

## WILD SHEEP IN MONGOLIA

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### ABSTRACT

The Argali is the only species of wild sheep which occurs in the Mongolian People's Republic. It is widely distributed in suitable habitat in most of the mountainous parts of the country, though it has disappeared from two areas. During the first half of this century, shooting reduced the numbers of Argali, which have enjoyed protected status since 1953. Stocks are now good, and the survival of an adequate Argali population in Mongolia seems assured for the foreseeable future. Hunting of Argali by foreigners generates hard currency earnings for the Mongolian government.

### INTRODUCTION

The Mongolian People's Republic (MPR) was formerly known as Outer Mongolia, as distinct from Inner Mongolia which is a part of China. In this paper, the term 'Mongolia' is used to refer exclusively to the territory of the MPR.

The MPR is a large country covering an area of 1,565,000 square kilometres in northern Central Asia, situated between Eastern Siberia and China. It is mountainous in character, most markedly in the north and west; the average elevation of the country was estimated by Murzaev (1948) to be 1,580 metres above sea level.

Murzaev also divided the MPR into six regions, based on vegetation types, and wild sheep occur within four of these: alpine, steppe, desert and semidesert. Full descriptions of these zones, together with lists of the predominant plant species occurring therein, can be found in Murzaev (1948) and Thiel (1958).

The climate of the MPR is continental, with severe winters, large diurnal and annual variations in temperature, low relative humidity and low precipitation, of which approximately 70 percent falls during the summer months. The amount of precipitation varies from around 50 millimetres annually in parts of the south, to over 400 millimetres in some of the northern mountains. The average number of days with snow cover increases from 60 - 70 in the south, to around 170 in the north.

## ARGALI IN THE MPR

The only species of wild sheep which occurs in the MPR is the Argali Ovis ammon ('argali' is the Mongolian word for this animal). A detailed account of the Argali in Mongolia was given by Bannikov (1954) based on his field work from 1942 to 1945. Since then, short, overall accounts with distribution maps have been provided by Shagdarsuren (1966), Dulamtseren (1970) and Sokolov & Orlov (1980); several other papers have referred to the Argali in particular localities.

## DISTRIBUTION

The distribution of Argali in the MPR covers almost all of the mountainous areas of the country. The extreme south-eastern corner of the MPR contains a small part of the Hingan mountains; Argali do not occur there, although they are found in other parts of the Great Hingan, in China (Corbet 1978).

Argali are no longer found in the hills to the east of Lake Hovsgol the Hentei mountains and the hills on the north bank of the R. Onon (Onon Steppe). According to Bannikov (1954) quoting Radde, Argali were found in these areas in the first half of the nineteenth century, but in small numbers. Radde also said that they disappeared from the Onon Steppe following an unusually heavy snowfall in the winter of 1931-32. Bannikov (1954) also quoted a Mongolian informant as saying that Argali were occasionally met with in Hentei in the early part of this century, but had since died out. Argali have also become extinct in Transbaikalia, the adjoining part of the U.S.S.R. (Heptner, Vasimovich & Bannikov 1961). Possible former links between these Argali, those of Mongolia, and the Argali of the Great Hingan were referred to by Nadler et al (1973).

Current Argali distribution in the MPR covers all the remaining mountains and can be divided for the purposes of description, into four areas: the Lake Hovsgol region; Hangai mountains; Altai mountains; and the Transaltai Gobi.

Argali occur to the west of Lake Hovsgol, in the mountains forming part of the watershed of the upper Yenisei; that is, on the Horidil Sardag and Bayan Uul ridges immediately west of the lake, and on the Ulaan Taiga ridge. A short way to the south-west, some Argali are found in the hills forming the eastern end of the Tannu Ola range, around the upper reaches of the river Shavaryn.

In Hangai, Argali occur in the alpine zone, running along the whole of the main ridge; in the Bulnain Nuruu, lying between Hangai and Hovsgol, on the north bank of the river Ider; in the Han Hohii range which runs westwards from the north west end of the Hangai; and, according to Shagdarsuren (1966), also in the Jelgerhangai, a low (1913 metres), isolated range in the semidesert zone, to the south-east of Hangai proper.

In the north-west MPR, in addition to the Altai, Argali are found on the Turgen Jul massif and in the Saliugem range along the MPR-USSR border. Argali are found along the entire Altai range, which runs from the north-west corner of the MPR, south-east then east, for about 1,500 kilometres. It is usually divided into two parts, the Mongolian Altai (the higher, western part) and the Gobi Altai (the lower, eastern section).

