

Density and Distribution of Ibex and Argali Sheep in Mongolia

Introduction

Argali sheep and ibex, both high-mountain ungulates, are main prey of the snow leopard (*Uncia uncia*, Schreber 1776). Therefore, the distribution of snow leopard generally parallels that of argali and ibex, although sometimes the snow leopard's distribution will be smaller and contained within the area of argali and ibex.

In order to study and protect the snow leopard and retain its numbers and distribution, it is necessary to study, identify and protect argali and ibex populations: this paper summarizes such information for Mongolia.

Status and Distribution of Ibex

The ibex (*Capra [ibex] sibirica*, Pallas 1776) is distributed through the mountainous areas of the Mongolian Altai, Gobi Altai, in the west and central part of the Khentei mountain range, and also in the mountains of Gobi, near Khovsgol lake and in Darkhad. It is widespread in Uvs, Khovsgol, Gobi-Altai and Southgobi provinces, but has a normal population in Bayan-Olgii, Bayankhongor, Uburkhongai, Zavkhan and Khovsgol, and is rare in Arkhangai and Middle Gobi provinces.

Since 1974 we have studied the distribution, ecology, and populations of ibex. The mountain ridge Tsagaan shuvuut, Turgen, Yamaatiin um in Bokhmeron of Uvs province, Deluun Mountain, Ikh-baga Yamaat in Bayan-Olgii, Baatarkhairkhan and Khadjin Mountain ridge in Khovd province, Khar yamaat uul, Kharaat uul, Burkhan buudai uul in Gobi-Altai province of Mongolian Altai mountain range, the Gobi Altai mountain range mountains and mountain ridges of Ikh-Baga Bogd uul, Jinst in Bayankhongor province, Sevrei, Zoolun, Gurvansaikhan, and Ikh-baga Nomgon in the South Gobi province have the highest densities of this ungulate. Ten to 20 ibex and sometimes more per 1,000 hectares of suitable habitat have been recorded. Areas in Tonkhil sum-Bambagar Yamaat, the Tsogt sum-Tsogt mountain ridge of Gobi-Altai province, and some of the desert soms (administrative unit roughly equivalent to a township) of Bayankhongor province have registered 4-6 ibex per 1,000 hectares of suitable habitat. In the Transaltai Gobi of the mountains Atas and Inges there are 3-4 ibex per 1,000 hectares within areas of suitable habitat. Other mountains in Transaltai Gobi have low densities.

The Khangai mountain range can be compared to the Gobi Altai and Mongolian Altai ranges, although it has smaller numbers and the ibex distribution is more limited. In parts of the Zavkhanmandal, Santmargats, Aldarkhaan soms of Zavkhan province the average density is 0.8-2 ibex per 1,000 hectares, while in the mountains next to the highest parts of Khangai mountain, the density ranges from 0.8-1.4; around the pass of Eg, at the beginning of Chuluut River, the ibex density averages one animal per 1,000 hectares.

The Khovsgol area has three large populations of ibex which are separated from one another: (1) Bayan uul-Munkh saridag: here in Temeeen khuzuu uul, Ulaan khad, Jar mountain ridge there are large numbers of ibex; (2) Khoridol saridag: high densities are also found in the Yamaat uul, Shagiin khabtaga, and Arsal at the beginning of Beltes river; and (3) Ulaan taiga: populations of 6-10 animals per 1,000 hectares are known from areas like Yamaat gozgor, Maraat, Soosognog, and Ulaan. But

in Zostiin ereen, Khanjit khad, Khosdog (beginning of Urt nuur), and the headwaters of the Tsagaan river, the density is lower, estimated at 0.5-1 ibex per 1,000 hectares (Bazardorj and Sukhbat 1984).

The average density of ibex in Mongolia is placed at 1-2 individuals per 1,000 hectares. Gruzdev and others (1985) estimated the total population at 40,000-50,000 ibex, but the authors of this paper believe the number is closer to 60,000 ibex.

Status and Distribution of Argali Sheep

Argali sheep (*Ovis ammon*, Linnaeus 1758) are present throughout the Mongolian Altai and the Gobi Altai. In the Transaltai Gobi and Khovsgol, a few have been seen (Bannikov 1954, Sukhbat 1977, Bazardorj and Sukhbat 1984). Argali are also widespread in the provinces of Khovd, Gobi-Altai, and South Gobi, at "normal" densities in Uvs, Bayan-Olgii, Bayankhongor, Uburkhongai, and Eastgobi provinces, but rare in some soms of Zavkhan, Middle Gobi provinces (Sukhbat and Shagdarjav 1990).

The distribution, number and ecology of argali has been studied from 1974 until 1994 in the Mongolian Altai range, from 1978 until 1990 around Khovsgol lake and in Darkhad, from 1980 until 1990 in the Khangai range, and from 1986 until 1992 in the Transaltai Gobi. Research material shows that in Googiin nuruu (Mankhan, Most, Tsetseg soms of Khovd province) and in Myangan argaliin nuruu, 6-8 argali per 1,000 hectares were recorded. In the areas of Uvs, Bayan-Olgii provinces, which have argali, other soms of Khovd province that were not mentioned above, and in Tonkhil, Bugat, Tseel, Khaliun, Biger, Tsogt, and Erdene soms of Gobi-altai province, there are an estimated one to three argali per 1,000 hectares. These mountains all belong to the Mongolian Altai range.

By comparison, the Gobi Altai mountain range supports higher argali densities. The density of argali per 1,000 hectares in the mountains of Zoolun, Sevrei, Ikh-Baga Nomgon, and Buur is ranges from 9-15; in the Gurvansaikhan, Bayanboriin nuruu and Bayantsagaanii nuruu there are 6-9 per 1,000 hectares; near Ikh-Baga Bogd and Arts Bogd the density is two or three per 1,000 hectares, and in Jinst mountain it consists of only one or two per 1,000 hectares. In some parts of Eastgobi and Middlegobi provinces only small numbers of argali were recorded, on the order of 0.2-0.8 animals per 1,000 hectares of suitable habitat.

The Transaltai Gobi, Dzungariin Gobi, and the southern Gobi mountains have the lowest densities of argali, between 0.2 and 0.8 animals per 1,000 hectares of suitable habitat.

Populations are larger in the western part of Khangai. In the mountains Khar bor els (an area that includes the Urgamal, Zavkhanmandal, and Santmargats soms of Zavkhan province), in Buurluud som of Zavkhanmandal, Alag uul som of Yaruu, and Aldarkhaan som, the density of argali has been recorded as 0.8-1.8 animals per 1,000 hectares of suitable habitat. Near Otgontenger mountain the estimate is 0.2-0.8, in some areas in Khangai sum of Arkhangai province there are 0.2-0.5, and at the beginning of the Chuluut River near the Eg pass there are 0.5-1 argali per 1,000 hectares of suitable habitat.

N. Davaa and others (1973) researched the distribution of argali in the Khovsgol mountains and indicated that they were living in Nariin khem, Gurvan khem, Toshongiin ar and near the beginning of the Nariin Beltes river. Our research showed that there are only a few argali living in Arsai, at the beginning of Beltes river in Ulaan uul som and Ulaan khad, Airag uul, and along the northern slopes of Badarchiin duukh uul or Khorom tal. Here the density of argali averages 1.8 animals per 1,000 hectares.

Overall, the average density of argali in Mongolia is 0.5 individuals per 1,000 hectares of suitable habitat for a total population of 18,000-20,000 argali (Gruzdev and others 1985). Our research suggested there are some 25,000 argali present in Mongolia.