

SACRED EARTH NETWORK

Shamanism and Ecology in the Altai Mountains of Siberia

General Ecological Information for the Entire Altai Region *(adapted from the World Wildlife Fund)*

The Altai mountains are located in Kazakhstan, Russia, China, and Mongolia

- Temperate Coniferous Forests
- 55,000 square miles (142,400 square kilometers) -- about the size of Illinois: Vulnerable

The Altai Mountain Forest steppe ecoregion, the highest mountain system in southern Siberia, stretches from Mt Belukha on the Russian Kazakhstan border southwest to central Mongolia. Providing habitat for species from both the steppe and the taiga, this region has a high degree of biological diversity. Principal threats include illegal logging and problems associated with livestock agriculture (e.g., overgrazing, pasture degradation, and desertification).

Location and General Description:

This ecoregion stretches from Mt Belukha on the Russian Kazakhstan border southwest through the Mongolian ranges Aj Bogd, Jargalant Khairkhan, Khasgkhaikhan, Darvi range, and Khar Azarga, Taishir and Baatarkhairkhan. The Altai Mountains form the divide between the closed, arid watersheds of inner Asia and the massive river drainages that flow northward through Siberia into the Arctic Ocean. The Khovd, Uyench, Bodonch and Buyant rivers belong to the central Asian internal drainage basin while the Bulgan, Katun and Black Irtysh rivers belong to the drainage basins of the Arctic Ocean.

The Altai Mountains experience an extremely cold, dry climate due to the high altitude and the Asian anticyclone formation over Uvs Lake (Dash 2000). The annual mean temperature of this region is -4C to -6C with the mean temperature in January dropping to -24C and in July increasing to +12C. The average annual precipitation is between 250 - 400 mm.

One interesting characteristic of the forest steppe zone is the coniferous forest found on cooler, moister northern slopes and the steppe vegetation that predominates on the other slopes. Larch-cedar forest exists at the beginning of the Khovd river, and larch (*Larix* spp.) forests can be found behind the main elevations of the Bulgan and Chigertei rivers and behind the Khasagtkhairkhan and Taishir Mountains. At the beginning of the Khovd River and at Dayan, Khoton and Khorgon lakes there is residual forest of real taiga. Fir (*Picea* spp.) groves remain in several mountains located along the Khovd River. *Betula* spp., *Rezniceana* spp., and poplar (*Populus pilosa*) remain as residual species in the humid gaps of several mountains. *Festuca lenensis* and *Koeleria cristata* are the dominant trees that run along the mountain ranges at mid-elevations while *Hippophae* spp. and *Cargana spinosa* grow along the rivers. Desert and desert-steppe species such as *Stipa pennata*, *Allium polyrrhizum*, *Anabasis brevifolia*, and *Artemisia frigida* reach far into the southern regions of the Altai mountains. This is a result of the strong influence of the arid desert climate that originates from the south and southwest of this range (Ulziikhutag 1989).

Biodiversity Features:

The Altai Mountains encompass the most complete sequence of vegetation zones in Western Siberia and are viewed as the center of origin for montane vegetation in north Asia (Koropachinsky

1996). The vegetation of this eco-region exhibits a higher degree of endemism (12%) than that found in either the Pyrenees or the Alps.

The Altai Mountains are therefore a good example of the combined existence between steppe and forest in a mountainous area. Fauna typically associated with either forest or steppe share habitats in the Altai. Rodents such as *Marmota baibacina* and *M. sibirica* and lagomorphs such as *Ochotona alpina* are the predominant small mammals in the Altai Mountains. Globally endangered wild animals include *Capreolus pygargus* and *Cervus elaphus* in the forests and *Ovis ammon* and *Capra sibirica* in the mountainous area. Carnivores include *Canis lupus*, *Vulpes vulpes*, *Vulpes corsac* and *Otocolobus manul* in the mountains, valleys, and steppe, *Lynx lynx* in the forest, *Gulo gulo* in rugged areas and *Meles meles* in the forest steppe. Smaller carnivores include *Mustela erminea*, *M. eversmanni* and *M. nivalis* in the mountain and steppe.

The higher elevations contain rare animals and are a key area for the conservation of globally threatened and endangered species such as snow leopard (*Uncia uncia*). This population serves as an important source for individuals dispersing into southern Siberia, Mongolia and Kazakhstan (IUCN 1998). Forest dormouse (*Dryomys nitedula*) and beaver (*Castor fiber*) at Bulgan River, and Kozlov's pygmy jerboa (*Salpingotus kozlovi*) in the desert steppe are endemic and threatened species of this ecoregion.

Bird species such as *Tadorna ferrugine* and *Anas platyrhynchos* occur in wetlands, *Dendrocopos major* in the forests while *Parus major*, *Motacilla cinerea*, *Alaudia arvensis*, *Anthus hodgsoni*, *Lanius cristatus*, *Milvus migrans*, and *Corvus corax* occur everywhere else in this area. Urban areas are rich with *Passer domesticus*. Notable reptiles are *Phrynocephalus versicolor*, *Elaphe dione*, and *Agkistrodon halus*.

The Katun River is one of the most pristine, free-flowing stretches of river in Russia. The fish fauna of the high mountain lakes, at the headwaters of the Katun, form a biologically complex pattern that is not yet well understood (Golubtsov et al. 1999). This watershed is part of the Mongolian biogeographic province, a region characterized by relict populations and endemic species and genera (Howe 1991).

Species of fish such as *Coregonus peled*, *Thymallus arcticus arcticus*, *Nemachilus barbatulus toni*, and *N. strauchi* are liberally distributed in the small lakes and rivers through the ecoregion. Fishing is having a significant impact on *Oreoleuciscus potanini* and *Thymallus brevivirostris*.

Insect diversity in this ecoregion is relatively high. Dominant insect groups include Hemiptera, Coleoptera, Lepidoptera, Cantharidae, Coccinellidae, Miridae and Orthoptera that are distributed in the arid/dry steppe. Homoptera, Tenebrionidae, Meloidae, Chrysomelidae, Curculionidae, and Scarabaeidae insects are also occur in this area.

Current Status

In the 1990s the centralized government infrastructure collapsed as Mongolia turned to a market economy. The result was a large amount of unemployment and a sharp increase in the number of people who turned to livestock agriculture. The increased number of livestock has caused pasture degradation, overgrazing and desertification in prone areas. Many of the areas surrounding Tonkhil and Tsetseg lakes have been modified by desertification.

Types and Severity of Threats:

Illegal logging continues to grow in the region and consequently exacerbates problems associated with desertification. Regional forest researchers support strong conservation efforts stating, "the Mongolian Forest is not for logging. Rather, it is for conservation so no possibility should exist for the use of the forests of the Mongol-Altai" (Ulziikhutag 1989).