

## PROSPECTS FOR THE DEVELOPMENT OF ECOTOURISM IN THE TERRITORY OF THE KATON-KARAGAI STATE NATIONAL NATURE PARK OF THE EAST KAZAKHSTAN REGION

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**Abstract:** National parks belong to the most significant category of specially protected natural areas in the Republic of Kazakhstan. One of the important tasks of national parks is the development of ecological tourism and education, considering the nature and cultural characteristics of the territory. Katon-Karagai State National Nature Park is the largest national park in Kazakhstan in terms of area with a rapid pace of development in the field of tourism, since the geosystems of the state nature park have a diverse landscape and many attractions. The purpose of this work is to identify the most attractive areas in terms of recreation, as well as provide recommendations and proposals for the development of ecotourism in the East Kazakhstan region using the example of the Katon-Karagay State National Nature Park. Research methods - data collection and analysis, descriptive, cartographic. The results of the study can be used to develop recommendations for rationally organizing and planning in the area of recreational and tourism industry at the regional level. Conclusions are drawn about the prospects for the development of ecotourism in the territory of the Katon-Karagai State Natural National Park.

**Key words:** East Kazakhstan region, Katon-Karagai State National Nature Park, geosystem, nature and recreational resources, ecotourism

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### INTRODUCTION

Ecotourism is a normative estimate of well-defined and obsessed by widespread head value concerning resident livings and tribute of natural and traditional environment (Thompson et al., 2018). Ecotourism is one of the sustainable forms of tourism enabling guests to experience and comprehend the region's ecology and biodiversity (Amanda, 2021; Ulfy et al., 2021). The growing number of environmental problems attracted the attention of scientists, the public, the business sector, etc. (Tavakoli et al., 2022). In 2004, the World Tourism Organization (UNWTO) formulated the concept of sustainable tourism development, which is a continuous process that requires constant monitoring of environmental impacts and the adoption, if necessary, of appropriate preventive and / or corrective measures (Novikov, 2007; Carvache-Franco et al., 2020). The scientists involved in the research of ecotourism in Kazakhstan are: Akbar, 2021; Chashina, 2020; Ramazanova, 2020; Duzgambaeva, 2021.

Trends in the development of ecological tourism are determined by the World Tourism Organization. According to the World Tourism Organization (UNWTO), the share of ecological tourism in the structure of world tourism is approximately 10% and is included in the five main strategic directions of tourism development up to 2020 (Sergeeva, 2004).

The main idea of ecological tourism is, first of all, taking care of the natural environment, which is used for tourism. It is this use of the riches of nature, combined with the education of love for her, the assertion of the importance of protecting her, that is the hallmark of eco-tourism. The idea gets a concrete embodiment in the fact that ecological tourism is designed to (Eremina, 2007):

- constantly, systematically and purposefully cultivate the criterion of equilibrium of the nature environment around us;
- to harmonize relations between ecology, society and economy;
- to orient tourist organizations towards the preservation and enhancement of the use value of the nature environment by allocating a part of tourist income for solving related problems;
- subordinate the short-term interests of making a profit from tourism to the long-term interests of preserving nature for future generations, as well as for the further development of tourism;
- to form in tourists a sense of personal responsibility for the state of nature and its future, asserting in their minds that they belong to it as its organic part.

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Today, 14 national parks are in service in Kazakhstan. The newest and most recently established national parks are Tarbagatay, which came into use in 2018, and Ulitau, which came into use in 2021. It is expected that the “Merke” and “Türkistan” national parks will be put into service in the coming years. It is apparent that the national park areas in Kazakhstan are mostly concentrated in the mountainous and forested areas in the east and southeast of the country. It is noteworthy that no national parks are located in the northwestern and southwestern parts of the country (Figure 1).



Figure 1. Kazakhstan National Parks (Source: compiled by Atasoy in the ArcGIS program)

**MATERIALS AND METHODS**

Ecotourism is not focused on increasing tourist flows to natural areas, it allows you to preserve nature, which, accordingly, does not require the implementation of investment projects that can have a negative impact on the environment. Considering that its objects can be both nature and cultural attractions, nature and natural-anthropogenic landscapes, where traditional culture is integrated with the natural environment, the development of ecological tourism can provide not only financial support for natural areas, but also provide an opportunity to create interest in their conservation (Khrabovchenko, 2003). The information base of the research included: literature sources, fund and published materials of republican and regional departments and institutions. Research methods: data collection and analysis, descriptive, cartographic (Figure 2). Katon-Karagai State National Nature Park was established in accordance with the Decree of the Government of the Republic of Kazakhstan No. 970 dated July 17, 2001. The territory of the park is 643,477 hectares and it is the largest national park in Kazakhstan (Table 1).

