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Ecotourism in Western Siberia: Issues and Topical Solutions

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Abstract: The article presents an analysis of the recreational potential of Western Siberia, problems of implementation and prospects for the development of Ecotourism in the area. The authors describe specially guarding natural territories of the Tobolsk area, in terms of originality and aesthetic significance, natural potential and biological variety. The unique floristic area is also analyzed. The basic reasons for the low efficiency of Ecotourism are considered below. The authors consider opportunities of using of multilingual digital multimedia resource to solve this problem. Suggested specialized presentational product "Tobolsk mainland" is aimed at exploring a wide range of local and foreign network users with unique capabilities of ecological tourism in geographical description in Western Siberia.

Key words: Ecological tourism · Specially guarding natural territories · Virtual tour · Information technologies · 3D panorama

INTRODUCTION

The public attention often addresses to the problem of steady development, saving biological variety and implementation the principles of ecotourism activities.

International initiative in the field of environmental protection and the forming of system of an environmentally steady tourism were presented at the World Ecotourism Summit, which was held in May 2002 in the province of Quebec (Canada) [1].

Orientation toward maintaining a natural, social and cultural diversity, sustainable use of natural resources, environmental education and awareness were the prerequisites for shifting the focus of the traditional tourist services on Ecotourism, which has the highest positive effect in terms of environmental, economic and social development.

International Union for Conservation of Nature (IUCN) defines this type of tourism as the following: "Ecological tourism or Ecotourism is an environment liability towards virgin territories aiming at studying and admiring the nature and cultural attractions that promote conservation, provide "incompetent" influence on the environment, guarantee active social and economic involvement of local residents and the receipt of benefits from this activity with responsibility to the environment [2].

In modern understanding, Ecotourism is a type of tourism, including trips to places with relatively virgin nature, which do not violate the ecosystem integrity and create economic conditions for the conservation of biological diversity and the sustainable development of the region.

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The goal of Ecotourism is environmental education of the society, the formation of ideas about the natural, cultural and ethnographic features of a given area. Ecotourism is characterized by a number of principles. The first of them is travelling to the wild areas, such as national parks, buffer zones of nature reserves and other specially guarding natural territories (SGNTs). Trips are organized according to the principles of conservation, so as not to cause damage to ecosystems and to provide financial support to protected areas and local settlements. Ecotourism is characterized by distinct cognitive components (biologists, geographers, employees of national parks and other experts work as guides and tour guides), so they give environmental education to the tourists and local people.

Western Siberia is a perspective region for the development of Ecotourism in Russia. This is caused by the high natural potential, originality and aesthetic value of landscapes, diverse flora and fauna. Wild nature was conserved thanks to the difficulty of access and poor population of the region. Peculiarity of the natural phenomena and objects allows developing different types of tourism.

Methods: To estimate the recreational potential and prospects of the development of Ecotourism in Western Siberia, (as an example we took Tobolsk's area), there was used the technique of the initial rapid assessment of the ecotourism potential of the territories proposed by Birgit Steck [3]. The methodology included a review of previous studies, reports of researchers and employees of security services, community surveys, reports of tourists and others. Biodiversity appraisement of forest formations of the southern taiga subzone, the abundance of the main tree species, their spatial distribution, typology and landscape diversity of the territory were held by the geo-botanical studies and distance methods on the basis of Geoinformation (GIS) technologies [4, 5].

Materials: On the vast territory of the West Siberian Plain there are unique natural areas, almost virgin, occupied by landscapes. One of them is the Tobolsk mainland. The Tobolsk mainland or the Ob-Irtysh watershed plateau is a vast plain with absolute marks of surfaces about 80-105 m. The plateau is cut off not far from the Irtysh River; the height here is approximately 40-65 meters. The left and right coasts are low; they are the banks the Irtysh. This river makes the relief around Tobolsk very unusual. A native coast of the Irtysh and its hillsides are cut by a dense network of erosion (about one kilometer inward) on a number of hills, mountains and capes, which keep historical name of Alafeyskaya peak (translated from the Tatar language as "indigenous Khan earth"). Rulers' children, wives, relatives settled there. A burg (later called the Trinity) appeared in the south-western part of Alafeyskaya peak in the second half of the 16th century. Later this burg gave birth to Tobolsk city.

