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Paleontological Tourism in the Cold World as a Promising Direction of the Arctic Tourism Development

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Abstract: *The strategy of the geopolitical component of the Arctic and the North is being updated. Tourism plays an important role in solving social problems, ensuring employment growth, and improving the well-being of the population. In the global aspect, tourism is one of the important areas that affect the growth of the economy, including the development of economic activity areas such as the services of travel companies, transport, communications, trade, production of souvenirs and other products, food and others, moreover, it represents a powerful innovative resource for the socio-economic development of the region. The concept of the development of Arctic tourism in the Republic of Sakha (Yakutia), the most northern territory of Russia, reflects the current situation in the northern regions of the republic, its recreational resources, and tourism potential. Thus, unique natural, historical and cultural resources and objects of historical and archaeological heritage are concentrated on the territory of this region. Such a wide range of potentially attractive tourist sites and complexes can be very popular with Russian and foreign tourists, as well as residents of the republic. The relevance of the research is also connected with the world narrative associated with global environmental at societal challenges – climate changes and sustainable development of the arctic territories and indigenous peoples.*

One of the important components of Arctic tourism in Russia should be the paleontological tourism in the Republic of Sakha (Yakutia) because of the big zone of permafrost. The promotion of paleontological tourist destinations and knowledge in the modern world is associated with unique finds of fossil fauna (primarily related to the Mesozoic era), as well as ancient monuments associated with the remains of the first people.

1. INTRODUCTION

The Arctic is the most important part of the planet, the state of which largely determines the future of the world community due to its influence on the processes of climate formation and life conditions on Earth as a whole.

Comprehensive research of the Arctic dictates the study of its natural landscapes, cultural sphere and sustainable figurative-geographical models. The relevance of the study is determined by the development of the Arctic doctrine of the Russian Federation, where the geocultural component should become one of the key factors in the development of natural and recreational space that unites the peoples of the Arctic. The problem of finding ways to solve the fundamental problem of studying the geocultural space of the Arctic in the context of the development of a tourism cluster. Considering geoculture as the process and results of the development of geographical images in

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the local and global contexts, the promotion of geocultural images of the Arctic and the North as a tourism product is an area of interdisciplinary research (Romanova & Zamyatin, 2017).

In modern conditions, the strategic importance of the geopolitical component of the Arctic and the North is being updated. Tourism plays an important role in solving social problems, ensuring employment growth and improving the well-being of the population. Currently, in the global aspect, tourism is a powerful resource for the socio-economic development of the region.

With the development of progress, there are fewer and fewer "unexplored" places, at the same time, the development of infrastructure allows a person to more actively penetrate the North, which provides opportunities for the development of tourism: infrastructure, the economy, and an increase in living standards are developing here. The territory of the Russian Federation is a very relevant and "breakthrough" direction. In this context, the study of such a type of tourism as paleontology initiates a new promising direction of tourism in Russia, which is currently only at the stage of conceptualization and implementation. In other countries and regions, this type of tourism is at different stages of development, somewhere it is already being successfully implemented, and somewhere only at the implementation stage.

The concept of the development of Arctic tourism in the Republic of Sakha (Yakutia) reflects the current situation in the northern regions of the republic, its recreational resources and tourism potential. Thus, unique natural and historical and cultural resources, objects of national cultural, historical and archaeological heritage are concentrated on the territory of the region. Such a wide range of potentially attractive tourist sites and complexes can be very popular with Russian and foreign tourists, as well as residents of the republic (Kosolapov, 2005).

2. ASSESSMENT OF POTENTIAL FOR THE DEVELOPMENT OF PALEONTOLOGICAL TOURISM IN YAKUTIA

Paleontological tourism is considered a specific type of scientific tourism or ecotourism, related to the history of life on earth. It is performed in museums, parks, trails, routes, and guided excavations as a link between the preservation of the paleontological patrimony (Carvalho & Da Rosa, 2008, p. 271).

The popularization of paleontological knowledge in the modern world is associated with unique finds of fossil fauna (primarily related to the Mesozoic era), as well as ancient monuments associated with the remains of the first people. In this context, Yakutia is of great interest, since in ancient times the land of Yakutia was the home of huge giants - mammoths, the remains of which can be found today.

It should be emphasized that the first record of a paleontological find of fauna dates back to 1723, where, in the vicinity of the city of Yakutsk, the head of a mammoth and a Siberian rhinoceros was found in a swamp.

The Republic of Sakha (Yakutia) has the unique potential to become a Mecca for the development of Arctic tourism, correlated with northern paleontology, ending with climate change. So, on the territory, there is a unique accumulation of paleontologic finds of mammoth and other fossils, as well as a thermokarst sinkhole formed due to melting permafrost. As is known, Yakutia contains from 60 to 80% of all mammoth ivory in the world.

The total area of the territory for the development of Arctic tourism in the Republic of Sakha (Yakutia) is 1.7 million square meters (55.2% of the territory of the republic).