The Transaltai Gobi is the area lying to the south and south-east of the Altai mountains. It consists of desert and semidesert, containing numerous isolated hills and mountains. Argali occur on virtually all of these mountains; Bannikov (1954) said that they could be found everywhere in the Transaltai Gobi, except in desert basins and the widest valleys. In the east of this area, where the easternmost spurs of the Altai fall away into the desert, Argali occur in the lowest desert hills, approximately up to longitude 110°E. At one time they ranged as far as Zamyun Uud, 112°E, but according to Bannikov (1954) none had been seen there over the previous few decades.

A map showing the distribution of Argali in Mongolia is given in Fig. 1.

#### HABITAT

Argali are not distributed uniformly within the range described above; factors affecting distribution and numbers in a locality include habitat suitability, human disturbance, competition with domestic livestock, and hunting pressure.

In the Altai and in northern Mongolia, Argali are high mountain animals, restricted to the upper slopes and alpine zones, though in the Gobi Altai, they may occasionally descend to lower valleys. These habitats contain a variety of alpine, steppe and semidesert plant communities. In the Transaltai Gobi, Argali occur in a desert environment and at all altitudes, being found much lower than elsewhere in the MPR, and at all levels on the mountains. At the eastern end of their range, they occur in low hills of 1000 - 1500 metres in altitude.

Within this altitudinal range, Argali tolerate a variety of habitat types, so long as they are treeless and in general they avoid rocky and precipitous areas, which in the MPR are usually occupied by the Ibex Capra ibex sibirica. Argali and Ibex have a sympatric distribution on the MPR, and are separated by habitat. Argali prefer open slopes which may be steep or gentle, plateaus and ridges, montane valleys and an absence of extensive, rocky terrain and cliffs. Ibex are rarely seen away from rocky areas, ridge crests and cliffs.

On visits to one area in the Gobi Altai, and three separate areas in the Mongolian Altai, including the Hoh Serh reserve, in 1976 and 1977, I found that the difference between Ibex and Argali habitat was immediately apparent. In all the localities, Ibex were seen in areas of large cliffs, ravines and expanses of precipitous and broken, rocky terrain. Argali occupied broad alpine valleys, open slopes that were steep but not precipitous, flat summits, small plateaus and a series of rounded ridges at around 3000 metres.

In the Transaltai Gobi, Bannikov (1954) said that Argali avoided rocky ridges and wide areas of Saxaul (Haloxylon) and Ephedra desert, though they crossed the latter when necessary. Kowalski (1968) said Argali were usually seen in badlands at the foot of mountains, in desert vegetation.

According to Bannikov (1954), Argali habitat in Hovsgul and the Tannu Oia consists of steppe plateaus, treeless ridges and wide steppe valleys. Argali avoided any kind of forested localities, and were rare on cliffs, where they were replaced by Ibex.

