

World Heritage Sites

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UVS NUUR BASIN MONGOLIA & RUSSIAN FEDERATION

The Uvs Nuur Basin is an ancient lake bed in the centre of Asia, remote, enclosed and almost pristine despite millennia of nomadic pastoralism. Its twelve protected areas possess all of east Eurasia's major biomes relatively close together: cold desert, desert-steppe, steppe, taiga, alpine tundra, boreal, deciduous and floodplain forests, saltmarshes and snow fields. Its centre is the salt lake of Uvs Nuur, which attracts a great range of birds. The mountain sites harbour rare animal species, such as snow leopard and argali sheep.

COUNTRIES

Mongolia and Russian Federation

NAME

Uvs Nuur Basin

NATURAL WORLD HERITAGE TRANSBOUNDARY SERIAL SITE

2002: Inscribed on the World Heritage List under Natural Criteria ix and 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 (ix): The closed salt lake system of Uvs Nuur is of international scientific importance because of its climatic and hydrological regimes. Because of the unchanging nature of the nomadic pastoral use of the grasslands within the basin over thousands of years, current research programmes should be able to unravel the rate at which Uvs Nuur (and other smaller lakes within the basin) have become saline (and eutrophic). These processes are on-going and because of its unique geophysical and biological characteristics, the basin has been chosen as an IGBP site for monitoring global warming.

Criterion (x): The Uvs Nuur site has a large range of ecosystems, representing the major biomes of eastern Eurasia, with a number of endemic plants. Although the basin is inhabited and has been used for nomadic pastoralism for thousands of years, the mountains, forests, steppes and deserts are extremely important habitats for a wide range of wild animals, many of them threatened or endangered. The steppe ecosystem supports a rich diversity of birds and the deserts a number of rare gerbil, jerboas and the marbled polecat. The mountains at the western end of the basin are important refuges for the globally threatened snow leopard, mountain sheep (argali) and the Asiatic ibex. Uvs Nuur itself is an important habitat for waterfowl as well as for birds migrating south from Siberia.

INTERNATIONAL DESIGNATIONS

1997: Designated Biosphere Reserves under the UNESCO Man & Biosphere Programme (Uvs Nuur Basin, Mongolia: 771,700ha; Ubsunorskaya Kotlovina, Russia: 284,300ha);

2004: Designated a Wetland of International Importance under the Ramsar Convention (585,000ha).

IUCN MANAGEMENT CATEGORY

Uvs Nuur Basin, Mongolia: Ia Strict Nature Reserve
Ubsunorskaya Kotlovina, Russia: II Special Protected Area

BIOGEOGRAPHICAL PROVINCE

Mongolian-Manchurian Steppe (2.30.11) / Altai Highlands (2.35.11)

GEOGRAPHICAL LOCATION

The site comprises two adjacent reserve clusters, the Uvs Nuur Basin in Mongolia and the Ubsunur Basin in Russia, 800km west of Lake Baikal. They surround Lake Uvs (Ubsunur) in Uvs province, far northwestern Mongolia. The Russian sites adjoin the southern border of Siberia in Tuva province. The basin lies between 49°46' to 50°40'N and 90°12 to 95°38E, a distance of almost 500km.

DATES AND HISTORY OF ESTABLISHMENT

- 1993: Russia designated the Mongun Taiga, Aryskannyg, Yamaalyg, Tsugeer Els & Ular Reserves;
1994: Mongolia designated the Tsagan Shuvuut, Turgen, Uvs Nuur and Altan Els Reserves;
1997: The two reserve clusters were proclaimed UNESCO Biosphere Reserves;
2000: Russia designated the Ubsu-Nur and Oroku-Shinaa Reserves;
2001: Two management plans submitted; also an inter-reserve Protocol of Cooperation and an inter-provincial Treaty of Scientific Cooperation signed between Russia and Mongolia;
2003: Mongolia included the Tes River Reserve; the Russian section management plan finalized;
2004: Lake Uvs and its Surrounding Wetlands designated a Ramsar Wetland site.