Table 1. Characteristics of the Katon-Karagai State National Nature Park (Source by Zhensikbaeva, 2017)

Specialy protected natural area	Katon-Karagai State National Nature Park
Year of foundation	2001
Area, thousand km <sup>2</sup>	6434.770
Average height, m	800
Average frequency of the river system, km/km <sup>2</sup>	0.8
Lake area in this area, %	0.6
Waterlogging, %	0.8
freezing, %	3.1
forest share, %	34
Terrain types	nival, mountain-meadow, mountain-forest, forest-meadow
status	National
type	complex
nature type	reserve
The number of species listed in the Red Book:	
- plants	30
- animals	12

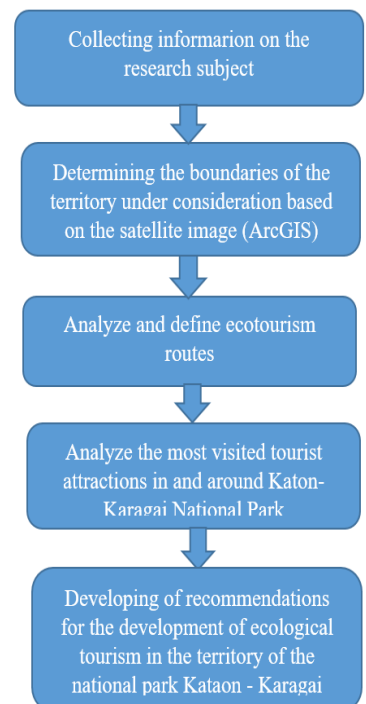


Figure 2. Research methods

The Katon-Karagai National Park has:

- UNESCO Biosphere Reserve status (2014);
- the status of the UNESCO transboundary biosphere reserve "Greater Altai" (2017).

Katon-Karagay State National Nature Park is located in the East Kazakhstan region in the Katon-Karagay district. The territory of the national park is located in the Southern Altai, which is a mountainous country with numerous ridges, often rising above 3000 meters above sea level. The Katon-Karagai State National Nature Park includes: the southern macroslopes of the Listvyaga and Katunsky ridges (the southern and eastern slopes of the Belukha node), the western part of the Ukok high-mountain plateau within Kazakhstan, the Southern Altai, Tarbagatai (Altai) and Sarymsakty (Janaleyeva, 2010) (Figure 3). The following park boundaries have been established:

- In the north and east: borders with Russia (Republic of Altai);
- In the south-east: the border of the park passes through the territory of the Katon-Karagay district;
- In the west: the border runs along the river Farpusnaya (Shurshutsu) to the village. Belkaragai (Medvedka) and Soldatovo.
- In the south: the border runs along the northern slopes of the ridges of the Southern Altai: Sarymsakty, Altai Tarbagatai, along the border of the Muz-Belskaya forest dacha of the Chingistai forestry and along the administrative border of the Katon-Karagai and Kurchum districts (Ivashchenko, 2009).

### History and purpose of the Katon-Karagai National Park

The idea of creating a national park on the territory of the Katon-Karagai region was born back in the late 80s, when geological survey work was carried out here, as a result of which the Ak-Alakhinsk group of tantalum-lithium deposits was discovered. The prerequisites for the creation of a specially protected natural area here were also the fact that natural area was very well preserved in this region, which were less subjected to anthropogenic pressure. There is also a high conservation of biological diversity and genetic resources, there are habitats for rare and endangered species of plants and animals, including those listed in the Red Book of the International Union for Conservation of Nature and the Republic of Kazakhstan. High recreational potential of the territory with the presence of a large number of objects as well as the



Figure 3. Geographical Location Katon-Karagai National Park  
(Source: compiled by Turyspekova in the ArcGIS program)

transboundary location of other specially protected natural areas of Russia, Mongolia and China are significant for nature, history and culture. All this led to the creation of a specially protected natural area in the Katon-Karagay region. The task of creating the park was greatly facilitated by the fact that the botanical and geological reserve "Rakhmanovskie Klyuchi" already existed here (Egorina et al., 2017). The need to preserve the unique nature of the region, the need to revive (on a new basis) the economy and farms of the region, solving the issues related to developing traditional folk crafts and national culture served as the basis for the creation of the Katon-Karagay National Nature Park, despite the remoteness and inaccessibility of its territory. In 2003, the Secretariat of the World Wildlife Fund (WWF) awarded the Government of the Republic of Kazakhstan with the Certificate "Gift to the Earth" for the creation of the Katon-Karagay State National Nature Park and for expanding the network of protected areas.

Kazakhstan became the 85th in the general list of Gifts and received it first among the countries of the Central Asia. On June 12, 2014, at the 26th session of the International Coordinating Council of the UNESCO Program, the Katon-Karagay State National Nature Park was awarded the international status of the UNESCO Katon-Karagay Biosphere Reserve. The main criterion for biosphere reserves is the sustainable use of resources combined with the protection of biological diversity. In 2017, UNESCO officially approved the nomination as the Greater Altai Transboundary Biosphere Reserve. The total area of the transboundary biosphere reserve is 1,543,807 ha, including 956,890 ha in Kazakhstan and 586,920 ha in Russia (Ivashchenko, 2009).

