list of mammals of Tibet given by Shen (1963). The habitat and altitude are both unsuitable and I regard the report of urial occurrence in Tibet as erroneous.

From early printed accounts by sportsmen and the testimony of local informants, it is clear that urial were once more numerous than they are today. It seems equally clear that overharvest has been the cause of this reduction, which has been most marked over the last 20 years (Ganhar 1979; Ranjitsinh 1981). This period coincides with the arrival in Ladakh of large numbers of military personnel and other outsiders. Urial in particular have suffered from overharvest, as they occupy the lower, more accessible slopes and the main road from Srinagar to Leh runs along the Indus valley through the middle of their range and offers easy access to most parts of urial territory. All hunting has been illegal since 1978, the decline in the urial population has been reversed and they are slowly increasing again. They are spread thinly throughout their full range, and in one or two places can be described as fairly common, though nowhere here are they abundant. I would estimate current numbers at 1000-1500.

#### Habitat

Urial in India may be found between 3000 and 4250 metres, most commonly in the lower part of this altitudinal range. Only 5 per cent of my records of urial were above 4000 metres.

In many places along the Indus valley a series of shales and sandstones has weathered to form steep, rounded hills which provide excellent wild sheep habitat, and these areas contain the largest urial populations. However, they also occur in rockier habitats such as are formed on the adjoining granite and although they prefer open areas, they frequently cross steep rocky terrain and cliffs when necessary.

These habitats can be summarized as arid montane steppe and semidesert; vegetation is scanty and the carrying capacity of the land is low. Snowfall is rarely heavy and south-facing slopes clear within a few hours of exposure to the sun. Urial range, in the lower hills along the major river valleys, coincides with most of the human settlements and the urial graze the same slopes as the domestic flocks. They can be seen near to, and often from, many villages.

#### Predation

Natural predators on the Ladakh urial are the wolf (Canis lupus), Snow leopard (Panthera uncia) and Golden eagle (Aquila chrysaetos). I have seen Golden eagles attempting to take urial lambs, though they do not pose a threat

to adult animals; the Snow leopard may prey on urial in winter, when it descends to lower altitudes, and the main predator is the wolf, which occurs throughout the urial range in India.

#### Competition

There is little competition with other wild ungulates: in some places the range of the urial adjoins or overlaps that of the ibex (Capra ibex) and bharal (Pseudois nayaur), but while both these species sometimes graze at low altitudes, they are usually found above the urial and they occupy a different habitat as they require steeper, rockier ground. Two species of hare (Lepus capensis and L. oiostolus) and, in a few places, marmots (Marmota bobak) also compete for grazing.

Of greater importance is competition with domestic livestock, mainly sheep and goats. Large flocks of these graze the same slopes around the villages as the urial. In addition, villagers collect the woody shrubs for use as fuel, thereby depriving both domestic and wild animals of fodder.

#### TIBETAN ARGALI

##### Distribution and Numbers

The range of the Tibetan argali covers the entire Tibetan plateau east at least to northern Bhutan. Within India it occurs regularly only in eastern Ladakh where the high plains form the western rim of the Tibetan plateau. It is here at the western limit of its world range. Very occasionally it may stray to other Transhimalayan districts of India such as Spiti (which lies to the southeast of Ladakh) and perhaps to the extreme north of Sikkim (Prater 1965) (see Figure 1).

Occasionally, small groups of argali wander westwards into the mountains of central Ladakh. Since the winter of 1979-80 a small group of argali has been established around the 4900 metre Ganda La pass on the watershed between the Indus and Markha valleys, to the south of Leh, and some 50 kilometres west of their normal range. In autumn 1981 I observed a group of six argali feeding on the north side of this pass. The vegetation around the pass is similar to the prevailing vegetation in their normal range on the eastern plateau. Argali were still present there in April 1984.

No detailed census of the argali population in India has been carried out, but it is unlikely to number more than a few hundred. Their numbers appear to be stable. The enormous horns of the males have long made it a much sought-after trophy. Like the urial, it has been protected since 1978 and it is further protected by the remoteness of its habitat. In recent years there have been several attempts from abroad to persuade the State government to grant hunting licenses for argali, but these have so far been unsuccessful.

##### Habitat

The habitat in India consists of rolling hills and stony valleys at altitudes between 4500-5000 metres. In winter these sheep may descend to the shelter of the lower valleys, but have few opportunities to descend below 4100 metres.

The climate of the eastern plateau is more arid and more severe than in other parts of Ladakh. It freezes on most nights of the year, and strong cold winds are frequent. The dominant plant is Caragana, a thorny shrub. These bleak highlands support a very small human population, and the main inhabitants are a few semi-nomadic Tibetans who wander the area with their flocks.

#### Predation and Competition

The only natural enemies of the argali in India are the wolf and Snow leopard. The latter species is rare on the eastern plateau and the main predator is the wolf.

The only other ungulate species whose range coincides with that of the argali in India is the bharal, which in general occupies steeper and rockier habitats. Hares, marmots and other small rodent species also compete for grazing.

#### CONSERVATION AND MANAGEMENT

##### The Social Background

Certain aspects of the social conditions in Ladakh have had important consequences for wildlife conservation. Firstly, the human population is very small and Ladakh has the sparsest population density of any area in India. The rate of increase has always been very low, as a result of the traditional practice of polyandry, the comparatively high proportion of the population who spend celibate lives in the Buddhist monasteries, and a very high rate of infant mortality.

