TENTATIVE LIST

STATE PARTY: Kyrgyz Republic **DATE OF SUBMISSION:** 25.01.2010

Submission prepared by: Kyrgyz National Commission for UNESCO

Name: Shukurov Emil **E-mail:** shukurovemil@mail.ru
natcomunesco@totel.kg

Address: Bishkek, Firsova str., 29 **Fax:** +996 312 62 67 61

Institution: Ecological Movement of Kyrgyzstan Aleyne **Telephone:** + 996 312 28 13 70

National Commission of the Kyrgyz Republic for UNESCO + 996 312 62 66 36

<table>
<tr><td>Name of Property:</td><td>WESTERN TIEN-SHAN
(transnational serial nomination)</td></tr>
<tr><td>State, Province or Region</td><td>The Kyrgyz part of the “Western Tien-Shan” serial transnational nomination includes three sections:
1. Sary-Chelek State Biosphere Reserve – Aksyiskiy rayon of Jalalabat region (23 868 hectares);
2. Besh-Aral State Reserve – Chatkal rayon of Jalalabat region (106 870 hectares);
3. Padysha-Ata State Reserve –Aksyiskiy rayon of Jalalabat region (15 846 hectares).

Area of the nominated sites: 151 897 hectares
Buffer Zone: 32 626 hectares
Total area: 184 523 hectares</td></tr>
<tr><td>Latitude and Longitude or UTM coordinates</td><td><table>
<tr><th>#</th><th>Name</th><th>Geographical coordinates</th></tr>
<tr><td>1</td><td>Sary-Chelek State Biosphere Reserve</td><td>N41° 52' 25,66"
E71° 56' 14,20"</td></tr>
<tr><td>2</td><td>Besh-Aral State Reserve</td><td>N41° 34' 2,37"
E70° 27' 6,32"</td></tr>
<tr><td>3</td><td>Padysha-Ata State Reserve</td><td>N41⁰ 43' 28,96"
E71⁰ 34' 42,41"</td></tr>
</table></td></tr>
</table>

DESCRIPTION:

Tien-Shan is the northernmost part of great mountain range systems of the Inner Asia. It is connected with Altai and other mountains of the Southern Siberia and Mongolia through Dzungar range and Tarbagatai. Through Pamir, Kunlun, and Karakorum it is connected with Tibet and Himalayas. Through Pamir and Hindu Kush – with Kopetdagh, and Iranian uplands. All these links enrich flora and fauna of Tien Shan. At the same time, this makes it typical for the Central Asian Mountains and completely unique on its composition. This uniqueness has a global impact as it concentrates a significant number of endemic types among plants and animals (especially – invertebrates). Their loss will have a significant impact that is irrecoverable for the planet.

Western Tien-Shan is deeply embedded in to a space between Kyzyl-Kum and Moyun-Kum deserts and borders with the Northern and Inner Tien-Shan. From the north, north-west, and east it flanks the Fergana Valley. Western Tien Shan is located between 67 - 76º eastern longitudes and 40 - 45º northern latitudes, on latitudes of New York, Toronto, Belgrade, Rome, Madrid, Beijing, and Vladivostok. It differs from other parts of Tien-Shan with relatively weak glaciations and poor development of floated areas, lesser altitudes, and relatively soft climate (average atmospheric temperature in January -5 – -10º C and 10-15º C in July) with a fair quantity of precipitations (800 and more millimeters in mid-mountainous areas). The content of rivers of the Western Tien-Shan is about 8 cubic km out of the total outflow of rivers of Tien-Shan (about 40 cubic km).

The nature reserves Sary-Chelek, Besh-Aral, and Padysha-Ata (Kyrgyz Republic), reserves Aksu-Jabagly, Karatauskiy, and Sayram-Uganskiy National Nature Park (Republic of Kazakhstan), and Chatkal reserve (Republic of Uzbekistan), which are nominated by three countries, constitute the most representative and extant territories of an integrated unique nature complex – Western Tien-Shan. Each of these protected territories has its peculiarity, and at the same time, they complement each other in terms of biodiversity, outstanding landscapes, and monuments of paleontology. The Western Tien-Shan refers to one of the key eco-regions of the world, in the first place, due to the presence of great biodiversity of forest eco-systems at the very center of the desert zone of the largest continent of the planet.

