

World Heritage Sites

Protected
Areas and
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GOLDEN MOUNTAINS OF ALTAI RUSSIAN FEDERATION

The Altai mountains are the major mountain range of southwestern Siberia and the source of the River Ob'. Three separate areas are inscribed: Altaisky Reserve with Lake Teletskoye on the border with the Tuvan Republic, Katunsky Reserve with Mount Belukha, bordering Kazakhstan, and the Ukok Quiet Zone bordering China and Mongolia. The region has the most complete sequence of altitudinal vegetation zones in central Siberia ranging from steppe, forest-steppe, coniferous forest, mixed forest, subalpine meadows to alpine tundra and glaciers. The mountains are also an important habitat for rare, endemic and endangered animals such as the snow leopard and are scenically beautiful.

Threat to the site: A natural gas pipeline from West Siberia to Xizang in China is planned to run through the site in the Ukok Quiet Zone on the Chinese border.

COUNTRY

Russian Federation

NAME

Golden Mountains of Altai

NATURAL WORLD HERITAGE SERIAL SITE

1998: Inscribed on the World Heritage List under Natural Criterion x.

STATEMENT OF OUTSTANDING UNIVERSAL VALUE [pending]

The UNESCO World Heritage Committee issued the following statement at the time of inscription:

Justification for Inscription

Criterion (x): The Altai region represents an important and original centre of biodiversity of montane plant and animal species in northern Asia, a number of which are rare and endemic.

INTERNATIONAL DESIGNATION

2000: Katunskiy Nature Reserve designated a Biosphere Reserve under the UNESCO Man & Biosphere Programme (core: 151,637 ha).

IUCN MANAGEMENT CATEGORY

Altaiskiy Nature Reserve	Ia Strict Nature Reserve
Katunskiy Nature Reserve	Ia Strict Nature Reserve
Lake Teletskoe Reserve	III Natural Monument
Mount Belukha Reserve	III Natural Monument
Ukok Quiet Zone Nature Reserve	IV Habitat / Species Management Area

BIOGEOGRAPHICAL PROVINCE

Altai Highlands (2.35.12)

GEOGRAPHICAL LOCATION

The reserves are approximately 700 km south of Novosibirsk in the Altai Mountains of the Altai Republic in southernmost Siberia. The Altaiskiy Nature Reserve with Lake Teletskoe on the border of the Tuvan Republic is centred on 51°00'N by 89°00'E, the Katunskiy Nature Reserve with Mount Belukha on the border with Kazakhstan is at 49°30'N by 86°15'E, and the Ukok Quiet Zone Reserve on the borders of Kazakhstan, China and Mongolia is centred on 49°15'N by 87°30'E.

DATES AND HISTORY OF ESTABLISHMENT

- 1932: Altaiskiy Nature Reserve established to protect Lake Teletskoe and the eastern Altai;
- 1951-57 + 1962-67: The Reserve was closed down for political reasons, and exploited; reopened with 863,860 ha (Pavlov *et al.*, 2000; Altai Republic Official Portal, 2001);
- 1991: Katunskiy Nature Reserve established to protect the Katun River, the Katun Ridge and Mount Belukha;
- 1994: The Ukok Quiet Zone established by the Altai Republic;
- 1996: Lake Teletskoe and Mount Belukha created National Monuments under a local Law on Specially Protected Nature Territories and Sites.

LAND TENURE

Federal Nature Reserves are managed by the State, and buffer zones by the Federal Forest Service. The buffer zones and the Ukok Quiet Zone are also co-managed by the Committees for Nature Protection, and for Hunting and Fishing of the Altai Republic. Lake Teletskoe is managed by the Federal Agency for Water Resource Management.

AREA

1,611,457 ha. 1,002,000 ha are strictly protected Nature Reserves:

Altaiskiy Nature Reserve	872,000 ha (881,238 ha: Sabin <i>et al.</i> ,1996)
Katunskiy Nature Reserve	130,000 ha (150,079 ha: Sabin <i>et al.</i> ,1996)

609,457 ha have a lower protected status:

Lake Teletskoe Reserve and its watershed	93,753 ha
Mt. Belukha Reserve Buffer Zone	262,800 ha
Ukok Quiet Zone Nature Reserve	252,904 ha (254,000 ha: Rao & Bruggemann,2007)

ALTITUDE

434m (Lake Teletskoe) to 3,507m (Toshkalykaya in Altaiskiy Reserve) and 1,300m to 4,506m (Mount Belukha, in Katunskiy Reserve).