The territories for the development of Arctic tourism in the Republic of Sakha (Yakutia) represent a single natural-climatic and national-economic complex, characterized by the presence of a large number of water resources, including rivers - Lena, Yana, Indigirka, Olenek, Kolyma, Anabar, located within the boundaries of specially protected natural areas. The coastal area is washed by the waters of the Laptev and East Siberian Seas, which are part of the Arctic Ocean. The archipelago of the New Siberian Islands is located on the territory of the Bulunsky District, which includes the Novosibirsk and Lyakhovsky Islands.

Climatically, the Arctic zone of the republic, isolated by mountain ranges from the impact of humid and warm air masses from the Atlantic and Pacific Oceans and adjacent to the cold seas of the Arctic Ocean, is the coldest continental region of the world. In the Verkhoyansk and Oymyakon depressions, the largest annual amplitudes of air temperature fluctuations are recorded, exceeding 100 degrees Celsius in absolute value.

There are 45 specially protected natural territories of republican significance in these territories, including 2 natural parks, 1 state nature reserve, 29 resource reserves, 9 unique lakes, and 5 natural monuments. Specially protected areas are attractive objects for various types of recreation, such as photographing landscapes, rafting, mountain tourism, sport hunting, and amateur fishing.

8.2% of the population of the Republic of Sakha (Yakutia) lives in the territories of development of Arctic tourism, the resettlement has a focal-dispersed character in predominantly small settlements, 25.5% (20829 people) of the total population of these territories are indigenous peoples of the North, that preserve their own culture.

The contribution of scientific institutions to the popularization of paleontological knowledge must be noted, such as the unique world-class Research Institute of Permafrost, the Mammoth Museum, the Institute of Human Science and Indigenous Studies of the North, studying the cultural heritage and traditional ecological knowledge of indigenous peoples of the North, Institute of Biological Problems of the North, which studies the processes of global climate change. Undoubtedly, these institutions are developing potential resources for tourism activities in the Arctic.

The study of the mammoth fauna in Russia began with fundamental studies of academic expeditions of the XIX–XX centuries. A large number of remains of mammoths were found on the territory of Yakutia. The largest cemetery of mammoths is located in the lower tributary of the Indigirka River on the river Berelyakh.

The end of the twentieth century gave a new surge in paleontology because this period was marked by active finds of mammoth fauna in Russia and the creation of the International Committee on Mammothology in Geneva with branches in Paris, St. Petersburg, and Yakutsk. In Yakutsk, the unique World Mammoth Museum was established in 1991 as a scientific and cultural center for the study of the mammoth fauna, its habitat, and the promotion of scientific knowledge. In 2002, on the territory of the Ust-Yansky region in Yakutia, the head of an adult mammoth was found, later the scientists collected almost its entire skeleton. The Yukagir mammoth became a world «celebrity» at the International Exhibition "EXPO-2005" in Japan.

The basin of the Yana River and the territories adjacent to it are one of the most promising regions in Northern Eurasia for finding not only skeletal remains but also well-preserved carcasses of mammoths, woolly rhinos, and other representatives of extinct animals belonging to the Early Pleistocene-Holocene complexes. The good preservation of the soft tissues of animals is ensured by permafrost, which in Yakutia has an almost universal development. So over the past 10 years, more than 90% of all unique finds of mammoth fauna have been found in the basin of this river.

In the basin of the middle reaches of the river Yana, the reference section of the Upper Cenozoic deposits is Ulakhan Sullar, located on the right bank of the river, Adycha, 8 km downstream from the village Betenkes. The location is a cliff of the 65-80-meter IV-th terrace above the floodplain, on which sediments from the Upper Pliocene to the Upper Pleistocene are exposed. Here, early researchers found and described bone remains of large mammals of the Olersky theriocomplex, originating from the lower, Early Pleistocene layer (Grigoriev & Novogorodov, 2014, pp. 66-67).

Special attention for the promotion of paleontological tourism in Yakutia is given to the unique landscapes of the Arctic permafrost zone. The Cambrian Museum will be created in the capital of the republic. The reason lies in a large biological explosion - a unique phenomenon that occurred on the territory of the Lena Pillars about 540 million years ago, as a result, most ancient organisms acquired the ability to build a skeleton. The most complete sequence of deposits of organisms, according to which it is possible to study the evolution of the living world of the planet, noted the Academician of the Russian Academy of Sciences Alexei Rozanov in an interview for the channel Yakutia24 (https://yk24.ru/nauka/muzej-kembriya-budet-sozdan-v-yakutii/#). The museum will become a big and modern research platform, not only paleontological finds will be exhibited here, but also a lot of scientific work will be carried out in laboratories and field conditions in the Lena River Park.