### Physical and geographical features of the Katon-Karagai State national nature park

Preservation and restoration of the unique nature of the Southern Altai, which have a special ecological, scientific, cultural and recreational value. The location of the Katon-Karagay park in the center of the giant continent of Eurasia experiences a sharply continental climate. Annual rainfall in different areas ranges from 600 to 1800 mm. whereas the maximum rainfall is in July, the minimum is in August. The main part of the territory is occupied by the basin of the Bukhtarma River, which flows within the boundaries of the park for about 200 km (with a total length of 405 km). The southern part of the reserve belongs to the basin of the Kara-Kaba River, a right-bank tributary of the Black Irtysh. On the northern slopes of the Listvyaga Ridge are the upper reaches of the Tikhaya River, a tributary of the Katun. All rivers have a typical mountain character and a peculiar flow regime. They are extremely full-flowing in the first half of

summer and almost waterless in winter (Janaleyeva, 2010). There are about 400 lakes in the park. Most of them are small, with a mirror area of up to a square kilometer. The largest lake - Bukhtarma - is located near the head of the river. Bukhtarma (2056 m a.s.l.). Its length is 5.3 km, its width is 1.1 km, and its maximum depth is 22 m. The Big Rakhmanovskoye Lake is located very close by. Its area is two times smaller, but the depth reaches 30 m.

For many years, the Rakhmanovskie Klyuchi sanatorium has been operating here on the basis of thermal radon sources - an invaluable nature health resort for people suffering from diseases of the musculoskeletal system. Three more large lakes - Yazovoe (3x0.7 km), Chernovoe (4x0.6 km) and Maralye (3.5x1 km) - are located on the Listvyaga ridge. The waters of these lakes abound with fish. The ide and grayling are especially numerous. One third of the park's area (267,202 ha) is occupied by forest landscapes dominated by relic formations. Taiga forests of larch, cedar, fir and Siberian spruce in Altai grow in extreme conditions of existence (<http://br.katonkaragai.kz/>, 11.04.2022).

### Flora of the National Park

The floristic composition of the national park is rich, which is represented by a significant number of higher vascular plants (more than 2000 species), mosses, lichens and fungi. Among herbaceous plants there are many relict ones: *Anemonoides altaica*, *Atragene sibirica*, *Astragalus glycyphyllos* *Poa altaica* Trin.

Of particular value are rare species that need protection, and some of these species (more than 30 species) are on the verge of extinction and are listed in the Red Book of the Republic of Kazakhstan *Macropodium*, *Rheum altaicum* Losinsk, *Erythrōnium sibīricum*, *Tulipa heteropetala*, *Cypripedium macranthos* and *Sibiraea altaiensis*, *Hupérzia selágo*, *Leontice altaica*, *Paeonia tenuifolia*, *Rhodíola rósea*, *Daphne altaica* (Aralbayev, 2004).

The main asset of the national park is the forests that encircle the mountains with a green necklace, softening and regulating the climate; they perform a soil-protective and water-regulating role, preserving the steep slopes of the gray mountains from erosion, which are the sources of numerous rivers flowing into the formidable Bukhtarma. Forests here are slightly changed by economic activity and have low losses from forest fires (Artemov, 2009).

Mountain forests are common at an altitude of 1000 to 3200 m above sea level. They provide shelter and food for animals and birds. These are evergreen cedar, spruce and fir, as well as larch, which sheds its needles for the winter, and with the advent of spring is covered with delicate juvenile needles. Of the deciduous trees, these are white-trunk birch, poplar, aspen, trembling in the wind, and many types of various willows that are found in the floodplain of mountain rivers and streams, occupying wetlands. Shrub flora includes more than 50 species: raspberries, currants, wild roses, meadowsweet, shrub willows, dwarf dwarf, etc. Up-to-date accounting data for the coverage of areas of a particular tree category:

- coniferous species – 144 040 ha;
- softwood – 48 867 ha;
- shrubs – 67 477 ha;

The total area covered with forest is 260 384 ha (Danilov, 2005).

### Fauna of the National Park

The fauna of the National Park is also rich and includes 68 species of mammals, 277 species of birds, 3 species of amphibians, 6 species of reptiles, 9 species of bone fish and more than 10 thousand invertebrates, which include beetles, butterflies, dragonflies, arachnids. The faunistic richness of practically important species is evidenced by the presence in the National Park of 5 species of only ungulates - deer, elk, roe deer, musk deer, mountain goat. In the forest you can meet brown bear, sable, common wolf and fox. The most numerous group of mammals are rodents: marmots, squirrels, chipmunks, mice and voles. Capercaillie, hazel grouse, nutcracker inhabit this area (Bekenov et al., 2002)

In the park there are various species of animals and birds listed in the Red Book of Kazakhstan: snow leopard, argali, stone marten and Ikonnikov's night bat, hawk-nosed scoter, peregrine falcon, saker falcon, osprey, golden eagle, imperial eagle, Eastern imperial eagle, owl, gray crane, demoiselle crane, Altai snowcock, taimen, two types of mollusks - monachoides aculeata and gastrocopta Teeli, etc. In the National Park, from the first days of its organization, work has been carried out on the inventory of flora and fauna, the study of the number and biology of vertebrates, and complex biotechnical measures are being carried out (Baydavletov, 1995).