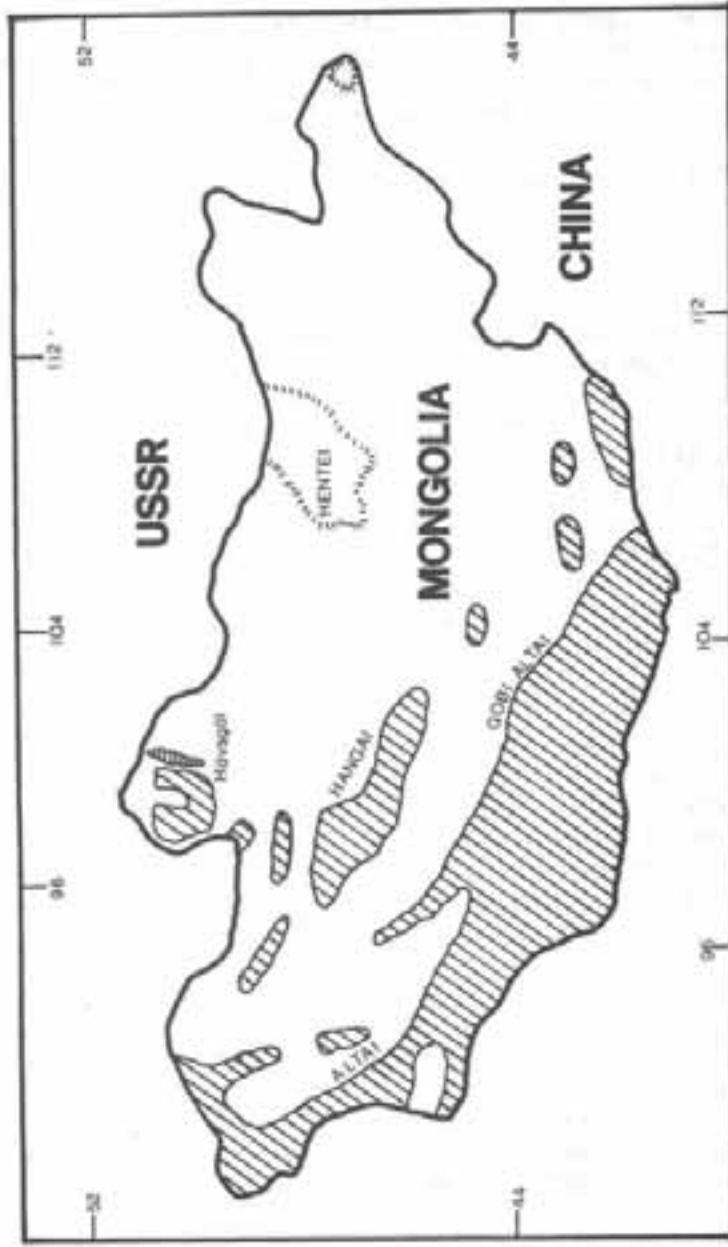


Figure 1: The distribution of Argali in the MPR.

## NUMBERS

Hunting wild animals for meat and furs has always been a part of the way of life in Mongolia, and expert hunters are greatly respected. Argali have long been hunted for their meat, and, in more recent times, for the horns of the male animals, which are regarded by some people as a desirable trophy. There are a number of accounts of such hunting by European sportsmen and travellers (see, e.g. Demidoff 1900; Carruthers 1913).

The amount of hunting in the MPR has increased steadily during this century with the growth in the human population, improved access to remote regions offered by motor vehicles and the introduction of modern firearms, with their greater range and accuracy.

Such an increase in hunting inevitably resulted in a decline in numbers of many species of wild mammal, including the Argali. According to Shagdarsuren (1966), the decrease in the Argali population due to hunting was most marked from 1940 to 1950. This may have been due in part to an increased need for meat from wild animals to replace meat normally provided by domestic herds, much of which at this time was sent by the Mongolian government to the USSR as a contribution to the Soviet war effort.

In 1953 the Argali was declared a protected species in the MPR, and Shagdarsuren (1966) said that its numbers had recovered. He described it as rare in places, and most common in the three contiguous provinces of Hovd, Gobi-Altai and Bayan Hongor. These three provinces together contain a large proportion of the Altai range, and most of the Transaltai Gobi. Zevemid and Dawaa (1973) also said that the Argali population had increased, thanks to the protection measures taken.

Kowalski (1968) described Argali as fairly numerous in those parts of the Transaltai Gobi which he visited, and Dash et al. (1977) reported that they were common in another range of the Transaltai Gobi, the Edrengiin Nuruu.

In the Gobi Altai, Argali appear to be common in the reserve on Gurvan Saihan, and local informants told me that they were common on Baga Bogd and Ih Bogd - where Formozow (1931) had said they occurred in significant numbers.

In the Mongolian Altai, I found Argali fairly common in the Burhan Buudai mountains, where groups of up to 85 animals were seen, and there are said to be good numbers in the reserve on Hasagt Hairhan, and elsewhere. Dzieciolowski et al. (1980) reported on the Hoh Serh reserve in the Altai, which was set up specifically for the conservation of Argali and Ibex. (In their paper, the authors used a Polish transliteration from the Mongolian and spelt the name of the reserve Khuhsyrh; I have followed a conventional English system of transliteration and spelt it Hoh Serh). These authors estimated that a population of 600 Argali lived in the reserve, which covers 835 square kilometres. They reported a mean density of 0.8 - 1.2 animals/square kilometre for Argali over the whole reserve, and 2.0 - 2.3 animals/square kilometre in a part of the reserve constituting Argali habitat.

During a two year stay in Mongolia, 1975 - 1977, I was able to obtain information on the wildlife from many people: colleagues at the State University, biologists, local experts, hunters and local people from all parts



of the country. The consensus of opinion among all these informants was that Argali existed in good numbers in the MPR, were common in several places, and were not in any way endangered.

## HUNTING AND CONSERVATION

### HUNTING

Reference was made above, to the role played by hunting in the reduction of the Argali population, and it was noted that Argali were given protected status in 1953. This protected status was renewed in the new game laws of 1972, which also set a heavy fine of 2000 tugriks for illegal shooting (Zevemid, Stubbe and Dawaa, 1974). Hunting remains a popular activity in Mongolia and there are many licensed hunters, but the game laws are strictly applied, and there can be little doubt about their effectiveness.