PHYSICAL FEATURES

The Altai Mountains stretch from southernmost Siberia far into western Mongolia. The Altaiskiy Reserve on their northeastern edge is approximately 230 km north to south by an average of 50 km across. It lies on the Chelushmanskoye Ploskogorie upland plateau east of the River Chulushman, on the border with Tuva, and is the source of Lake Teletskoe. The Kutunskiy Reserve with Mt. Belukha (~145 x 40 km) is in the Katunskiy and Listvyaga ranges bordering Kazakhstan 130 km southwest of it. The Ukok Quiet Zone (~105 x 30 km) 130 km south-southwest of Altaisky, is on the Ukok Plateau bordering Kazakhstan, China and Mongolia in the far south of the Republic. The reserves are in the highest and most pristine areas of the mountains and have been preserved by their inaccessibility. They contain many mountain peaks, some 1,330 glaciers, such as the Katunskiy, Akkemskiy and Mensu glaciers covering 910 square kilometres, and deep mountain valleys such as the Bertek and Dzhulukul valleys. These mountain ridges, the highest and southernmost point of the Arctic watershed, surround the headwaters of the River Ob', the principal waterway of western Siberia and one of the longest rivers in the world. There are numerous rivers, waterfalls and 1,275 mostly small moraine-dammed lakes. The largest is Lake Teletskoe which is 325m deep, has exceptionally clear water with visibility to 15.5m, and covers 23,300 ha. It is the second deepest freshwater reservoir in Siberia after Lake Baikal. The Ukok Plateau is dominated by hilly steppe with marshes, streams and lakes. The soils are black soils on the steppes and forest steppes, somewhat podsolised forest soils to about 2,200m, brown soils in the high mountain steppes, alpine and tundra mountain lithosols with permafrost in the highest plateaus.

The formation of the Altai mountains began in an Ordovician tectonic orogeny amongst granites and metamorphic schists almost 490 million years ago which wore down to a peneplain. At times the area was deep undersea when many sediment layers, now limestone, accumulated. From about 150 million years ago the sea retreated and the region was uplifted and denuded again. The modern structure of the region was formed mainly by tectonic uplift some 1.6 million years ago, then deeply carved by glaciation. The area is faulted and there are occasional earthquakes.

CLIMATE

The Altai region has a continental climate affected by air masses from the Arctic, Atlantic and eastern steppes, with vast contrasts between warm summers and very cold winters when the region lies under a stable Asian anti-cyclone. Summers are cloudy, rainy and warm, and winters relatively mild in the north where the average annual temperature is 3.2°C, January averages -8.77°C, July averages 16.0°C and there is 500-600 mm annual precipitation rising to 1,000mm in the mountains. In the southern reserves the climate is strongly continental and very severe. Winter frosts reach -50°C while in summer the maximum temperature can reach 30°C. The mean annual temperature is -7°C with an August mean of 8° to 16°C on the mountain snowline and a January mean of -2°C to -16°C. The growing period is only a month and a half compared to five months in the north. Precipitation is much lower in the valleys, averaging 200-400mm on the steppes. Valleys can be snow-free when warmed by the frequent south-north *fohn* winds. There is heavy snowfall of more than 2,000mm in the mountains, 80% above 3,000m falling as snow. An absolute minimum of -62°C has been recorded during a temperature inversion, which often occur in mountain valleys (Anon.,1997). Extremes of temperature, wind and precipitation (3,000mm) also exist on Mt Belukha. Insolation however, is higher than in the Crimea. Southern and southwestern winds dominate in winter, and western and northwestern winds in summer. In the mountains there are local up-valley, down-valley and glacial winds (Badenkov, 2004; Altai Republic Official Portal [AROP], 2001).