LAND TENURE

State. Ubsunur Basin is in the Russian districts of Mongun-Taiga Kojuun, Ovr Kojuun, Tes-Khem Kojuun and Ersin Kojuun. Uvs Nuur is in the Mongolian districts of Uvs Aimag, Zavhan Aimag, and Huvsgul Aimag. The Tuvan reserve is managed by the Tuvan Ministry of the Environment under the Federal Committee for the Protection of the Environment. The Mongolian area is managed by the local reserve administration.

AREAS

Total: 898,063.5ha

Ubsunur Basin, Russia: Core zone: 87,830ha
Buffer: 170,790 ha (undesigned). Total: 258,620ha.

Uvs Nuur, Mongolia; Core zone: 810,233.5ha
Buffer excluded (UNESCO, 2003).

Ubsunur Basin, Russia:		Core	Buffer	Central point
1. Mongun Taiga	cluster	15,890 ha	84,510 ha	50°12'N x 90°12'E
2. Ubsu-Nur	cluster	4,490 ha		50°37'N x 93°08'E
3. Oroku-Shinaa	cluster	28,750 ha		50°37'N x 94°00'E
4. Aryskannyg	cluster	15,000 ha	11,800 ha	50°40'N x 94°44'E
5. Yamaalyg	cluster	800 ha	4,000 ha	50°15'N x 94°45'E
6. Tsugeer Els	cluster	4,900 ha	50,000 ha	50°05'N x 95°15'E
7. Ular	cluster	18,000 ha	20,480 ha	50°32'N x 95°38'E
Totals:		258,620 ha	87,830 ha	170,790 ha
Uvs Nuur Basin, Mongolia:		Core	Buffer	Central point
8. Tsagan Shuvuut	cluster	23,170 ha		50°19'N x 91°09'E
9. Türgen Uul	cluster	116,831 ha		49°46'N x 91°22'E
10. Uvs Lake	cluster	424,298 ha		50°20'N x 92°53'E
11. Altan Els	cluster	148,246 ha		49°50'N x 95°00'E

12. Tes River cluster 97,688.5ha 50°28'N x 93°45'E

Totals: 810,233.5 ha (476,410 ha excluded from the nomination)

ALTITUDE

759m to 4,116m (Mt.Harkhiraa, Turgen Uul, Mongolia and 3,976m Mongun Taiga, Tuva, Russia).

PHYSICAL FEATURES

The nominated site is a transboundary cluster of reserves centred on the semi-arid drainage basin of Uvs Nuur (Lake Ubsunur), a large saline lake. The site extends to the mountains around the basin: the arc of the Tannu-Ola mountains in Russia to the north; the outliers of the High Altai mountains to the west, the Sangilen highlands to the east by and in the south by the Türgen Uul massif and Khankhökhiy range. The area lies on the Mongolian steppe but includes every ecosystem of the area between desert and floodplain to glaciers. The sharp definition of such close but disparate areas is unusual. Of the twelve sites, three are in high mountains: Mongun Taiga, Tsagaan Shuvuut and Turgen; two are in lower mountains: Aryskannyg and Ular; one is an inselberg: Yamaalyg; two are desert: Tsugeer Els and Altan Els; three, Ubsu-Nur, Oroku-Shinaa and Tes River, are wetland and one is Uvs Nuur lake itself.

The basin is almost 600km from east to west by 160km north to south. Its floor is about 300km by 120km and between 760 and 1,200 meters above sea level. Uvs Nuur in the centre of the basin is a large almost circular lake about 70 km across, between 6 and 10 meters deep and some 5,000 sq.km in area. It is the largest lake in Mongolia but it is too saline to support most species of fish. It is fed by the Tesin Gol (Tes Khem) river which flows from the Sangilen highlands some 50km east and enters the lake through 100km of saline meadows and marshes which are 40km wide at its mouth. To the east is a rolling plain bordered by the Ubsu-Nur, Oroku-Shinaa and Tes River reserves, with sculptured granite inselbergs of which Yamaalyg Reserve is one. North of the Tes river, the mountain steppe and forests of Aryskannyg Reserve run up into the Tannu Ola Mountains. Further east, mountain and valley terrain extends beyond Ular Reserve to over 2,500m in the Sangilen highlands. To the southeast on river terraces and foothill fans is a desert of fixed and shifting dunes within which lie the Tsugeer Els and Altan Els Reserves. To the west are the Tsagaan Shuvuut and Mongun Taiga mountain Reserves on outlying ranges of the Altai which rise to 3,970m; the latter is the only glacial peak in southern Siberia; and to the southwest is the massif of Türgen Uul, 4,116m high.