Sary-Chelek State Biosphere Reserve is located at the central part of the Chatkal range, in mid-mountain and high-mountain zones, in the range of 1200-4000 m above the sea level. It is widely known due to its esthetic attractiveness: scenic ravines with mountain rivers and hills coated with fruit-nut, spruce, juniper, and fir forests. The lake plateau located at the height of 1800-1900 m above the sea level draws special attention. It originated about 10 thousand years ago after powerful earthquake, which led to the rockslides. The river valleys had blocked gorges that reach more than two hundred meters at height. Seven scenic lakes emerged. The largest from them is Sary-Chelek located at 1873 m above the sea level. Its length is 7 km, width is 650 m, and depth reaches up to 234 m. bold shores that are sliding away into water are coated with spruce and fir forest. It is one of the beautiful mountain lakes of the world. Other 6 lakes (Kylaa-Koul, Iyri Koul, Bakaly-Koul, Aram-Koul, Cheichek-Koul, and Chacha-koul) are much smaller and have shallow depth, and are located at the forest zone. Prior to creation of the reserve together with Sary-Chelek they were included in the touristic routes that had an international status.

The territory of reserve has preserved traces of a long geological history starting from the Paleozoic. There formations of the middle and upper Paleozoic and Mesozoic are found. They are represented by granites, limestones, sandstones, conglomerates, gypsums, and friable fragmentals, boulders, gravels, lams, and clay loams. The upper part of the reserve including location of the Sary-Chelek Lake is composed of Paleozoic red colored sandstones with limestones. The territory that is adjacent to the lake from southwest is composed of Ordovician sandstones and conglomerates, products of crushing of Precambrian and Cambro-Ordovician. The midsection of territory of the reserve is composed of Jurassic conglomerates and quartz sandstones mixed with red colored clastic deposits, carbonate alluviums and gypsum.

A high seismic activity that reaches intensity 8-9 on the Richter scale and presence of tectonic fractures indicates that the process of orogenesis is continuing. One of the powerful earthquakes in the nearest geologic past in the lithic age – to the process of generation of lake plateau.

Along the eastern border of the reserve the rupture Karasuu passes, and on the south-east of the Sary-Chelek Lake the Atoinok rupture flanks, which is linked towards direction with dike of the lake. Further to the north the main trans-orogenic Talas- Fergana rupture is situated.

Sary-Chelek is a tertiary refugium, in which deciduous forests that were widespread in Central Asia in the past have preserved. They had vanished almost everywhere in boulder-period and during subsequent drying out climate. The Western Tien-Shan is one of the centers of speciation of plants and invertebrates. Sary-Chelek reserve possesses with well-preserved area of relict fruit-nut forests with inherent to them flora and fauna. With the level of integrity of natural biological communities this area may serve as an etalon. In other part of areal they had been exposed to the negative anthropologic impact that prevents normal reproduction of biodiversity.

The territory of reserve differs with an extremely high concentration of biodiversity. Thus, flora of the highest plants is represented by 676 types out of 3786 known in Kyrgyzstan, which composes more than 17% or more than 75% of flora of the Western Tien-Shan. As the area of the reserve is about 240 square km, the concentration of plants reaches 2, 8 types per square km that outnumbers three times an average concentration in Kyrgyzstan.

Similar picture is for mammals as well. Concentration of species reaches almost 0,15 types/square km or more than 300 times higher than that of average in Kyrgyzstan.

Concentration of bird species reaches 0,65% that is more than 300 times higher as well than that of average in Kyrgyzstan.

At present, there are the following numbers of types of flora present in the given territory: Mushrooms – 43; Algae – 29; Lichens – 71; Higher plants – 676; Invertebrates – 1500; Pisces – 3; Amphibians – 2; Reptiles – 7; Birds – 157; Mammals – 35.