Following the recovery in numbers of Argali, some carefully controlled shooting is now allowed. Small local quotas are set in certain areas, depending on local abundance, and in three areas Argali hunting is reserved for foreigners. The three hunting camps are in the High, Middle and Low Altai, and charges vary from one to the other, depending on the expected size of the trophies. The largest rams are found in the High Altai, which is the most expensive area. In 1981, the charge for ten days hunting plus one Argali and one Ibex was US \$16,500; an additional Argali cost \$9,000. The Basic hunting charge in the Middle Altai was \$10,000 and \$4,000 for an extra ram, while in the Low Altai the figures were \$6,000 and \$3,000. As there appears to be no shortage of people willing to pay these sums for an Argali trophy, the government of Mongolia annually earns a considerable sum of foreign exchange. The Argali population is regularly monitored to ensure that the numbers shot are not excessive. A brief news item (Anon. 1982) said that 300 Argali were shot annually in Mongolia.

### RESERVES

Several reserves protect Argali populations: the Hoh Serh reserve covering 835 square kilometres in the Mongolian Altai; Hasagt Hairhan, also in the Mongolian Altai, covering approximately 300 square kilometres; the Yolyn Am reserve in the Gurvan Saihan group in the Gobi Altai; and the Great Gobi Reserve which covers 45,000 square kilometres in the Transaltai Gobi. There are also several hunting reserves.

### COMPETITION AND DISTURBANCE

The only other wild ungulate species widespread in the mountains of Mongolia where Argali occur, is the Ibex, which as indicated earlier, is generally separated on habitat grounds. Bannikov (1954) quoted an instance in the Gobi Altai where Argali were grazing in the same valley as the Goitered gazelle Gazella subgutturosa and Wild ass Equus hemionus. Both these species occur widely in the Transaltai Gobi and are potential competitors for grazing there. Other herbivores are Hares Lepus spp., Pikas Ochotona spp., Marmots Marmota spp., and several other small rodent species.

In 1971, there were over 22,500,000 head of domestic livestock (cattle, yaks, sheep, goats, camels, horses) in the MPR, which in many areas are in direct

competition for grazing with Argali, and human disturbance must also have an adverse effect on the Argali population. However, despite the large numbers of livestock, there remain many places where Argali can graze undisturbed, and although the human population has risen sharply in recent decades, the average density remains low.

According to the government statistics (Central Statistical Board 1971) the mean population density in the MPR rose from 0.47 persons/square kilometre in 1935, to 0.79 persons/square kilometre in 1970. Taking together the three provinces listed by Shagdarsuren (1966) as having the largest numbers of Argali, the mean density in 1970 was 0.49 persons/square kilometre, and in the Transaltai Gobi, the figure is even lower.

#### PREDATION

Lynx Felis lynx and Fox Vulpes vulpes may kill Argali lambs, but the only carnivores occurring in the MPR which could attack adult Argali are the Snow leopard Panthera uncia and Wolf Canis lupus. Both species are known to prey on Argali, but in neither case do Argali appear to constitute a major prey item. Snow leopard prey mainly on Ibex, and take Argali more rarely (Bannikov 1954), while wolves are more dependent on domestic livestock. My local informants were agreed that the wolf was the main natural predator on Argali, but that only a small number were taken.

#### SUBSPECIES

The systematics of Ovis are not settled, and several arrangements have been proposed at both specific and subspecific level. In so far as the MPR is concerned, seven races of O. ammon have been reported by various authors. There is general agreement that the nominate subspecies occurs in the Altai and northern Mongolia, and that a different form occurs in the Transaltai Gobi. The forms that have been listed are darwini, jubata and kozlovi but there is little agreement on which of these forms occurs, or their relations to each other.

#### CONCLUSION

The government of MPR is committed to the conservation of its wildlife; Article 1 of the 1972 game laws states that the object of these laws is to protect the stock of wild animals in the country, which it regards as one of its most important natural resources. There is the added incentive, in the case of the Argali, of a regular source of foreign exchange from hunting, provided stocks are maintained. The former nomadic way of life of the Mongols has given them a strong sense of identity with the land and public support for the conservation of wildlife is readily available.

In addition to these advantages, game laws are strict, human population density is low, and reserves exist, that will further protect the Argali. Since its numbers are now good, the survival of a viable Argali population in the MPR seems assured for the foreseeable future.

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