VEGETATION

The richness and endemism of the vegetation of the Altai come from its isolation and its great altitudinal and climatic gradients. There is a 350-400 km distance between the relatively warm lowlands at 430m in the north to the severely continental glaciated high mountains in the south. The forest line (1,800-2,200m) on north-facing slopes is usually 2,000m higher than on south-facing slopes. There a great variety of landscapes: forest-steppe, coniferous forest, open forest, mixed forest, sub-alpine meadows, alpine tundra, rocky tundra and glacial. The forest-steppe belt (400-600m) is transitional between the steppes and the lowland forests and occupies little of the site, though steppes occur in the wide mountain valleys between 800 and 1,200m and in the high mountains between 1,500 and 2,000m. The lower forest taiga extends to 1,400m. The woods and meadows of the open mountain forest lie between 1,400m and 2,000m encompassing mixed and coniferous forests. Above 1,800 are subalpine woods with meadows to 2,200m then shrubby meadows to 2,500m. Above about 2,200m alpine tundra begins, wooded then shrubby, mossy/lichenous, then rocky, to about 2,800m. Above that level there are mainly rock, snowfields and glaciers.

There are more than 2,000 species of vascular plants in the three sites. 10.6% being endemic: 1,460 in Altaisky Reserve and 700 in the Kutunskiy Reserve. Forests, which cover 27% of the sites, are predominantly of Siberian spruce *Picea obovata* in the lowlands. Elsewhere the dominant species are Siberian larch *Larix sibirica* with the very hardy Siberian stone pine (miscalled cedar) *Pinus sibirica*, Siberian silver fir *Abies sibirica* and some Scots pine *Pinus sylvestris* with mixed forests of aspen *Populus tremula*, white birch *Betula pendula*, and on north slopes dwarf Siberian birch *B. nana sibirica*. 17 species are relict and 212 endemic to Russia. The sub-alpine zone has thin forests of Siberian larch and pine, *Betula rotundifolia*, other deciduous trees and brushwood, alpine meadows and thickets of *Rhododendron*, short and tall grass meadows with typically rich alpine flora and sedge meadows of *Carex kobresia*. Tundra covers a wide area, shrubby tundra being characterized by *Betula rotundifolia*, *Salix glauca* and *S. krylovii* with *Dryas oxyodonta*. Altaisky Reserve has 200 species of aquatic plants, 500 lichens, 250 mosses, and 73 introduced species (Pavlov, *et al.*, 2000).

FAUNA

The reserves have a typical Siberian forest fauna with 72 mammals (70 in Altaisky Reserve, 51 in Kutunskiy Reserve), 323 birds and 11 reptiles and amphibians. About 20 species of fish are recorded; *Cisco teletsky* and *C. pravdin* are endemic to Lake Teletskoye. 5,000 invertebrate species have been noted for Altaisky alone. Typical mountain steppe mammals include Siberian zokor or mole rat *Myospalax myospalax* and Siberian chipmunk *Tamias sibiricus*, Eurasian otter *Lutra lutra* and Mongolian gazelle *Procapra guttorosa*. The forests have sable *Martes zibellina*, wolf *Canis lupus*, wolverine *Gulo gulo* and Altai maral or red deer *Cervus elaphus sibiricus*. The higher mountainous areas have the rare snow leopard *Panthera uncia* (EN), manul cat *Felis manul*, Altai pika *Ochotona alpina*, arctic ground squirrel *Spermophilus parryi*, reindeer *Rangifer tarandus* and Altai argali *Ovis ammon ammon*. Kutunskiy Reserve has wolf *Canis lupus*, wolverine *Gulo gulo*, lynx *Lynx lynx*, elk *Alces alces*, roe deer *Capreolus capreolus*, musk deer *Moschus moschiferus* and occasionally the rare Siberian ibex *Capra sibirica*.

Of the 323 birds 180 of 300 species breed in the Altaiskiy Reserve and 80 of 140 species in Kutanskiy Reserve. 13 birds are listed in the Red Databook of the Russian Federation. Among them are great cormorant *Phalacrocorax carbo*, black stork *Ciconia nigra*, Eurasian black vulture *Aegypius monachus*, golden eagle *Aquila chrysaetus*, eastern imperial eagle *Aquila heliaca* (VU), white-tailed eagle *Haliaeetus albicilla*, peregrine falcon *Falco peregrinus*, saker falcon *F. cherrug* (VU), Altai snowcock *Tetraogallus altaicus* and black-winged stilt *Himantopus himantopus*. Other notable birds are the Altai falcon, *F. altaicus*, grey crane *Grus grus* and demoiselle crane *Grus virgo*.