Many endemic endangered species of flora are present in Sary-Chelek reserve such as Abies Semenovii (Semenov's fir), Tulipa Greigii (Greig's tulip), Tulipa kaufmaniana (Kaufman's tulip), Hedisarum chaitocarpum (Honeycuckle chaitocarpum), Malus Niedzveckiana (Niedzvecky's apple), Rynus Korshinskyi (Korshinsky's pear), Sorbus persica (Persia's mountain ash), Sorbus turkestanica (Turkestan's mountain ash), Vitus uzunachmatica (Uzunachmat's grape-vine), and many other.

In Sary-Chelek reserve, where an inventory of higher plants and vertebrate animals is practically completed there 240 species of endemic plants of Central Asia and Kyrgyzstan are noted. It contains more than 30% of flora of the reserve.

Besh-Aral reserve is located at the joint of the high mountain systems of Central Asia and of vast Turanskiy plain occupied by Kyzylkum and Moyunkum deserts. Mountain, forest, and desert flora and fauna, representatives of the northern boreal bio-geographic complexes and southern tropical and subtropical are noted on the territory of reserve.

Powerful tectonic and erosive processes created an expressive diversity of the relief: deep canyons and plateau –shaped surfaces, inaccessible cliffs and sloping gorges, full-flowing rivers, waterfalls, and moraine lakes under snowy peaks. Earthquakes indicate about continuous seismic activity that reaches intensity 8-9 on the Richter scale. Two large ruptures pass through the reserve: Chatkalskiy and Pskemskiy. Processes of orogenesis and dynamics of type composition of biologic communities are continuing to this day.

The modern biologic communities on the territory of reserve have emerged from relicts of tertiary period, boreal bio-geographic complexes, when the northern forests merge with Central Asian mountain and desert complexes. In the process of orogenesis plain type communities have been transforming, loosing one type and acquiring new. An altitudinal zonality of biological communities has appeared. At the same time, an area of speciation of some types of plants and invertebrates has appeared as well. This is an explanation of presence of the endemic species.

The endemic species of mountain communities of Savanoids, the upper layer of which form a treelike *Prangos et Ferula,* the only well-preserved flood forests from *Betula tianshanica* / tian-shan birch, are present in Besh-Aral reserve. According to the taxonomic processing 65 species are endemic for the Western Tien-Shan at large. About 80% are endemics for the Central Asia. The wild progenitors of

cultivated plants such as *Medicago sativa*, *Malus, Pyrus, Vitis*, *Tulipa*, *Amygdalus* grow in Besh-Aral.

Besh-Aral reserve is situated at the center of the modern areal of *Marmota menzbieri*, which is narrow-areal endemic of the Western Tien-Shan and contains the main part of population of species included in the Red Book of IUCN. On the other two parts of the areal located in Uzbekistan and Kazakhstan, the total number of *Marmota menzbieri* is less than that of in Besh-Aral. Thus, 2/3 of the world's population of threatened species of *Marmota menzbieri* is present in Besh-Aral. At the same time, its population number is regaining successfully.

The outermost northwest part of the area of *Uncia uncia* (snow leopard), which is also put in the Red Book of the IUCN, is situated. Most probably, one of the last core areas of habitation of Lutra lutra seistanica (Seistan Eurasian otter) is preserved here.

The territory of **Padysha-Ata reserve** includes deeply incised in to southeast mega-slope of Chatkal range, ravines of Padysha-Ata River and its inflows. At the average current the ravine shrinks in to the gorge with breaking steeply to the river by rocky slopes. Combination of the expressive rocky mountain relief with deciduous streamside forests from willow and cottonwood, and also from juniper, spruce and fir, and nut forests on the slopes neighboring with flowering mountain meadows attaches a unique fascination to the mountain scenery.