Picture 1. The Batagaika crater in Verkhoyansky region of Yakutia

Nowadays one of the popular places visited by scientists is the crater Batagayka, a huge cross-section of permafrost, allowing geologists to dive into northeast Siberia's ice age history. There whimilar phenomena about 10,000 years ago when the Earth was transitioning from the Paleolithic Ice Age into the current Holocene.

The soil in the crevice is about 200,000 years old and has already revealed many fossils: frozen remains of a bison, a musk ox, a mammoth and a 4,400-year-old horse.

3. CULTURAL HERITAGE AND TRADITIONAL KNOWLEDGE

Modern paleontology is a highly developed and interdisciplinary science, the results of which are of interest both to specialists in nature and human sciences.

If we turn to the cultural component of the image of the mammoth, then, of course, in the traditional consciousness of the peoples of Siberia and the North, it is associated with the underworld, the lower world. having a negative connotation. So, in the work of S.V. Ivanov "Mammoth in the Art of the Peoples of Siberia" oral stories are given about an animal of enormous size, which is afraid of sunlight and lives underground, making its way with the help of huge horns. Inhabitants of Siberia and the North. never saw a mammoth live, but considered it a real animal. So, "based on a number of their observations of nature, they believed that the destruction of the banks that appear annually as a result of floods, landslides, sudden cracking of ice on the river are the results of underground or underwater movements of the mammoth" (Ivanov, 1949, p. 135). The attitude towards the mammoth among the indigenous peoples of Siberia and the North was twofold: they hunted for the mammoth bone, and on the other hand, they feared it as an animal that could send misfortunes.

According to the traditional belief of the peoples of the Arctic, the mammoth acted as an assistant to the shaman on his way to the lower world. It was believed among the Yakuts that he who found a mammoth bone should not take it, because her master will die.

The worldview of the mammoth among the Yakuts was associated with the underworld - the world of the dead. In the modern culture of the peoples of the Arctic, the image of the mammoth is reflected in iconic objects. The mammoth symbol is the semantic core of images in the Arctic zone. A pre-glacial fossil that no one has ever seen, but thanks to the finds of remains in the permafrost, it was introduced by indigenous peoples into the context of the development of the northern space, creating links between reality and fiction. The local myths of the northern peoples about the mammoth have preserved the original version of the creation of the Earth by the mammoth: "The mammoth made plains, mountains and rocks ... He drains the earth so that a person can roam."

Modern representations of the image are updated through the Mammoth Museum in Yakutsk, the mammoth “Lyubu” (in Yamal), the mammoth “Zhenya” (in Taimyr), as well as the majestic 10-meter Salekhard monument to the mammoth, which has become a symbol of Yamal.

Researchers correlate the mammoth’s image with a cryofigure of a Bull of Cold (Romanova & Vanhonnaeker, 2017). Among the Yakuts, the concept of Cold in a symbolic frame mobilizes in its ontology inseparable figures associated with it, including the Water Bull and the Bull of Winter, each of which is associated with the figure of a mammoth.

Thus, the image of the mammoth mobilizes the symbolic frame of Cold as an archetypal matrix. Mammoth cemeteries in the Arctic have always attracted not only scientists but also ordinary people as a meeting with a bygone civilization. The mental map of the Arctic has preserved information about the owners of the ice cold in modern realities.

4. CONCLUSION

Obviously. the Yakut Arctic is famous for its unique natural monuments, culture and ethnography. This is one of the few corners of the Earth where natural landscape complexes, which are the habitat of indigenous peoples with their rich traditions of nature conservation, have been preserved in significant areas. Tourism in the Arctic, and in particular, the paleontological destination has great potential, there are significant reserves in its quantitative and qualitative development. With due attention to the development of the tourism industry, it can become one of the most promising and dynamically developing industries in the Russian region.

However, the Arctic ecosystem is vulnerable, so, the paleontological sites are vulnerable due to global climate warming. It is very important to conduct a comprehensive assessment of the impact of tourism not only on the economic development of local communities but also on the arctic ecosystem, to ensure its sustainability. As well as objects of archaeological tourism must emphasize protection and sustainable development, when we attempt to transform archaeological sources into tourism products (Afkhami, 2021, p. 59), the paleontological sites also must be maintained and protected.

The measures to develop paleontological tourism in the Arctic include assessment of the nature and recreational potential of the northern region; creation of a local travel company; development of tourist facilities and infrastructure; staffing of the tourism industry; advertising and information support for tourism products. It should be noted that the implementation of these tourist routes is possible with a reasonable pricing policy (minimization of transport costs) and, as a result, attractive prices for tourist routes) and develop a new direction of tourism in a particular territory. The attractiveness of the tourist product is determined not only by its purely paleontological orientation but also by the general cognitive component, covering the rich historical, geocultural and ethnographic diversity of the region. The product is promising for the development of tourism in this area, as well as the Republic of Sakha (Yakutia), forming the image of Yakutia as an attractive territory for paleontological discoveries.

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