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**FUNCTIONAL ZONING AS A CONDITION
FOR MANAGING THE NATURE PARK «KONDINSKY LAKES»**

SUMMARY. The article considers the experience of functional zoning of the nature park «Kondinsky lakes», the characteristics of functional zones and subzones are presented, the environmental management system in each zone and subzone is analyzed.

KEY WORDS. Natural park, functional zoning, environmental features, landscape management.

Nature parks, being environmental, ecologically insightful and eco-educational units, are one of the links in the system of ecological networks and play an important role in preservation of biological and landscape diversity of Russia [1]. In order to solve the problems that nature parks face, functional zoning is to be used widely, i.e. the division of the territory into sections of different priority (function) and with various modes of protection and use. The functional zone is considered as the main unit of territorial administration of the nature park [2], [3].

Usually the zoning system in any nature park solves the whole complex of tasks: creating tourism and recreation systems; protecting the natural and territorial complexes, separate communities and rare species of plants and animals in particular; decreasing the anthropogenic impact on natural, historical and cultural complexes of the park at the expense of the differentiated planning structure and the regulation of recreational streams.

The nature park «Kondinsky lakes», located within the middle taiga, except the recreational and nature-oriented zones, defined in the Article «Protected natural territories of the Russian Federation», solves a problem of rational environmental management within the licensed Talnikovoye oil site on the territory of the park. Therefore, functional zoning is an important condition for the park management, as well as the maintenance of the ecological balance of the territory.

The scheme of functional zoning of the nature park «Kondinsky lakes» (Fig. 1) is made in accordance with the results of the analysis of various data, cartographic materials, environmental monitoring of natural components (surface water, soil, vegetation and animal population), schemes of the preliminary functional zoning executed at the design stage of the nature park.

The scheme includes:

- I. Environment-oriented zone, which includes:
 - I.1. Subzone of especially protected ecosystems;
 - I.2. Subzone of an environment-oriented mode.
- II. Recreational zone.
- III. Historical and cultural zone.
- IV. Zone of limited environmental management.