The Uvs Nuur Basin lies in the north of the Great Lakes Basin of western Mongolia, the northernmost and wettest of the central Asian depressions which are remnants of a Tertiary era inland sea. The surrounding mountains have relict glaciers, glacier lakes and a wide variety of rock types, the result of a long series of successive eras of deposition and orogeny. The area is still tectonically active with earthquakes, and there are many deposits of useful minerals. Most of the rivers derive from mountain rains and snow-melt so their waters are only slightly mineralised. The area has a fifth of Mongolia's glaciers and both high altitude and lowland salt lakes. There are six other lakes in the basin of over 500 sq.km, of differing character, water quality and levels of biomass. The variety of soils reflects the wide variety of natural conditions, but generally they are skeletal and light with a few fertile pockets in the mountains and an abrupt break between mountain forest and steppe soils.

CLIMATE

The climate is extreme continental with warm summers and long very cold winters. The average summer temperatures are 20°-22°C with maxima touching 40°C, the average winter temperatures are between -32°-35° with frost for 6 to 7½ months and a minimum touching -55°C. The snowline is at about 2,700m. The diurnal temperature range is the highest in Asia. The basin is in the rain shadow of the Tannu-Ola mountains and precipitation is only 150-200mm, 70-80% of it falling in summer showers and thunder storms. Evaporation exceeds this by four to five times. The growing season is from early May to late September. Conditions are changeable in spring and autumn and fluctuate from year to year in six to seven year cycles. The topographic effect of the basin is climatic layering with altitude: hot air from the bottom is blown or rises up and condenses on the surrounding mountains resulting in the unusual close proximity of desert and taiga (Nomination document, 1998). Since 1997 the basin has been a station in the International Geosphere-Biosphere Programme (IGBP) for monitoring global warming.

VEGETATION

This cluster of reserves lies between the biogeographical provinces of the Siberian Taiga, the High Altai and the Mongolian Steppe. The area contains a great diversity of ecosystems within a relatively small area: cold desert, sand dunes, semi-desert, desert steppe, shrub steppe, wetlands, salty marshes, floodplain forest, deciduous and boreal forests, taiga, alpine meadows and tundra. 552 plant species are recorded, 234 of them restricted to the mountains of southern Siberia and northern Mongolia; 52 are relict species, 19 are recorded as endemic to Mongolia and Tuva, but only five are endemic to Uvs Nuur: *Astrogalus polozhinae*, *Juncus salsuginous* ssp. *tuvanicum*, *Stipa barhanica*, *Asragalus tuvinicus* and *Zygophyllum pterocarpum* ssp. *tuvanicum*. The vegetation zones are clearly layered by altitude.

Below the glaciers, icefields, sharp ridges and tundra of the three western mountain reserves, lie sub-alpine meadows of moss and lichen, and below them, mountain taiga where Siberian larch *Larix sibirica*, Dahurian larch *L. gmelinii*, Siberian stone pine *Pinus sibirica* and *Rhododendron* spp. predominate. In the valleys are forests of dwarf birch *Betula rotundifolia*, shrubby willows and pea shrub *Caragana* spp. There is marked altitudinal difference between north-facing and south-facing slopes in the zoning of vegetation, and a consequent variety of types of steppe. Between 1600 and 900m there is discontinuous larch-forested steppe with meadows and large bunchgrass *Stipa glareosa* grading to small bunchgrass *S. krylovii* steppe and to desert. At the foot of northern slopes is relict club-moss steppe.

Ular Reserve in the Sangilen highlands has tundra plants above 2,300m, high subalpine meadow flora, mountain-bogs, mountain *Pinus sibirica* taiga, larch forest and riverside meadows. Yamaalig is a granite island fissured with deep canyons isolated in rolling steppe, with many ancient burial sites. Ayskannyg Reserve descends from mountains to wet river valleys, reed beds and swamps, a diversity of habitats reflected in a rich flora and fauna. Tsugeer Els and Altan Els Reserves typify north-central Asian desert ecosystems, with remnant mountains, barchan lowlands and green oases. In the Altan sands a river mouth is fringed by pine, larch, sea buckthorn *Hippophae ramnoides*, and meadows. Tsugeer Els has remarkable sandy dune complexes ranging from bare shifting sand to dunes anchored by pea-shrubs.