CONSERVATION VALUE

The mountains have a very complete sequence of altitudinal vegetational zonaton. They are the source of the river Ob' and contain in Lake Teletskoe, Siberia's second largest, most pristine and biodiverse lake after Lake Baikal. They are a diverse and important habitat for rare, endemic and endangered animal species such as the snow leopard. The Park lies within a WWF Global 200 Eco-region, a WWF/IUCN Centre of Plant Diversity and overlaps a UNESCO Biosphere Reserve.

CULTURAL HERITAGE

The region's cultural heritage is rich. The name comes from *altan*, old Turkic for golden. The region's metals, hunting and pastures attracted wave after wave of dominations, which left a great range of archaeological mounds and remains, and Mount Belukha was revered as the centre of the world. The first *Homo sapiens* emerged in the region almost a million years ago, evidenced by the Ulyala Palaeolithic settlement near Gorno-Altai. The area's tribes experienced a long succession of emerging then declining cultures: Hun, Zhazhan, Turkic khanate, Uigur, Yenissey Kyrgyz, Naiman, Kitai Mongol and Oirat. Religions were shamanic. From the middle of the 18th century the Altai region became part of the Russian Empire. The present Altai Republic was established in 1997. The most impressive monuments are the 4th century Bronze Age Pazyryk burial vaults found on the steppes of the Ukok plateau, of different shapes and sizes, filled with funeral artefacts and great numbers of buried horses. In 1990 a richly gowned Pazyryk lady was discovered, even her silks being preserved by permafrost (AQROP, 2001). However, the permafrost is now threatened by climate warming. Artefacts from the tombs have a valued place in the Hermitage museum in St. Petersburg

LOCAL HUMAN POPULATION

The local population is of several different ethnic groups, predominantly Russians, Altaitsy and Kazakh, both Turkic-speaking peoples, (in the Katunskiy region, 76% Russian, 17%, Altaisky, 7% Kazakh). The sites are largely uninhabited with only a few small settlements which lived on forestry, hunting, fishing and, until the development of tourism, maintained the area well. The largest settlement is Yaylyu on Lake Teletskoye with 200 people. There are a number of camps used as seasonal settlements by sheep and deer herders. There is no information about the total population of the territories.

VISITOR AND VISITOR FACILITIES

Tourism has great potential in the area, but visitor facilities are not yet much developed and most are not easily accessible. Most of the territory of the Reserves is prohibited to visitors, except for scientists. However, there is already heavy tourism beside Lake Teletskoye, on Mt. Belukha and in the Katun river valley which leads up to the Ukok Quiet Zone. This includes hiking, riding tours, camping, rafting, skiing, climbing and helicopter flights, but hunting and fishing are prohibited. The reserves are usually visited by tourist groups led by experienced guides and organised by local national and some international tour companies. There is a small visitor centre at Yaylyu and a tourist lodge at the southern end of Lake Teletskoye. An Environmental Tourism Information Centre for the Altai Republic has also been established with support from a UNDP/GEF project. Off-road vehicles are prohibited from travelling in the area outside the one road used by the border guards. A tourism strategy for the region, including better facilities and infrastructure, is needed. The major cities near the area are Gorno-Altai, the capital of the Republic and Barnaul, which has an international airport, a railway station and road connection with the sites. The station for the territory is in Byisk city about 100 km north. There are flights to Gorno-Altai and to Kosh-Agach in the south. Access to the interior of the three sites is often only by dirt roads; the remotest parts are accessible only by helicopter, horseback or on foot.

SCIENTIFIC RESEARCH AND FACILITIES

Management of the area focuses on resources and resource protection which govern research. Altaiskiy Reserve is the main research area, headquartered in Yaylyu on the shore of Lake Teletskoe where lake dynamics are being investigated and there is a meteorological station. Hydrological and

meteorological data have been measured in Katunskiy Reserve since the 1930s and there are two weather stations in the Belukha Reserve. Long-term studies of the glaciers on Mt. Belukha from the research unit there show they have markedly retreated over the last 150 years. Ecological research into relic forest growth and post-glacial vegetation succession has also been undertaken for many years. The Katunskiy research unit was set up in 1995 and in 2004 comprised a botanist, a hydrologist, two zoologists, a geographer, an ecologist, an historian and an economist; there was also a GIS laboratory. In 2008, 18 years of studying the frozen tombs was published and exhibited. A number of universities and scientific institutions of the Siberian Branch of the Russian Academy of Sciences are located in Gorno-Altaysk and Barnaul, among them the Institute for Water and Environmental Problems. Five universities, national and local, cooperate in the Global Change Research Programme which monitors lakes, rivers, snowfields and glaciers for change and pollutants blown from Kazakhstan and China (Badenkov, 2004). Since 2007 there have been a series of studies on the impacts of climate change on the biodiversity and of pollution on the rivers and glaciers of the property (UNESCO, 2009).