Kapchigai Ravine, in the jaw of Padysha-Ata is a strikingly beautiful place, the original gorge-canyon. The length of Kapchigai is 1-1, 5 km. Both of its sides comprise of huge monolith steeped rocks. The distinctive feature of the ravine is that it has no riverbed and terraces as the huge monolith rocks are steeply and sharply going down to the river. The only path that leads to passes goes almost along stream of the river.

From the Kapchigai Ravine a pattern of the landscape sharply differs. There are huge monolith rocks with cliffs (90°) comprising of limestone and sandstones. These rocks remind of intricate architectural features such as for instance, Kapchigai rocks, Kouk-Sarai, Azapkyr, and Tegerek mountains.

On exit from Kapchigai Ravine up the Padysha-Ata River the panorama of Azapkyr Mountain opens up. From this rocky huge mountain many spurs grow away radially, which represent monolith, steep sided, and often vertical and unbroken line cliffs that interlace with each other to remind the Egyptian pyramids. They can be considered as natural monuments. Peaks of all mountains are obtuse, domelike, and flat in some places. When they are uncovered a horizontal bedding of mountain rocks is clearly exposed.

There are grottos on territory of the ravine. The largest of them are located in valleys of Minjylky and Chymangazy rivers. In Minjylky Valley the waterfall Padysha-Ata is located and according to the local population this waterfall is considered to be the source of Padysha-Ata River.

Chatkal range is composed of sedimentary rocks, originated at the bottom of shallow intercontinental Tetis Sea. Retreat of the sea and rise of mountains was followed by an active volcanic activity tens of million years. Signs of this can be found in geological rocks even these days.

Padysha-Ata is located on southwest border of distribution area of fruit-nut forests in Chatkal range. Forests from *Abies Semenovii,* the endemic of the Western Tien-Shan are preserved in substantial area of Padysha-Ata reserve. Here, endemic communities of Umbelliferous - steppe savannas, in which functions of tree layer are served by plants Ferula and Prangos that reach three meters height, are well-marked.

In the reserve several tens of plant species, endemics of Central Asia, Western Tien-Shan, and Kyrgyzstan are present. Among them: *Abies Semenovii* (Semenov's fir), *Malus Niedzwetzkyana* (Nedzvetzky's apple), *Pyrus asiae-mediae* (Central Asian pear), *Sorbus turkestanica* (Turkestanian mountain ash), *Euonymus Koopmannii* (Koopmann's spindle-tree), *Tulipa Kaufmanniana* (Kaufmann's tulip), *Hedusarum chaitocarpum* (Honeysuckle).

The Red Book of Kyrgyzstan includes the following species that are present in Padysha-Ata: snow leopard, turkestan lynx, tianshan bear, indian crested porcupine, golden eagle, himalayan vulture, bearded vulture, short-toed eagle, etc.

JUSTIFICATION FOR OUTSTANDING UNIVERSAL VALUE:

The Western Tien Shan is specified by its exclusive diversity and beautiful mosaic landscapes; outstanding evidence of large-scaled geological and evolution processes; unique combination of different ecosystems; rich animal and vegetal life with endemic species and associations and significant number of rare and endangered species.

The Sary-Chelek reserve, the Besh-Aral reserve, the Padysha-Ata reserve (Kyrgyzstan), the Aksu-Jabagly reserve, the Karatau reserve and the Sairam-Ugam National Park (Kazakhstan), and Chatkalsky reserve (Uzbekistan) are nominated by three states and show the most representative and preserved areas of joint unique natural complex – the Western Tien Shan. Each of these secured areas has its own distinguishing features; however, they complete each other in biodiversity, outstanding landscapes and paleontological monuments.

Criteria met:

i	ii	iii	iv	v	vi	**vii**	**viii**	**ix**	**x**

Criterion vii:

The nominated area contains all features necessary for maintaining its aesthetic importance. There are impressive mountain relief, scenic water bodies, wild nuciferous and coniferous forests, middle mountain meadows and meadow steppe, multicolor subalpine tall-grass, alpine meadows.