Uvs Lake and Ubsu-Nur include the deltas of the Tesin-Gol and Torkhiologiin-Gol rivers where in places, desert comes down to the lake. The Tesin-Gol delta has five or six branches with meadows, salt meadows and other halophytic communities. This is the only place in Mongolia where a very rare lichen *Aspicilia esculenta* grows, in a narrow strip along the northeastern shore of Uvs Nuur. The Torkhiologiin-Gol delta consists of desert and salt flats, floating islands of vegetation and flood-plains forested predominantly with Siberian larch, Siberian spruce *Picea obovata* and laurel-leaved poplar *Populus laurifolia*, forming islands where colonies of migrating birds nest. The Oroku-Shinaa and Tes River Reserves higher up the floodplain lowlands of the Tesin-Gol have meadows, reed beds and sedge swamps vary attractive to migrating birds.

FAUNA

The diverse fauna reflects the diversity of habitats; it also has a high degree of endemism owing to its isolation. In all, 4 species of insectivora, 4 bats, 5 lagomorphs, 32 rodents, 18 carnivores, 9 artiodactyla, 5 lizards and 3 snakes are recorded in the Tuvan reserves, among them 22 locally rare species of mammal. 41 species of mammal are recorded for the Mongolian portion. Some 368 bird species have been recorded in the area, 81 being rare and endangered in Tuva.

173 species of mammals have been recorded for the Mongolian reserves. The mountainous Mongun Taiga, Tsagan Shuvuut and Turgen Uul are strictly protected areas, being the habitat of the snow leopard *Panthera uncia* (EN) at the northern margin of its Mongolian range; also of Siberian roe deer *Capreolus pygargus*, Altai argali *Ovis ammon*, the world's largest sheep, and Altai marmot *Marmota baibacina*. There are also Siberian ibex *Capra sibirica*, and Siberian musk deer *Moschus moschiferus* (VU), Pallas's cat or *manul* *Otocolobus manul*, and Mongolian marmot *Marmota sibirica* (EN). Among their birds are Altai snow-cock *Tetraogallus altaicus*, bearded and black vultures *Gypaetus barbatus* and *Aegypius monachus*. Typical tundra species are reindeer *Rangifer tarandus*, willow ptarmigan *Lagopus lagopus* and Mongolian plover *Charadrius mongolus*; taiga species include brown bear *Ursus arctos*, wolverine *Gulo gulo*, common otter *Lutra lutra*, lynx *Lynx lynx*, wild boar *Sus scrofa*, Siberian elk or *maral* *Cervus elaphus songaricus*, capercaillie *Tetrao urogallus* and tawny owl *Strix aluco*. Steppe forest species include Asiatic wild dog *Cuon alpinus* (EN) though it may no longer exist there (IUCN, 2010). Steppe species include marbled polecat *Vormela peregusna* (VU) and the rare

Mongolian gazelle *Procapra gutturosa*. In the mountain of Yamaalig booted eagle *Hieraetus pennatus*, and rock partridge *Alectoris graeca* nest.

The sand dune desert fauna of Tsugar Els and Altan Els include Tolai hare *Lepus tolai*, Daurian partridge *Perdix dauurica*, houbara and great bustards *Chlamydotis undulata* (VU) and *Otis tarda* (VU); the specialized species five-toed pygmy jerboa *Cardiocranius paradoxus* (VU) and northern three-toed jerboa *Dipos sagitta*. In the centre of the Russian dunes is Lake Tere-Khol, which has uniquely pure and transparent waters. At the lakeside nest long-legged buzzard *Buteo rufinus*, black kite *Milvus migrans* and common heron *Ardea cinerea*. Among the reptiles are isolated populations of four species: toad-headed agama *Phrynocephalus versicolor*, multicellated racerunner *Eremias multicellata*, Gobi racerunner *Eremias przewalskii* and patterned grass-snake *Elapha diene*; also the locally rare adder *Vipera berus*, moccasin snake *Aghistrodon halys*, *Tlafa agilis* and sand lizard *Lacerta agilis*. Sixteen out of the existing 20 rarely met species of beetle are endemic.

