

THE SNOW LEOPARD STATUS IN RUSSIA.

By

Poyarkov A.D., Subbotin A.E.

Institute of ecology and Evolution, Russian Academy of Sciences

This paper is based on same literature information, and 9 expedition sessions in Southern and Eastern Altay, Western, Central and Eastern Tyva, Khakassia, and Western Sayan.

Snow Leopard is one of few large mammals permanently inhabiting highlands of Central Asia. In Russia, its distribution is limited by mountain ridges of Southern Siberia. It is of occurrence in the Altay-Sayan uplands where it inhabits mainly the alpine and subalpine zones, mountain steppes, and upper portion of the forest zone. About 200 years ago, its range was much wider and extended from Altay Mountains to the Lena river basin. It shrunk considerably by the early 20th (particularly to the South and West). According to some data, extinction of Snow Leopards in the Baikal and Transbaikalia regions was preceded with elimination of Siberian mountain goat and argali. Snow Leopard is reported to be regularly observed in the South of Chita region, but we have no reliable evidences of its local, residential population in Transbaikalia (Matyushkin, 1981; Medvedev 1992).

In the middle 80th, Snow Leopard was noticed in the Kuznetskii Alatau and Kanskoe Belogor'e, i.e., 300–400 km northwest from its main range. The latest surveys revealed no one Snow Leopard in this region.

Presently, the permanent range of Irbis covers Altay mountains, Western and Eastern Sayan, Tyva mountains, and Tunkinskie and Kitoiskie Gol'tsy. Unlike Amur Tiger and Far Eastern Leopard, Snow Leopard range and population in Russia has not shrunk so dramatically for the last 200 years, but the population density and numbering is low.

Main Snow Leopard habitats in this region are within the altitude range of 2,000 (sometimes 1,000) to 3,500 m above the sea, which is lower than the average altitude of the habitats in the main range (2,500-5,000 m). The mountain ridges in the Southern Siberia are forested, smoothed, and abundant with snow in wintertime. Antropogeneous loads on the Snow Leopard populations aggravates the range fragmentation and reduces the animal number in the habitats up to their total extinction in some portions of the range. Thus, Snow Leopard range in this region is shrinking in the area and tends to higher fragmentation, and the Snow Leopard population in Russia decreases.

In Altay, Snow Leopard range covers partially or completely the following main ridges in the Southern, Central, Eastern, and Northwestern upland regions: Narymskii, Southern Altay, Tabyn-Bogdo-Ola, Listvyaga, Katunskiy, Kuraiskiy, Sailyugem, Southern and Northern Chuiskii, Chikhacheva, Aigulakskii, Chulyshmanskii, and Shapshalskii. The Snow Leopard is a more or less permanent resident of southern regions, whereas the northern and northwestern regions are visited only temporarily and sporadically. Presently Snow Leopard is almost absent in the Aigulakskii ridge (Geptner, Sludskiy, 1972; Sopin 1977; Smirnov at all 1991; 1992).

Further to the East, the range includes Western and Eastern Sayan and Mountainous Tyva. The northeast boundary of its range in Russia is confined by the upper basins of the Balyktyg-Khem and Delger-Muren rivers, and mountain "junction" in the vicinity of the Topografov Peak confined by the Eastern Ending of the Academician Obruchev ridge, and Southern Portion of the Okinskii Ridge. Snow Leopard range extends to the North up to the Triangulyatorov peak and triple junction of the Ergak-Targak-Taiga ridge, Udinskii ridge, and Grandioznyi peak. In Tyva, Snow Leopard inhabits Mongun-Taiga, Tsagan-Shibetu, Shapshalskii, Western Tannu-Ola, Sangilen, and Obruchev ridges, and (to the North) upper basins of the Kizhikhem, Systykhem, and Khamsara rivers in the Ergak-Targak-Taiga ridge. In Khakassia, Snow Leopard was noticed near the Erinat river and in the Karasibo, Urten', Kantegir, and Ona river basins (Nikiforov, Shurigin 1977).

The Snow Leopard range in the RF is subdivided into two basic portions: Western and Eastern (Poyarkov and all 2001).

The *Western* portion includes the animal groups inhabiting Altay, Western Tyva, and Southern Khakassia. The largest animal groups in this region – Argutskaya and Shapshalskaya – are connected via several smaller groups.

The *Eastern* portion of the range is represented by four large groups of Snow Leopard: East-Sayan, Kitoiskaya, Tunkinskaya, and (somewhat isolated) Sangilenskaya.