Since 1962, and following the border war between India and China, many changes have taken place in Ladakh. A big development plan was launched; there was a large influx of military personnel and administrators, and in 1974 Ladakh was opened to tourists. This sudden increase in outside contact helped to weaken traditional social patterns and the decade 1961-71 saw a 17 percent rise in the population. However, there was not a significant increase in the rural population as many people were able to obtain employment with the administration, armed forces and in the tourist industry. Thus, there has never been the severe pressure on the land from a rapidly expanding human population that has occurred in most other parts of the Himalaya and Karakoram mountains.

Secondly, the predominant religion in the area under discussion is Tibetan Buddhism, one of whose precepts forbids the taking of life. While this prohibition has never been universally observed, it has greatly reduced the number of hunters active in Ladakh.

##### Hunting

Some hunting of the wild ungulates in this part of northern India for meat has always gone on, but never on a large scale. Traditionally, guns are the exception rather than the rule in all the areas where urial and argali occur, and many people in Ladakh are strongly opposed to hunting. Systematic trapping or poisoning of wildlife as happens, for example in parts of Nepal, is unheard of.

From about 1860 to 1940 many British sportsmen visited Ladakh in pursuit of trophies, including urial and argali. The heads of argali were especially prized. Strict game laws were in force, and some reduction in the numbers of the wild sheep species was noted, but good populations survived until recently.

There was a steady increase in hunting after 1948, and again after 1962, with the arrival of many non-Buddhist newcomers, many of them armed with modern weapons. As noted above, the urial in Ladakh suffered most. In 1978, a wildlife protection law was introduced by the State government of Jammu and Kashmir, which outlawed the hunting of all animals. The Forest Department is responsible for enforcing this law, although it is not easy to police such a large area with a limited number of personnel. Some illegal shooting still goes on, but on a small scale. The Forest Ranger in Leh has secured several prosecutions against poachers and the vigilance of the Forest Department certainly deters much illegal hunting.

### Conservation

The wildlife protection law has removed the biggest threat to the wild sheep population in India. The argali, in its remote highland range is unaffected by development activities and any changes in the tiny human population are of negligible significance. Urial however, which occupy a lower habitat in the most populated part of Ladakh are more vulnerable to a range of threats. They are the easiest target for poachers. Any increase in the rural population would result in the collection of more potential fodder for fuel, while an increase in the numbers of domestic animals would increase competition for grazing. The proximity of large numbers of domestic animals also carries the risk of possible introduction of disease or parasites to the urial population. A new road at present under construction will run for 40 kilometres along the northern edge of the best urial range in the Indus valley. As the main road already runs along the southern edge of this, it is to be hoped that the Forest Department will carefully monitor the effects and take steps to prevent any increase in poaching that this improved access will provide.

A series of reserves and national parks has been designated in Ladakh. None of these specifically protects wild sheep, but the largest of these, the Hemis High Altitude National Park, contains two separate urial populations and the very small, isolated group of argali around the Ganda La. If properly wardened, it should provide them with full protection.

Little wildlife research is carried on in Ladakh owing to a shortage of personnel in the Forest Department. Recently however, a separate Department of Wildlife Protection has been established by the State government, and this may allow more resources to be devoted to wildlife.

### CONCLUSIONS

Wild sheep in India have a very restricted distribution and the two species which occur are represented by small populations. These remain vulnerable to outbreaks of disease and exceptionally adverse weather conditions. However, both species appear to be stable at present, and urial at

least are increasing slowly. The status of both species in India should be regarded as vulnerable rather than endangered. They have full legal protection and the benefit of unique social and demographic conditions which save them from the severe pressure which occurs in many neighboring areas. The prospects for the survival of both species in India at current levels are good. However some measures could be taken to aid the conservation of wild sheep. Reserves created specifically for urial and argali should be set up in the most favourable parts of their ranges; tighter controls should be put on illegal shooting, especially along the Indus; regular monitoring should be conducted of the remaining wild sheep populations to census numbers and identify matters of ecological concern. Finally, an overall management plan is needed, which will consider the needs of the wild sheep populations in Ladakh in the light of changes and development in Ladakh so as to ensure their continued survival in India.

#### LITERATURE CITED

- Blanford, W. T. 1888-90. The fauna of British India: Mammalia. Taylor & Francis, London.
- Ganhar, J. N. 1979. The wildlife of Ladakh. Haramukh Publications, Srinagar.
- Mallon, D. P. 1983. The status of Ladakh urial Ovis orientalis vignei in Ladakh, India. Biol. Conserv. 27:373-381.
- Prater, S. H. 1965. The book of Indian animals. Bombay Natural history Society, Bombay.
- Ranjitsinh, M. H. 1981. Himalayan fauna. In the Himalaya: aspects of change. Ed. by J. S. Lall, 64-76, Oxford University Press, New Delhi.
- Rawling, C. G. 1905. The great plateau. Edward Arnold, London.
- Shen, S. 1963. Faunal characteristics of Tibetan mammals and the history of their organization. Acta Zoologica Sinica 15:139-150, (in Chinese).