From the point of view of natural history, this zone of southern taiga is a place with various plants, wildlife and unique natural landscapes. The territories, located on the Alafeyskaya peak, were influenced by similar geological and climatic processes. That's why their plant and animal kingdoms were alike, rare species were found on the territory of Tobolsk and the Tyumen Region.

The valley of the Irtysh River and bogged areas of Western Siberia are considered as phenomena, unusual for Russia. It is connected with their size and nature of the hydrological regime. The greater part of the vast West Siberian Plain is a wooded and bogged territory; a relatively limited area belongs to the southern taiga subzone. Dark conifer and fir forests in western Siberia are the special strata. The largest territory of these forests belongs to indented coastline of the Tobolsk mainland. A large area is covered with spruce and birch, mixed with lime and pine, forests.

According to A.A. Motoshina and L.N. Vdovyuk [6], wooded landscape and complexes, significance of relief, a great variety of foliage, good passability and visibility of the territory, attractive and affordable coasts of ponds and the presence of a large number of cultural sites characterize a recreational potential of the Tobol and Irtysh area. This allows considering the ??Tobolsk area as a promising for the development of ecological tourism.

The conservation of biological and landscape diversity, regional recreational resources is one of the most important directions of environmental policy. Traditional and effective method of its implementation is the specially guarding natural territories. Natural resources are used throughout the world for ecological tourism.

In Tobolsk region there are three state reserves of regional importance: "Abalak natural and historical complex", comprehensive zoological reserve "Stershiny" and the reserve of regional importance "Tobolsk mainland". There are also five monuments of nature: "Kartashovsky forest", "Medyanskaya small wood", "Neighborhoods of a reserve "Tobol", "Kiselevskaya Mountain with Chuvash Cape" and "the Panin hill" [7].

The goal of all these natural objects is to preserve the unique landscapes, biodiversity, including valuable commercial species of animals and birds as well as rare and endangered species of plants, animals and mushrooms, including:

- Landscapes (native coast of the Irtysh, the slopes of its ancient terraces; lake, fluvial and ancient-fluvial plains; erosive and valley landscapes; bogged areas);
- Samples of the southern taiga of the Irtysh with the plant and animal kingdoms (native fir, silver fir and pine forests on the slopes of the Irtysh River's inflows);
- Diversity of plant and animal kingdoms;
- Relict complexes broadleaf forests;
- Rare and endangered plant and animal species, including those which are in the Red Data Book of the Tyumen region (Tília cordáta, Lílium mártagon, Íris sibírica, Cypripedium macranthos, Cypripedium guttatum, Cypripedium calceolus, Phegopteris connectilis, Dáphne mezéreum, Acorus cálamus, Malaxis monophyllos, Galium triflorum, Pulsatilla flavescens, Listéra ováta, Epipáctis palústris, Neóttia nídus-ávis, Aquila clanga, Haliaeetus albicilla, Grus leucogeranus, Haematopus ostralegus, Bubo bubo, Natrix natrix, Acipenser baerii, Stenodus leucichthys nelma, Gomphus flavipes, Aromia moschata, Apeira syringaria, Phengaris arion, Maculinea telejus);
- Creation of conditions for providing the conservation of cultural heritage and cultural heritage sites.

The attractiveness of the Tobolsk land in terms of Ecotourism is caused by the combination of plant species typical for the southern taiga subzone and steppe. Flora of the Tobolsk mainland has 864 wild species and subspecies (including 22 aggregates) belonging to 5 divisions, 7 classes, 96 families and 399 genera. Among them there are 699 native and 165 adventive species. 82 species are found only in the particular territory.

In spite of the vast territories, species endemism here is low and generic endemism is completely absent. Flora of the Tobolsk mainland is peculiar and unique. Only here one can find such endemics as *Alchemilla circularis Juz*. and *Potentilla tobolensis*.

Potentilla intermedia L. x Potentilla argentea L. and Potentilla canescens Besser has a hybrid origin; it was found and described in the vicinity of the city of Tobolsk (Bashkovo village) [8].

Alchemilla circularis was initially found and described only in the vicinity of Tobolsk, it can't be found anywhere. It is endemic for the area and can't be found or marked out of Tobolsk area.