## RESULTS DISCUSSIONS

### Nature attractions of the Katon-Karagay State National Nature Park

The main objects of ecotourism and recreation of the East Kazakhstan region are located within the Katon-Karagai region. On the territory of the Katon-Karagai State National Park there are a number of unique nature, archaeological, historical and cultural attractions. Some of them have or claim international status. In particular, the highest mountain of the Altai-Sayan mountainous country is Belukha (4506m); the largest in Altai, Kokkol waterfall (56 m), as well as other waterfalls: Yazevoy and Arasan; thermal springs Rakhmanovskie Klyuchi; the abandoned high-mountain mine Kokkol; unique Berel archaeological sites and others (Figure 4) (Egorina et al., 2017).

**Mount Belukha** is a geological object of the nature reserve fund. It is located in the south-west of the Altai province, district III, Listvyazhny district, the sources of the river Belaya Berel, located in Katon-Karagai district of the East Kazakhstan region. The highest peak of Altai and Siberia (4506 m) - Mt. Belukha is located in the north of the national park, on the border of Kazakhstan and Russia. The slopes of its two-headed peaks are covered with eternal snows and glaciers. The Belaya Berel and Katun rivers originate from the Belukha glaciers.



**The Rakhmanovskie mineral springs** are located in the amazingly beautiful basin of the Rakhmanovskoye Lake (area - 1.14 sq. km), on its northeastern shore, on the right side of the river valley, Arasan. According to historical data, there were the ruins of a Buddhist shrine on the site of the Rakhmanov springs. At 80-100m from the shore of the lake there is a small elevated rocky platform (100x150m), on which the buildings of the Rakhmanovskie Klyuchi sanatorium are located. Thermal springs flow from under the northern side of the site from cracks at the contact of granites with slates in the direction from east to west and almost all along the same line with a total length of about 80 m. Rakhmanovskie springs are typical representatives of siliceous waters of hydrocarbonate-calcium composition, established in a number of districts of the East Kazakhstan region. The spring water has a temperature of 34<sup>0</sup> to 43<sup>0</sup> C. In addition to silicic acid, the water contains free carbon dioxide (up to 0.03 g/l) and radon (10–35 eman). Spectral analysis revealed traces of lead, iron, copper, molybdenum, boron and silver (Egorina and Loginovskaya, 2016). Rakhmanov springs are widely known both in Kazakhstan and abroad due to the balneological sanatorium "Rakhmanovskie Klyuchi", which has been operating for a long time on their basis. The sanatorium is located on the territory of the Katon-Karagay botanical and mineralogical reserve and the Katon-Karagay State National Nature Park. The one-time capacity of the sanatorium is 80 beds, the profile is balneo-therapeutic (Zhenskibayeva and Saparov, 2017). A stop for 1-2 days in a sanatorium is included in the programs of many horseback, mountaineering, rafting and other routes.

**The Arasan waterfall** is one of the largest in the east of Kazakhstan. This natural formation is of aesthetic value and cognitive interest. The Arasan waterfall is formed by the Arasan river flowing from the Rakhmanovsky lake. This is a two-stage cascade of five and six meters in height. After passing through the Small Arasan Lake (1734 m above sea level), the river acquires a rapid character and rapidly rushes among shale rocks and huge boulders. 6 km below the resort village of Rakhmanovskie Klyuchi, approximately on a 300-meter section, the elevation difference reaches 200 m. Here, water flows along the steep wall of the Berel trough, falls from a height of about 1600 m above sea level into the Belaya Berel valley in two wide stepped cascades (Medeu, 2010).

**The Yazovaya waterfall** is located 2 km below the exit of the Yazovaya River from the lake of the same name, 10 km northwest of Yazovka village. The waterfall is formed by the Yazovaya River, the right tributary of the Belaya Berel. After leaving Lake Yazovoe, it flows through a wide valley inclined to the south, the flat surface of the bottom of which is only sometimes disturbed by low moraine hills. The valley is covered with colorful floodplain grass-forb meadows and shrubs. Its right side, almost from the very lake, is densely covered with cedar-larch forest, and near the waterfall, the forest rises to the very channel from the left bank of the river. The landscape of the site is very picturesque. A noisy, swift waterfall, majestic larches and cedars towering above it, a kind of river gorge give a special charm. Yazovoi is one of the small but very expressive waterfalls in the north-east of the region and represents aesthetic value as an object of cognitive and ecological tourism. It is quite accessible for inspection, as it is located in close proximity to the road Yazovka - Yazovoe Lake (on the way of many excursion routes).