The basin has many marshes, wetlands and lakes attracting seabirds, waterfowl and migratory species. There are a number of internationally important species such as the Dalmatian pelican *Pelecanus crispus* (VU), white-headed duck *Oxyura leucocephala* (EN), Baikal teal *Anas formosa* (VU), eastern imperial eagle *Aquila heliaca* (VU), greater spotted eagle *Aquila clanga* (VU), Pallas's fish eagle *Haliaeetus leucoryphus* (VU), white-tailed sea-eagle *Haliaeetus albicilla*, hen harrier *Circus cyaneus*, lesser kestrel *Falco naumanni* (VU), Siberian crane *Grus leucogeranus* (CR), red-crowned crane *Grus japonensis* (EN), hooded crane *Grus monacha* (VU), white-naped crane *Grus vipio* (VU), relict gull *Larus relictus* (VU), corncrake *Crex crex*, Asian dowitcher *Limnodromus semipalmatus* and whitethroated bushchat *Saxicola insignis* (VU).

There are two species of fish endemic to western Mongolia which live in Uvs Nuur: *Oreoleuciscus potanini* and *O. pewzowi*. They are considered to be relicts of species which lived in the huge ice age lake here. Altai carp *Ozelenciscus potanini* is also common.

CONSERVATION VALUE

The Uvs Nuur Basin is an ancient lake bed in the centre of Asia, remote, enclosed and almost pristine. Its twelve protected areas have all of east central Asia's major biomes in relatively close proximity: cold desert, desert-steppe, steppe, taiga, moorlands, alpine tundra, boreal, deciduous and floodplain forests, saltmarshes and snow fields. The site centres round the salt lake of Uvs Nuur which attracts a great range of birds. The mountain reserves harbour rare species such as snow leopard and argali sheep. The basin lies within a WWF Global 200 Eco-region, overlaps a UNESCO Biosphere Reserve and contains a Ramsar wetland.

CULTURAL HERITAGE

There is a long history of nomadic occupation in the region dating from Paleolithic times and large numbers of historical artifacts to prove it. These include ancient stone burial mounds (*kurgans*), some with a base of 40m in diameter and carved stone steles. There are rock drawings in the southern part of the Yamaalig massif; also evidence of more recent occupation by Buddhist monasteries and the military. Many aspects of the traditional nomadic lifestyle still persist uncontaminated by modern development, and the various types of steppe within the basin together form an excellent example of a traditional cultural landscape.

LOCAL HUMAN POPULATION

The seven sites of the nominated area in the Republic of Tuva are scattered among four administrative districts with a population of 35,100 people who formerly lived on collective farms and now live in small settled cattle herding communities. But conditions have deteriorated as a result of political change and the need to adjust from state farms to a market economy. There are environmental education programs based on traditional conservation ethics such as respect for sacred areas which are in effect nature sanctuaries. The Mongolian side of the border has little more than 1,000 herdsman, still dominated by a semi-nomadic pastoralism under great strain from the effects of long drought on herds vastly enlarged since they were privatised in 1972. The town of Ulangom is 30 km southwest of the Lake.

VISITORS AND VISITOR FACILITIES

Environmental and ethnic tourism are beginning to develop. These are based on the scenery such as climbing on glaciated Mount Mongun-Taiga and on the nomadic lifestyle and its artifacts both present-day and historical. The granite inselberg of Yamaalig is especially rich in burial mounds, petroglyphs,

steles and effigies. Routes have already been planned for short scientific tours, by car, on foot, on horseback and by bicycle. Visitor numbers are slowly increasing, especially through school and government programs, and a visitors' center is being developed. But access to the basin is not easy, and a plan, management, infrastructure and facilities for tourism are not yet in place.