The animals inhabiting the intermediate areas of Western Sayan, and Western Tannu-Ola play the key role in the Snow Leopard distribution and gene exchange between the two basic (western and eastern) areas.

Snow Leopard population. Snow Leopard habitats are hard-to-reach, and the animals are very cagey, which make the population surveys a very difficult task. That is why all available estimations of the Snow Leopard populations are rather rough and based on the expert opinion.

In the 1970th, the Snow Leopard population in Russian Altay was estimated as 40 individuals (Sopin, 1977). In the 1980th, the total estimated population of this species in Russia was about 80 individual (including 40 animals inhabiting the Yenisey river basin) (Smirnov at all 1991).

We estimated the present Snow Leopard population in Russia is distributed among the main regional groups as follows:

1. Khakassia: 5–7 individuals (may be less).
2. The largest (Argut) group inhabiting Northern and Southern Chuiskii and Katunskii ridges amounts to 30–40 individuals.
3. At least 5–8 Snow Leopards inhabit Kuraiskiy ridge.
4. The Saylugemskii ridge and Ukok plateau in the South of Russian Altay are inhabited by 3–5 individuals each as minimum, and the same number of Snow Leopards live in the Chikhacheva ridge and Chulyshman uplands on border with Tyva Republic.
5. A large group (at least 15 individuals) inhabits the Shapshalskii ridge.

6. The Malaya and Bol'shaya Mongun Taiga ridges in Western Tyva are inhabited as minimum by 3–4 individuals each.
7. The same small group (3–5 individuals) lives in the Western Tannu-Ola. A stable group was noticed in the Eastern Tyva, on Sangilen ridge (10–15 individuals) and in the vicinity of Topographov peak (5–10 individuals).
8. Western Sayan (excluding Khakassia) is inhabited by 20–25 Snow Leopards. The core of this group is represented by the animals inhabiting Sayano-Shushenskii Biosphere Reserve, about 15 individuals (Zavadskiy 1988). This reserve is the key source of Snow Leopard distribution in the region. High biodiversity in the reserve territory, stable feeding conditions and protection from poaching provides conservation of this unique group on the edge of the species range. So, the total Snow Leopard population in the above mentioned areas can be estimated as 120–150 individuals. The groups inhabiting Eastern Sayan amounts to 20–25 individuals, and 10–15 animals inhabit Tunkinskie Gol'tsy.

Thus, according to the expert estimation, the total RF population of Snow Leopard is about 150–200 individuals, which is considerably higher than it was thought. Such a difference, however, is due to a more detailed and complete investigation of the Snow Leopard range, and has nothing to do with the population growth.

Bibliography:

Geptner V.G., Sludskiy, A.A. 1972. *The Snow Leopard, or Irbis*. // Mammals of the Soviet Union, Vol. 2. Moscow. 206-243.

Matyushkin E.N. 1981. *Irbis in South-East Zabaykalie*. // Bull. MOIP. V.86, N 2, 14-18.

Medvedev D.G. 1992. *Snow Leopard in East Sayan mountain*. // *Snow Leopard*. Alma-Ata. 86-90.

Nikiforov V.N., Shurigin V.V. 1977. *Snow Leopard modern distribution in Tuva ASSR*. // Rare Species of Mammals and Their Conservation. Moscow, Nauka, 139.

Poyarkov A. D., Lukarevskiy V.S., Baidavletov R. J., and Subbotin A.E., 2001. *Estimation of potential habitat, structure of area and Snow Leopard abundance in Altay mountain and Western Sayan*. // *Results and perspectives theriological developments in Siberia*. Irkutsk 274-277.

Smirnov M.N., Sokolov G.A., Zyrianov A.N., 1991. *Distribution, and numbering of Snow Leopard in South of Siberia*. // Bull. MOIP. V.96, N 1, 27-34.

Smirnov M.N., Zyrianov A.N., Brilliantov A.V. 1992. *Big carnivore in Yenisey basin*. // Big Carnivore. Moscow. 9-14.

Sopin L.V., 1977. *Snow Leopard in Altay*. // Rare Species of Mammals and Their Conservation. Moscow, Nauka, 143-144.

Zavadskiy B.P. 1988. *Snow Leopard modern distribution and numbering in Sayano-Shushenskiy biosphere reserve.* // Endangered Species of Ground Vertebrates in Siberia. Novosibirsk, Nauka 82-87.