**Lake Yazevoe (Karakol)** - Alpine lake Yazevoe is light and still with its calmness. From here you have a magnificent view of Belukha, which in clear weather is reflected in the lake. It is located on the main route to Belukha, the upper reaches of the Katun, to the Kokkol waterfall and the Kokkol mine. Its size is relatively small: 1.0x0.4 km. The bowl of the lake is surrounded by a ring of coniferous forest, leaving in the mountains, passing to the tops in alpine meadows. The lake is famous for good fishing, as its name suggests, which translated from Russian means ide. There are quite a lot of deer and bears in its vicinity. This is the only lake in the region where ides are found. It is located 12 km north of Karaairyk village.

**The Rakhmanovsky waterfall** is located 1.8 km southeast of the resort village Rakhmanovsky Klyuchi, has a height of 50 m. The waterfall forms an unnamed stream located on the slope of the right side of the Rakhmanovsky Lake basin. This stream originates from a small alpine (2265 m) moraine lake and flows into Rakhmanovskoye Lake. The stream flows in a deeply incised hollow that separates two nameless mountains with absolute elevations of 2400 and 2280m, respectively. The hollows are covered with dense larch forest, reaching here the upper limit of its distribution. Treeless areas are occupied by the vegetation of alpine meadows and riverbed phytocenoses. In the middle course of the stream, at the very beginning of the cascades, dense rocks come to the surface in the form of rocky remnants. The Rakhmanovsky waterfall is one of the remarkable nature objects of the location of the Rakhmanovsky Klyuchi sanatorium and the botanical and geological reserve of the same name (Krykbaeva, 2008).

**Rakhmanovskoye Lake** - Located in a narrow and deep depression, processed by water and a glacier, about 9 km from the source of the river. Arasan at 1760 m.a.s.l. It occupies a small U - shaped valley and extends from the southeast to the northwest. The length of the coastline is 5.6 km, the volume of the water mass is 20 million cubic meters. The shores are closed, composed of biotite granites, mostly covered with loose clay deposits and turf. The lake is flowing. The transparency of the water is 6 m. The temperature of the surface layers is 16, the bottom is 4.6 degrees.

**The Kokkol waterfall** is one of the highest in Altai (47 m). In the extreme north-east of the region, it is the most attractive (along with the massif of Mount Belukha) among the objects of educational and ecological tourism. The waterfall is located in the lower reaches of the river. Big Kokkol (left tributary of the Belaya Berel), 23 km northeast of the resort village Rakhmanovskie Klyuchi. The form of river valleys in the highlands of the north-east of the region was

subjected to varying degrees of influence on them by ancient glaciation. Therefore, the upper reaches of the valleys are usually typical troughs with steep walls. In such areas, small rivers and streams flow in hanging valleys, falling from the walls of the troughs in cascades and waterfalls. In similar conditions, the largest of the East Kazakhstan waterfalls, Kokkol, was formed, located in the northern part of the Rakhmanovskie Klyuchi reserve, about 15 km southeast of Belukha Mountain. The waterfall is formed by a small mountain river Big Kokkol, which flows from the lake of the same name and flows into the river White Berel. At the confluence with Belaya Berelya, the bed of the Kokkol River approaches a sharp ledge about 80 m high and with a steepness of about 60–70°.

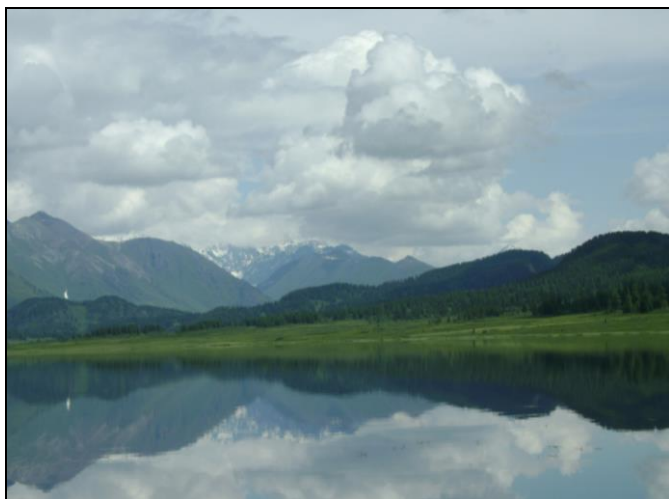
A water stream over 10 m wide rushes down from the wall of the Berel trough with a deafening roar, heard far away. Approximately in the middle, the stream is cut by a narrow rocky ridge, going from top to bottom and dividing it into two unequal parts: a wider right and a less significant left. At the foot of the waterfall, water has carved a wide niche in the rocks with walls polished by centuries of work. When falling from a great height, fine water dust is formed, which ionizes the air in the valley. On sunny days, rising above the waterfall, it is painted with all the colors of the rainbow. Below the waterfall, the channel of the Big Kokkol is littered with huge boulders and boulders that form rapids. In this part, the flow forms several small (1–2 m) cascades (Krykbaeva and Chelyshev, 2006).