The following features have outstanding aesthetic importance: deep canyons and flat scenic ravines with water cascades (canyons of the Aksu and Kshee-Kaindy rivers in the Aksu-Jabagly reserve, the Kapchygay ravine in the Padysha-Ata reserve, the Chatkal range in the Besh-Aral reserve); plateau surfaces and invulnerable bizarre cliffs (Kyrykkyz in the Sairam-Ugam National Park, the Kapchygay mountains, the Kok-Saray mountains, the Azapkyr mountains and the Tegerek mountains in the Padysha-Ata reserve); the clearest deep rivers and streams, waterfalls and high mountainous rock-dammed (Sary-Chelek) and morainic (Makpal in the Sairam-Ugam National Park) lakes in neighborhood with snow peaks (the Sayram peak, 4236 m over sea level in the Sairam-Ugam National Park, the Kara-Toko peak in the Sary-Chelek reserve); numerous caves of the Padysha-Ata reserve. Clusters of nominated area have the exceeding recreational potential.

Many of local flora and fauna species contribute in aesthetic landscape importance, such as Greyg and Kaufman tulips of fairytale beauty, snow cock, paradise flycatcher.

Criterion viii:

The nominated territory represents significant geological processes of area landforms development and outstanding geomorphic and physiographic relief features. All significant landforms of the Western Tien Shan are represented here.

The relatively small territory includes different geological structures that represent consecutive steps of Earth crust evolution. Here are measures of early Proterozoic till modern ones including the Cambrian, Ordovician, Devonian and Carboniferous systems where the ancient life evidences were found.

The nominated territory is undergone by active on-going tectonic processes - tireless seismic activity results in earthquakes up to 7-9 magnitude on the Richter scale. Large tectonic faults cross the region, the major of them lies along central line of Chatkal and Talas ridges.

Criterion ix:

Parts of the nominated site represent the whole range of the Western Tien Shan vertical zonation. Up to 7 natural zones in mountainous parts (from steppe zone near mountain foots till highlands) determine the high diversity of wildlife. Sustainable ecosystems represent the complete variety in accordance with vertical zonation.

Original combination of the northern and southern forms, relict species and autochthone communities is typical for the Western Tien Shan. Southern Indian Hedgehog can feed at the same meadow with northern Siberian Roe Deer, while thermophilic walnuts grow side by side with firs and Silver firs from

taiga. This highlands have some segregated regions with intense actual species formation resulting in nascence of numerous new species – neo-endemics, which have emerged in the region fairly recently. Evolution and species formation processes have significant scientific importance not only as an example of natural development, but also for regeneration and conservation of similar Eurasian ecosystems.

Criterion x:

The nominated site is the key area for conservation of outstanding universal biodiversity of the Western Tien Shan. Although each part of area has the significance for conservation of its own unique biocenos elements, only combined actions and efforts can provide its long-term sustainable development.

The Western Tian Shan is recognized as one of the world centers of origin of nut, fruit and many other culture plants. There are natural habitats of their wild ancestors: plum (*Prunus),* apricot (*Armeniaca),* walnut (*Juglans regia),* onion (*Allium),* alfalfa (*Medicago),* apple-tree (*Malus),* and pear tree (*Pyrus),* grape (*Vitis),* tulip (*Túlipa),* almond (*Amygdalus).* This vast genetic stock is exceptionally important for agro-biodiversity of many states. Due to the high concentration of forest biodiversity the Western Tien Shan is inscribed in the list of key Earth eco-regions.

The Western Tien Shan typical combination of different types of coniferous and deciduous forests survived here: juniper stand, fir, maple, nut, fruit, riparian forests and more than 10 species of endemic vegetation communities. There is the unique population of Menzbira marmot (*Marmota menzbieri),* the Western Tian Shan endemic of restricted area, ranging only in Kazakhstan, Uzbekistan and Kyrgyzstan. Snow leopard (*Uncia uncia*) and Karataus sub-species of argali (*Ovis ammon nigrimontana*) need particular care due to conservation of biodiversity and genetic resources.