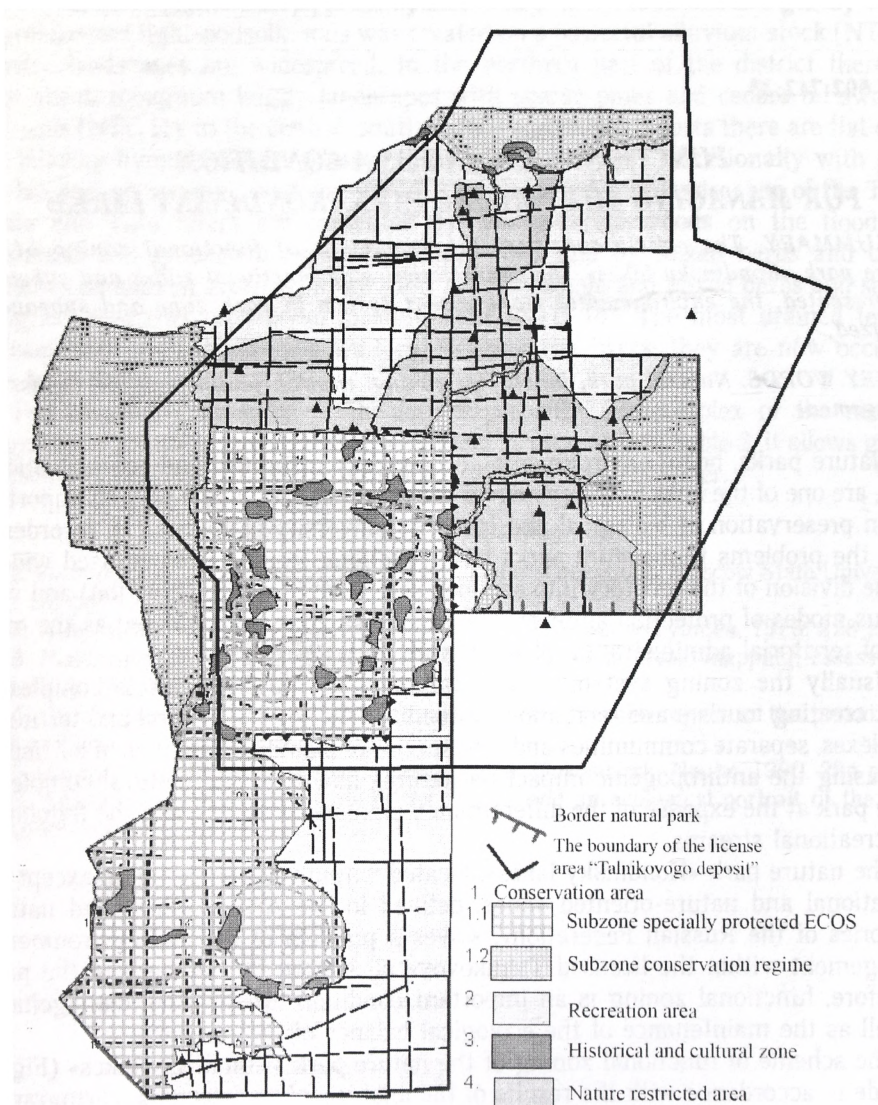


Fig. 1. The scheme of functional zoning of the territory of the nature park «Kondinsky lakes»

I.1. Subzone of especially protected ecosystems.

It is intended for preservation of natural ecosystems in the course of their natural development, preservation of the variety of local types of plants and animals. In the territory it is allowed to carry out scientific research that does not damage natural and historical objects of the park. Within the subzone the following sites are distinguished according to the ecological features:

1. Territories, adjoining lakes, valleys of the rivers B. and M. Akh. The most widespread on this site are:

a) Natural boundaries of sloping trained surfaces of the interfluve, covered with the pine suffruticous-lichen and suffruticous-green moss woods on leach soils, which carry out drain-controlling, soil-protective and recreational functions.

b) Natural boundaries of undulate, non-drainable surfaces of slopes of the interfluve plain with riding suffruticous-sphagnous bogs on riding peaty soils, which carry out an important water reserving function. These complexes are steady against recreational loadings, but are vulnerable to polluting anthropogenic influence.

c) Natural boundaries of flat and wavy trained surfaces with small-leaved and pine with larch impurity motley grass- suffruticous-green moss and finely grass-green moss woods on cespitose and leach soils («Volodina gorka», «Muravynaya gorka»). They differ in highly specific variety, and they are a place of a large number of rare types of plants needy of special protection. The vegetative cover of complexes carries out environmental and resource functions. Therefore, these sites demand a strict mode of protection.

d) Natural boundaries of floodplains of the small rivers and natural boundaries of the lakeside slightly sloping trained surfaces covered with birch, willows, sedge and grassy woods on marsh and leach soils. The vegetation of these natural boundaries carries out very important functions: water protection and soil-protection. The woods are habitats of rare species: gentian pulmonary, gudayer creeping, field korostavnik.

e) The large massive of an oligotroph bog «Bazovoe» is presented by the chain-uliginous complex, entering into the natural boundary of undulating non-drainable slope of the interfluve plain. The ridges form coarse-cellular structure. The vegetation is presented by pine suffruticous-sphagnous groups on high ridges and andromeda-sphagnous groups with low floral sedge on low ridges. The natural boundary carries out water reserving and drain controlling functions.

The need of introducing a highly protective mode is determined by the fact that the marsh complex serves as a drainage for the lakes Rangetur, Svetloe and B. Akh's river. Due to its confined location, the bog Basovoe is a habitat of a large number of different species of birds. Besides, in the territory of the nature park the unique watershed marsh complex with a characteristic structure is founded, which makes it valuable as an object of scientific research.