SCIENTIFIC RESEARCH AND FACILITIES

The basin is of international scientific importance because of its relatively undisturbed climatic and hydrological regimes. Its remoteness, enclosed character, dynamic physical processes, possession of all the major biomes of central Asia, along with traditional pastoralism make it a natural subject for biophysical and genetic research. The area been investigated for many years but from 1984 the lake and basin have been the subject of the Ubsunur Experiment, a Russian-Mongolian program to study the area using satellite information and mathematical modeling with minimal ground-truthing. This has involved the cooperation with Mongolian government scientist of twelve Russian universities, academic and teachers' training institutes, and academics from six foreign countries, including NASA. Seven biennial international symposia, three major publications and 12 research projects into glaciers, soils, ecosystems and rare animals have been sponsored. In 1997 the basin was designated a Biosphere Reserve and one of the International Geosphere-Biosphere Programme study areas for research into global change, also into its wildlife and wetlands. The Ubsunur International Centre for Biospheric Research (UIC), established by the Tuvan government, and guided by the Siberian branch of the Russian Academy of Science, coordinates this research.

MANAGEMENT

Most of the basin is dry steppe which has never been subjected to high human impacts, though there are considerable tracts of unusable desert and saline land. The reserves in Tuva are managed by the Tuvan Ministry of the Environment under the Russian Federal Committee for the Protection of the Environment. The Mongolian reserves are managed by the local reserve administration. A full management plan has been drawn up for the seven Russian protected areas plus Tsagaan-Shuvuut which outline three zones: Core, Buffer or Sanctuary and Restricted land use. In the core zones no hunting or taking of animals is permitted. In the buffer zones, buildings for research, visitors and land uses and techniques compatible with conservation monitoring are allowed. In restricted areas traditional grazing, limited agriculture, licensed hunting and organised tourism are permitted, but no mining or salt extraction. Many Tuvan authorities are involved in the conservation of these areas and the sites themselves are protected and monitored by field inspectors and rangers.

An environmental centre offers education courses to government officers, businesses, agriculturalists, school students and the public, and a news-sheet, radio and TV are used to publicise conservation. The department for environmental education of the Biosphere Sanctuary runs biennial conferences, school field trips, working parties and camps. The Ubsunur International Centre has helped to found three experimental schools with programs based on the understanding of traditional conservation ethics and culture. Traditional practices and respect for sacred ethnic sanctuaries are being revived. There are also hopes to extend the area under protection in future. No joint or separate management plan for the Mongolian sites is yet available.

MANAGEMENT CONSTRAINTS

The abandonment of the rotation of grazing in remote pastures in Tuva has led to the destructive concentration of herds at wintering camps and around watering points. There is no plan to control this degradation. The competition of livestock for wild animal grazing and the public's limited respect for wildlife are major threats: ibex, Pallas's cat and *bobak* marmot are especially targeted. Overgrazing, especially of the desert steppe around Ulangom in Mongolia, over-hunting, deforestation, soil erosion and destruction, and farming and building in fragile areas are all present. Inspectors and rangers monitor and try to limit poaching, illegal logging, plant-gathering, grazing in core protected areas and fires. But there is a lack of funding, equipment and a central monitoring database which limits the control of the increasing number of forest fires. There is inadequate scientific support staff for and communication with the rangers and inspectors in the field, who lack sufficient training, pay, funding and equipment and whose motivation and effectiveness suffer as a result. There is also at present inadequate communication between the public and local governments and between the Russian and Mongolian reserve staffs (Molloy, 2000).

STAFF

The Ubsunur International Centre has 10 employees of which six are graduate scientists. The Biosphere Sanctuary, excluding field inspectors and rangers, has 38 members of staff of which over

half are graduate scientists. Training of staff has been assisted by the UN, WWF and the US Peace Corps.

BUDGET

The UIC 1999 budget from the Tuvan government was 253,000 rubles (US\$9,035 @ 28:1); the Sanctuary received 839,000 rubles from the Federal government and 36,900 rubles from the GEF (totalling US\$31,282 @ 28:1). Implementation of the Russian protected areas management plan was expected to need 159,125 in 2004 and, over time, 175,640 for administrative, field and scientific equipment. [The currency given was unspecified: if it is rubles, this is a very low level of funding].

LOCAL ADDRESSES

The Director, Ubsunur Hollow Preserve, Erzin, Tuva, Russian Federation.

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DATE

November 1999. Updated 11-2003, May 2011.