All together the nominated territory counts 25 kinds of plants and animals inscribed in the Red List of IUCN (Ver. 2009_1) with different levels of threat. This includes 9 kinds of plants – common apricot (Armeniaca vulgaris, EN), talass birch (Betula talassica, EN), karataus cotoneaster (Cotoneaster karatavicus, DD), crataegus (Crataegus ambigua, DD), sogdian ash (Fraxinus sogdiana, NT), karataus rare honeyberry (Lonicera karataviensis, CR), nedzvetskogo apple tree (Malus niedzwetzkyana, EN), siversa apple tree (Malus sieversii, VU), shrenka tavolgotsvet (Spiraeanthus schrenkianus, EN); 1 kind of butterfly – apollo (Parnassius apollo, VU); 11 kinds of breeding and untrapped birds, including untrapped ones – pale harrier (Circus macrourus, NT), imperial eagle (Aquila heliaca, VU), bustard (Otis tarda, VU), little bustard (Tetrax tetrax, NT), crake (Crex crex, NT), brown dove (Columba eversmanni, VU), and including breeding ones – black vulture (Aegypius monachus, NT), roller (Coracias garrulus, NT), saker falcon (Falco cherrug, EN), Naumann's kestrel (Falco naumanni, VU), vulture (Neophron percnopterus, EN); 4 kinds of mammals – asiatic wild dog (Cuon alpinus, EN), Menzbira marmot (Marmota menzbieri, VU), argali (Ovis ammon, NT), snow leopard (Panthera uncia, EN).

The nominated territory is the habitat of many endemic, rare and threatened species of animal and vegetal life.

Statements of authenticity and/or integrity:

The territory of **Sary-Chelek reserve** is an integral basin in which the flow is formed that provides supply of lakes and rivers, and of existence of biota. The site is under the high level of state protection and no economic activity is allowed. Dimensions of the reserve are sufficient for maintenance of the main part of biodiversity and ecological integrity. Woodlands are located on the neighboring territories in which forests are referred to the first category that excludes industrial use.

Besh-Aral reserve is the largest in size in Western Tien-Shan and fully covers basins of rivers located in its territory excluding Chatkal, which is passing through it by transit. Nival, alpine, subalpine, and mid-mountain belts are present on its territory. Herbage communities are widely present on the territory including endemic for the Western Tien Shan mountain-Savanoids and various species of plants and animals. Dimensions of the reserve allow maintaining the main part of biodiversity that is typical for the region, and of the main part of population of endemic Menzbira marmot. The site is under the high level of state protection.

Padysha-Ata reserve covers well-preserved juniper, spruce and fir forests of the Western Tien-Shan, and other types of wood-shrub and herbage communities as well. Located at the central part of Chatkal range it plays a key role in providing migratory paths of terrestrial species including ungulate mammals such as *Capra sibirica* (mountain goat) and *Uncia uncial* (snow leopard). Areas occupied by biological communities are sufficient for maintaining reproduction of the main composition of biodiversity. The site is under the high level of state protection.

Comparison with other similar properties:

The unique features of the Western Tien-Shan prove that the nominated territory has no analogues among the World Nature Heritage properties. In the mountainous areas of Central Asia there are 3 WNH properties - "Golden Mountains of Altai", "Lake Baikal" (Russian Federation), "Uvs Nuur Basin" (Mongolia and Russian Federation); one of the properties is also in the mountains of Northern India – "Nanda Devi and Valley of Flowers National Parks". But, the Western Tien-Shan significantly differs from all of them in orography, climate and history of development, vegetation and wildlife. Other WNH recently being nominated property is «Tajik National park» (Tajikistan), differs from the Western Tien-Shan in landscapes and arid of highlands, which also causes large differences in vegetation as well as in other features.

Western Tien-Shan represents different types of sustainable mountainous ecosystems, as well as great biodiversity with the high level of endemism and presents one of the centers of origination of cultivated plants growing from the range of wild progenitors, as well as demonstrates unique sites of upper Jurassic flora and fauna.