2. The subzone includes water areas of lakes Arantur and Pontur and lakeside natural boundaries:

a) Natural boundaries of floodplains of the small rivers and natural boundaries of the lakeside slightly sloping trained surfaces covered with birch, willows, sedge and grassy woods on marsh and leach soils. The vegetation of these natural boundaries carries out very important functions: water protection and soil-protection. The woods are habitats of rare species: gentian pulmonary, gudayer creeping, field korostavnik.

b) Natural boundaries of slightly sloping, lightly drained surfaces of river and lakeside floodplains with boggy sedge osier-beds or sedge and cereal meadows on alluvial meadows and marsh soils. The vegetation of these natural boundaries carries out water protective and supplying functions.

c) The natural sanctuary, the Rangetur river, including the lake water area, the coastal zone 1 km wide and the sites adjoining it. On the northern and eastern coast of the lake there are big areas of natural boundary of wavy light-drain slopes of the interfluvial plain covered suffruticous-sphagnous bogs on upper peaty soils. In this natural boundary there are places of nesting of rare bird species — a sea eagle, a gray crane, a red-footed falcon, and also a place of congregation and nesting of a large number of many other aqueous and semi-aquatic birds.

On the southern and western coast there are natural boundaries of upper regions with pine suffruticous-lichen forests on the leach soils, being characterized by rather low stability to trampling (the main form of damage due to gathering cowberry in the woods). It defines the regulation of terms and volume of collection on the sites.

On the southwest coast of the lake there are small sites of natural boundary of sloping surfaces covered with cedar and pine, fir-tree of the suffruticous-green moss woods on leach. Being the zone of middle taiga, its vegetative cover represents scientific interest for surveying and preserving of a species variety and successive dynamics.

In the territory of especially protected zone silvicultural, biotechnical and organizational and technical actions may be carried out, according to the approved projects and regulations.

I.2. Subzone of an environment-oriented mode.

Within the zone there are unique and typical middle taiga natural complexes that carry out various natural ecological functions — water protection, drain control, water reservation. Ecosystems should preserve their natural state, be self-sustainable and restore the components of ecosystems.

In the territory of the subzone any activity changing the hydrological mode, involving the destruction of soil and vegetative cover, or changing historically developed natural landscape, is forbidden.

Within the subzone of the nature-oriented mode, the development of an oil field is limited: arrangement and operation of areal objects is not allowed. Carrying out prospecting works and constructing utility line areas is authorized on the basis of license and features of the established nature protective mode.

In the *western site of the subzone* («Suleymanovy islands») the domineering areas are natural boundaries of slightly drained surfaces of slopes of the interfluvial plain covered with riding suffruticous-sphagnous bogs on upper peat soils. The natural boundaries of the sloping trained surfaces covered with the pine suffruticous-lichen woods on strongly leach soils (so-called «mineral islands») are combined with them and the natural boundary of highly drained surfaces with birch and pine suffruticous — green moss woods on leach soils.

In those regions there are rare species registered in the Red book of the Russian Federation — a red-footed falcon, a gray goose; there are rare species of the Red book of the Tyumen region and Khanty-Mansi Autonomous Okrug — a badger, a gray crane, a big curlew, a hooping swan, a harrier. Besides, places of nesting

of the average curlew are found. The natural boundary is the territory of spring-autumn and winter pasture and migratory ways of a wild reindeer.

The site located in a valley of the river Lemya, is presented by natural boundaries of the sloping drained surfaces of the floodplains covered with fir-tree, cedar and pine with motley grass woods on alluvial leach soils and natural boundaries of sloping drained interfluvial plains, covered with pine suffruticous-lichen woods on leach soils. The woods carry out the major environmental and resource functions, and are a habitat of rare species. *On the river Lemya* there are places of continuous dwelling of a specially protected species — the West Siberian river beaver. These sites demand observance of a nature protection mode.