A) The highest mountain of the Altai-Sayan mountainous country - Belukha (4506 m)



B) Rakhmanovskie mineral springs



C) Rakhmanovskoye Lake



D) Waterfall Yazovaya

Figure 4. Ecotourism attractions of the Katon-Karagay State National Nature Park (Source: Turyspekova, 2022)

### Historical and cultural sights of the Katon-Karagay State National Nature Park

The Katon-Karagai State National Nature Park has the necessary resources for the development of domestic and inbound tourism. Unique natural resources and the original culture of the nomadic people has a huge untapped potential for the development of tourism in the international and regional markets. The tourism potential of recreational resources and historical and cultural heritage allows the region to harmoniously integrate into the international tourism market and achieve intensive development of tourism in the country. This will ensure a steady growth in employment and incomes of the population, stimulation of the development of industries related to tourism and an increase in the inflow of investments into the national economy. The key components of the nature and recreational potential of the Katon-Karagay State National Nature Park are favorable climatic conditions for resort treatment and picturesque combinations

of relief, lakes, their seasonal comfort for any kind of tourist and recreational activities. In addition to nature, it is rich in historical and cultural monuments located on the Great Silk Road, which are of worldwide importance.

The organization of transit tours on the Great Silk Road is especially relevant, as this will give Kazakhstan the opportunity to enter the zone of interest of such countries as Japan, Malaysia, China, Korea, as well as European states. To give uniqueness to the already existing tourism potential of the park, it is suggested to develop, first of all, ecological, cultural, educational, ski tourism, which in the long term will provide a comprehensive tourist product that is competitive in the Kazakhstani and international markets. The creation of such a product is based on favorable climatic conditions, the availability of water resources, balneological resources, a rich landscape and recreational potential, as well as an original historical and cultural heritage, the presence of unique museum complexes of international importance.

**Austrian road** connects the village of Terekty (formerly the village of Alekseevka), the village of Urunkhaika (Lake Markakol), the Burkhat pass, the Bukhtarma river valley. With a length of almost one and a half hundred kilometers, the Austrian road is known for its beauty. Starting in the steppe (desert-steppe) part of the region in the village of Terekty, it goes almost strictly to the north through the Marble Pass, composed of white and gray marbled limestones, from here a panoramic view of the grand dunes of the Kyzylkum sands, located on the Chinese side, opens up, past the unique Markakol Lake, through the valley of the mountain river Kara-Kaba, to the Burkhat pass (2098 m), from which a view of the Katunsky ridge and the valley of the Bukhtarma river opens.

The road has its name, Austrian, which is not official, due to the fact that it was built in the period from 1914 to 1916 by Austrian (Czech) prisoners of the First World War. The Austrian road has historical value as a kind of monument, which, like a necklace, includes "precious stones" - unique nature monuments: Marble Pass, Lake Markakol, Alataysky and Burkhat passes, valleys of the Kara-Kaba and Bukhtarma rivers.

#### **Northern Branch of the Great Silk Road (Golden Branch)**

The Northern Golden Branch of the Great Silk Road is an ancient caravan route connecting the Central Asian Regions of Mongolia and China with the Irtysh region, and, following further west and south to the most significant markets of antiquity. To date, this direction has remained within the Katon-Karagay State National Nature Park.

Within the national park, this path is a very picturesque area. Especially within the village of Arshaty - the Ukok pass. Here the road runs along the river. Bukhtarma, which in these places has a stormy, mountainous character. The left side of the valley is steep and densely covered with coniferous forest, above which the snowy peaks of the Southern Altai ridge rise, reaching almost 3800 m above sea level. The right side of the valley is composed of low mountains with sparse coniferous forests and meadows. Above the confluence of the river appear Chindagatuy alpine larch forest, passing on the Ukok plateau into alpine steppes and tundra. It is no less picturesque within the Ukok plateau.

Along the road there are a large number of ancient graves of various ages and origins. This Northern Branch of the Great Silk Road is rightfully called the Golden Branch. The gold and bronze of Altai, the gold of the Scythians and Arimaspians went along it to the East and West. A large number of archaeological finds of world significance were made in the Russian part, in particular, the famous Pazyryk excavations (in the Russian part of the route) and Berel excavations in the Kazakhstan part. Historical analysis and decoding of the Northern Branch of the Great Silk Road are still waiting for their researchers, but now we can say with confidence that it is of great cultural, historical, nature and aesthetic value of world significance (Harms et al., 2016).

**Burial ground Berel** has about 70 burial mounds with rocky mounds of various sizes. Unique finds of the nomadic elite of the Scythian-Saka time (IV century BC) were found in them, preserved, thanks to the phenomenon of permafrost. The mummified remains of people and horses, decorated in the best traditions of the animal style, are highly artistic examples of ancient art. A large number of items and decorations were found here, wooden tablets with drawings, felt cloth, the remains of horses with harness, a burial room with a large number of different items. Many items were originally covered with gilding or gold plates. On the horses were found decorations in the form of gilded long horns. The finds, including organic material, have been preserved in excellent condition due to the location of the barrow in the permafrost zone. Location: near the village of Berel, the valley of the Bukhtarma river, at the confluence of the Sakhatushka river and the Bukhtarma river (Gorbunov et al., 2005).