Botanic nature monument "Neighborhoods of a reserve "Tobol" is the only place with a well-preserved *Tilia cordata*. The original coast slopes are full of rare plants, here we can see a beautiful flower from orchids, it is *Cypripedium calceolus L.* and also we can meet *Pulsatilla patens*. Many species of birds, including the *Luscinia luscinia*, *Sylvia atricapilla* nest here.

In a specially guarding natural territory "Kiselevskaya Mountain with Chuvash Cape" one can find *Stipa pennata (S. Joannis Celak.)* This is a typical steppe plant and can be found in the steppes of Minor and Central Asia, the European part of Russia, the Caucasus. It is a rare species and listed in the Red Book of Russia, the Red Book of Chelyabinsk, Sverdlovsk and Tyumen regions.

On the slopes there is an abundance of another typical representative of the steppe and desert flora, it is wormwood. There is *Artemisia frigida Willd*., *Artemisia glauca Pall. Ex Willd*., *Artemisia dracuncus L*., *Artemisia absinthium L*., *Artemisia vulgaris L.*, *Artemisia scoparia Waldst. and Kit*. and rarely on the disturbed by secondary habitats area we can see *Artemisia sieversiana Willd*.

On the territory of the nature monument there is also (typical of the flora of southern taiga zone) *Fragaria viridis L., Dracocephalum thymiflorum L., Lathyrus tuberosus L., Atrfgene sibirika L*. Forests are represented with birch and aspen-birch forests with lime-tree.

In spite of plant diversity and high recreational potential of the region, Ecotourism is developing very slowly. The main reasons for the low efficiency of Ecotourism are the weak transport access, a vast area (hence a long distance from one tourist object to another), climatic conditions, greatly limiting the tourist season. Another important problem is lack of advertisements about Ecotourism. Thus, only 32 of 135 nature reserves and national parks in Russia have its own website and the information can be ineffective for Eco-tourists. Although this category of tourists possesses a high degree of cognitive interest.

To solve this problem one can use the specialized presentational product "Tobolsk mainland". This is a digital multimedia multilingual resource, which is located in the open access in the World Wide Web [9].

Goals for Creating this Product:

- To inform local and foreign network users about the unique opportunities of Ecotourism in Western Siberia;
- To support existing brands of Ecotourism and to develop new ones;
- To provide convenient web services for mobile consulting about the site;
- To inform people about changes in tourism business, etc.

The design is based on the principle of layer resource of information organization, well-correlated with traditional methods of mapping (division of objects into thematic layers). Among the proposed layers there are administrative, environmental, historical and other thematic maps of the region. Each layer contains icons that correspond to important tourist attractions. For example, an environmental map of Tobolsk city and Tobolsk suburbs contain specially guarding natural territories, which were described above. Also the map has icons of transport communications for tourists who want to travel by themselves (if possible) or to go with a guide.

Along with information about the region and specially guarding natural territories with their uniqueness, the resource will contain information, containing the latest scientific and technological developments; also it will incorporate technological elements, such as virtual tours, photo galleries and 3D-panorama.

Virtual tour in this digital resource is another way for visual representation [10]. This service allows taking a fascinating virtual tour and creates the illusion of staying on the territory of Western Siberia. The main advantage of the virtual tour is the reduction of anthropogenic pressure on natural areas. Other significant factors are time and cost savings for the tourists [11-13]. The virtual tour serves as an interactive guide of all the objects, located at different distances from the actual stay. Virtual journey is accompanied by the possibility of moving with the help of hotspot. Form of the tour includes scoring the foreground and background music, pictures, videos, flash-animation, the plan of the tour, explanations, tips, contact information and others.

RESULTS

Lack of information, supporting Ecotourism and lack of effective traditional forms of people's environmental education can be solved with the help of making a digital multilingual resource. It can be used:

- To create preconditions for Ecotourism's realization as one of the directions of further development of the region,
- To develop tourist infrastructure using specially guarding natural territories to meet the needs of Russian and foreign citizens in tourist services,
- To promote environmental awareness,
- To create conditions for the investors and the subjects of the tourism industry, which will equally contribute to the economy of the city and the region as a whole, taking into account the interests of people, care for the environment and cultural and historical heritage.

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