MANAGEMENT

The core areas of the proposed nomination are the Strict Nature Reserves Altaiskiy and Katunskiy Zapovedniks. They operate under the management of the State Committee on Environmental Protection of the Russian Federation and under provisions of the Federal Law on Nature. Buffer zones surrounding Teletskoe Lake and Mt. Belukha are managed by the Federal Forest Service and Committees for Nature Protection and for Hunting and Fishing of the Government of Altai Republic. The Ukok Quiet Zone is managed by the Committees for Nature Protection and for Hunting and Fishing of the Government of the Altai Republic. Management focuses on resource protection and research.

By 2008 a common strategy for the development and management of the property had been developed and management plans for each of the site's three parts were drawn up for the period 2009 to 2013, but no overall management framework. Tourism and visitors plans for the Katunskiy Reserve and Belukha National Park had also been prepared. A check point has also been established to better control vehicle transit through the property. A fire fighting and control station has been built and is operational. A system to monitor ecological impacts from tourism has been designed, as pressures from visitors are increasing. There is potential for expanding the boundaries of the nominated areas into adjoining republics. Specifically, for linking the Katunskiy Reserve with Katon-Karagayskiy National Park in the Republic of Kazakhstan, and Altaiskiy Zapovednik with the contiguous Aba Kanske Reserve in the Republic of Kazakhstan and with adjoining protected areas in the Tuva Republic. These are steps towards the establishment of transboundary cooperation between Russia, Kazakhstan, Mongolia and China on the management of the Altai Mountains (UNESCO, 2009).

MANAGEMENT CONSTRAINTS

Most of the territory is in pristine condition with little poaching or illegal hunting until recently when helicopter hunting has clearly increased. The greatest pressure is overgrazing by domestic livestock so that in places inedible and poisonous plants have displaced valuable grasses. Other threats to the environment are the use of agricultural fertilisers and detergents by the local people, fires, logging, especially in the Lake Teletskoe watershed; pine cone gathering, and air pollution from the local mining industry and metal works in eastern Kazakhstan. A contentious issue has been littering by booster parts from rockets launched from Kazakhstan which fall to earth in the Altaiskiy reserve. In 2007 a potentially disruptive gas pipeline to China and a tourism-related highway were being proposed across the highlands of the Ukok Quiet Zone Nature Park. Its construction and maintenance would disrupt and probably damage and pollute this so far undisturbed country (Rao & Bruggemann, 2007). By 2008 plans for the pipeline had been halted but not abandoned, and an increase in tourism may yet justify construction of the road. Another potential threat is a projected coal-mine in the headwaters of Lake Teletskoe (UNESCO, 2009).

STAFF

In 1998 there were 80 staff in Altaiskiy Nature Reserve and 70 in Katunskiy Nature Reserve where the research unit has some 10-12 scientists. Double the staff were needed for effective patrolling of Ukok and Mt. Belukha Reserves which had only 5 members of staff each (Rao & Bruggemann, 2007). In 2008 the number was increased to 43 and their equipment improved. However, they had no powers of enforcement (UNESCO, 2009).

BUDGET

The budget for Altaiskiy and Katunskiy Reserves comes from the Federal Committee for the Protection of Nature. The budget for the Ukok Quiet Zone comes from the government of the Altai Republic. The

decrease in funding for management has greatly constrained management effectiveness. In 1998 WWF supported a US\$5 million project in the Altai. The British Know How Fund has supported planning and management activities in Katunsky Reserve. The UNESCO/Flemish Funds-in-Trust funded the study on the frozen tombs.

LOCAL ADDRESSES

Federal Forestry Service, 59/19, Pyatnitskaya St., Moscow 113095, Russia.

State Committee of Environmental Protection, 8/1, Kedrova St., Moscow 117874, Russia.

Government of Altai Republic, 16 Kirov St., Gorno-Altai, 659700, Altai Republic.

Head of Altai Republic, 1 Erkemen Palkin St., Gorno-Altai, 659700, Altai Republic.

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DATE

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