**The Kokkol mine** is a historical and geological monument, an open-air museum of excellent preservation, the now inactive molybdenum-tungsten high-mountain mine of the times of the Great Patriotic War in the upper reaches of the Big Kokkol river. The abandoned mine Kokkol is a unique monument of mining. It was founded in 1938 at the Kokkol pass (3000 m above sea level) (Egorina and Loginovskaya, 2016). Tourist and recreational activities in the Katon-Karagay State National Nature Park are ecological, health-improving, game, business, educational, scientific, cultural-historical, skiing (climbing). Local residents are actively involved in the process of tourism development. Projects have been developed and are being successfully implemented to expand and develop the structure of the tourist areas. Today in the Katon-Karagai State National Nature Park tours are organized along 14 routes. The list of active tourist routes is presented in (Table 2).

The Katon-Karagai State National Nature Park offers therapeutic and recreational activities with antler products, medicinal plants and beekeeping products. The period of cutting and preserving deer antlers is especially important from June to September. For many years, the Altai Territory of Kazakhstan has been especially popular with tourists from different countries for its antler baths and antler medicines. Experience has shown that even a small amount of it has a

beneficial effect on the human body, restoring strength (Table 3). The maximum physical performance of the Katon-Karagay State National Nature Park is 150 people per day. The largest number of guests is 173 people per day (Sharipzhanova, 2020).

The most visited tourist attractions in and around Katon-Karagai National Park are:

Geomorphological tourist attractions: Belukha town, Ukok mountain plateau, Dzhagyrtau town, Khrustalnaya town, Berkutaul town, Listvyaga ridge, Katun ridge;

- Hydrographic tourist attractions: the River Bukhtarma, the River Tikhaya, the River Katun, the River Black Berel, the River Kara-kaba, the River Ak-Kaba, the River Big Kokkol; lakes Bolshoye Rakhmanovskoye, Yazevoye, Chernovoe, Maralye; Rakhmanovskie mineral springs; waterfalls Arasan, Yazovoi, Rakhmanovsky, Kokkol, Black Berel;

- Anthropical (the existence of human life) tourist attractions and recreation areas: Austrian road, Northern Branch of the Great Silk Road (Golden Branch), Berel burial ground, Kokkol mine;

- Major faith centers: Katon-Karagay Mosque, Intercession Church;

- Museums: house museum "Oralkhan Bokeya" in Chingistai village, Ulken Naryn Museum of Local History.

- Major sanatorium centers: Health-improving complex "Nurbulak", sanatorium-recreation center "Valley of the Kings", sanatorium "Rakhmanovskie Klyuchi", "Altai A'Rai" guest house and ecotourism center, "Qaton Qaragai Resort & SPA", "Upper Katun", "Zhazaba", "Zhanat", "Maraldy", "Deer Park", "Akkaiyn", "Bayan", "Belovodye", "Abzal".

Table 2. Active tourist routes within the Katon-Karagay State National Nature Park (Source by Turyspekova, 2022)

№	Type of tourist route	Route name
1	Educational trail	"Rakhmanovkye Kluchi"
2	Tourist excursion route	"Tashhoky"
3	Tourist excursion route	"Forest Roads"
4	Tourist excursion route	"Trek"
5	Tourist excursion route	Berkutaul
6	Recreational and educational trail	"White Berel"
7	Tourist excursion route	"Altai paths"
8	Educational tour	"To the Berel barrows"
9	Educational trail	"To the lake Bulandykol".
10	Educational trail	"Maral paths"
11	Tourist - excursion route	"Ozernyi"
12	Educational and educational excursion	"To the Pacific Lake"
13	Scientific - educational route	"In the native land"
14	Tourist excursion route	"Sarymsakty"

Table 3. Guest houses and antler clinics of the Katon-Karagai State National Nature Park (Source by Turyspekova, 2022)

№	Guest houses	Pantolic hospitals
1	Therapeutic complex "Nurbulak"	"Upper Katun"
2	Sanatorium-Recreation Center "Valley of the Kings"	"Jazaba"
3	Sanatorium "Rakhmanovsky keys"	"Zhanat"
4	Altai A'Rai" guest house and ecotourism center	"Maraldy"
5	Qaton Qaragai Resort & SPA	"Deer Park"
6	Guest complex "Lake Yazevoe"	"Akkayin"
7	Guest house on the basis of farm "Samay"	"Accordion"
8	Guest house "Shakarim"	"Belovodye"
9	Guest house "At Mikhalycha"	
10	Guest House "Sad"	
11	Guest house "Kaindy"	
12	Guest House "Zaimka Klimova"	

Since 2003, a regional eco-tourist gathering "Zhasyly Alan" has been held in the park for schoolchildren.

Goals and objectives of the eco-tourist gathering "Zhasyly Alan":

- promotion of a healthy lifestyle among the students of the East Kazakhstan region;
- promotion of healthy lifestyles;
- teaching the rules of behavior in the nature;
- provision of first aid to victims in field conditions; tourism skills training;
- formation of interest and respect for one's own culture and the culture of other people;
- exchange of national traditions, respect for the environment.

The preparation and holding of the environmental tourism meeting "Zhasyly Alan" is carried out in the village of Katon-Karagay by the department of environmental education and tourism of the Katon-Karagay National Park. And since 2003, the Katon-Karagai State National Nature Park has been actively participating in the international environmental action "March of Parks". The purpose of this action is to attract the attention of the population, the public, public authorities, the media, entrepreneurs to the problems of specially protected natural areas and provide them with real practical assistance, environmental education of the population. The March of Parks annually hosts 13 rural districts and akimats of the Katon-Karagay district, the Ust-Koksinsky district of the Altai Republic of the Russian Federation, the department of education, physical culture and sports of the Katon-Karagay district, 42 schools of the Katon-Karagay and Altai districts, schools of the regional center - the city of Ust -Kamenogorsk, 2 kindergartens of the Katon-Karagai region; KSU "East Kazakhstan Regional Children's Village", Ust-Kamenogorsk, etc. Since 2008, the action "March of Parks" has been held at the international level in conjunction with the Federal State Budgetary Institution "Katunsky State Nature Biosphere Reserve".

As part of the March of Parks, various cultural events and environmental campaigns "Earth Day", "Forest Day", "Water Day", "Bird Day", etc. are held, as well as the International Festival "Land of the Snow Leopard", aimed at formation of positive public opinion in relation to protected areas. In 2019, 18,625 people took part in the action. In 2019, in the competition for the best environmental action "March of Parks" among protected areas, the Katon-Karagai State National Park was awarded the 3rd place (<http://br.katonkaragai.kz/>, 06/17/2022).

## CONCLUSION

The UNESCO program includes the Katon-Karagai National Park (Kazakhstan) and the Katunsky Reserve (Republic of Altai) in the prestigious international network of Kazakh-Russian border biosphere reserves called "the Great Altai". International experts noted the close cooperation between scientists from Kazakhstan and Russia in the preparation of the Great Altai nomination, which became the first transboundary reserve in Asia. Creation of such transboundary specially



protected natural areas will allow optimizing protection and organizing effective monitoring of rare animals and nature processes (Oyungereel and Savenkova, 2004; Vinokurov et al., 2006). To date, the East Kazakhstan region is characterized by: high rates of economic development, investment opportunities, favorable geopolitical and geographical position, transport accessibility, entertainment industry, favorable nature and climatic conditions, rich historical and cultural heritage, centuries-old traditions of hospitality, the presence of educational institutions that prepare professional staff in the tourism industry. Compared to other national parks of Kazakhstan, the Katon-Karagay National Park has the following important advantages (Duzgambaeva, 2021; Chlachula, 2019; Egorina and Loginovskaya, 2016):

- the territory of the national park is a part of the Altai-Sayan Ecoregion. This is the largest national park in Kazakhstan;
- a rich diversity of flora and fauna species is concentrated here and species listed in the Red Book of Kazakhstan have been preserved;
- forests, which are the main asset of the park, occupy 41% of the territory and are consist mainly of coniferous species;
- many objects of historical and cultural heritage are located on the territory of the Katon-Karagai National Park and in its buffer zone.

Ecotourism contributes sustainably to development in terms of social, economic and environmental aspects. Beautiful nature, high tourist activity and the presence of recreational facilities have identified the Katon-Karagay State National Nature as a potential place for ecotourism. In the East Kazakhstan region, ecotourism can help in protecting nature, increasing employment rates and socio-economic development. Conditions for the development of ecological tourism in the Katon-Karagay State National Nature Park should include:

- development of ecological tourism in order to solve environmental and social problems of the tourism industry in the East Kazakhstan region;
- development of a science-based national strategy;
- providing support to local authorities of all public and private structures interested in the development of ecological tourism;
- creation of a geographical information system for future generations in order to streamline the rational use and preservation of unique nature as well as cultural and historical objects.

The sustainable development of ecological tourism in the Katon-Karagay State National Nature Park of the East Kazakhstan region shall solve the following challenges:

- 1) worn down accommodation facilities, i.e. hotels, boarding houses, houses and recreation centers, as well as health resorts;
- 2) currently the quality of accommodation places and their provision for tourists do not meet international standards;
- 3) lack of means and opportunities to control the passage of the route in remote areas and reliable mobile communications to provide emergency assistance in emergency cases;
- 4) the problem of developing cross-border routes in the Katon-Karagai region (the duration of the procedure for issuing a pass to the border zone);
- 5) the problem of the ecological state of recreational areas (anthropogenic load, violation of beach areas).

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