The East site of the subzone is presented by a combination of big natural boundary areas of sloping, slightly drained areas slopes, covered suffruticous-rassy sphagnum bogs on upper peaty soils, and small natural boundary areas of sloping drained surfaces covered with pine suffruticous-lichen woods on strong leach soils («mineral islands»). Here places of nesting of the bird species included in the Red book — the average curlew, a gray crane, and it is also a place of congregation and nesting of bird species.

One of the most interesting marsh complexes of park, the bog Polosatov, is located on this site of the subzone. This is a complex mesopeat bog, which is fed by a stream of moderately rich mineral waters. On the northern suburb of a bog there are numerous habitats for plants included in Khanty-Mansi Autonomous Okrug Red book, which requires the organization of necessary protection for this marsh complex.

Natural boundaries of valleys of the rivers B. and M. Enyya are slightly sloping drained surfaces covered with cedar and fir-tree with motley grass — green moss, pine and birch with the woods on alluvial and leach soils. Inundated communities are habitats of a large number of rare and background species of mammals and birds, and also a place of rare plants in need of special protection.

II. Recreational zone.

The area of the recreational zone makes about 29% of the area of the territory of the nature park and is quite evenly presented in the northeast, northwest and southeast parts of the nature park.

The zone is intended for having a rest and pursuing all kinds of insightful touristic activities. It is allowed to hunt for sport or pleasure, to fish, to gather mushrooms, berries, to go hiking, to travel around the area, to do sportive outdoor and indoor activities, all this within specially allocated zones.

In the recreational zone any activity, detrimental to park resources or endangering visitors themselves is forbidden. It is also forbidden to drive and to park the car in places not aimed for this purpose. It is not allowed to camp and set fires in other but specially allotted places. It is strongly forbidden to damage vegetative and soil cover, to litter in forests and water reservoirs.

The territory is potentially productive from the scientific tourism point of view, particularly in the sphere of research in nature and resource functions, in vegetation communities, recreation stability and aesthetic value of landscapes. Besides, natural complexes are of interest for doing sport activities in wintertime, for developing of extreme tourism and ecotourism in summertime.

Natural boundaries of the flat trained sites of slopes of the plain with cedar and pine suffruticous — motley grass-green moss the woods, with considerable impurity of a fir-tree and a birch, on cespitose and leach soils are very picturesque.

Natural boundaries of the flat well-drained slopes of the interfluve covered with pine suffruticous-lichen woods on strongly leach soils are very suitable for leisure activities. In this part of the recreational zone development of various forms of tourism is promising, e.g. wild harvesting and camping. The regulation of recreational loadings is carried out by means of planning methods.

III. Historical and cultural zone.

The zone is represented by separate clusters within the protected territory of the nature park. The territory is of great interest for the development of scientific tourism and for research in archeological sites and objects of historical and cultural heritage, the safety and preservation of which is highly important.

In the territory of park there are 234 archeological objects, characterizing the history of the territory development by people from the Mesolithic era till the contemporary period. Archaeological heritage, typical for taiga of Western Siberia, is presented by ancient settlements, stop-over points, cult places, burial grounds, production and trade objects.

The majority of settlements are concentrated in the mouth of the rivers Enyya, Lemya, Okunevaya, Zolotaya, Small Akh, and on the coasts of lakes.

Within the historical and cultural zone prospecting works and unpermitted scientific research are forbidden, as well as collecting objects of cultural and historical value and excavating works. These sites are of interest for the organization of students' practice (archeologists, historians, ethnographers) and school students in general.

IV. Zone of limited environmental management.

This zone is allocated in the northwest part of the nature park in connection with the implementation of its territories in the development of Talnikovoe oil field. The zone is to exclude the possibility of detrimental anthropogenic influence on adjacent especially protected territories. It is aimed at realizing the goals of landowners as established by a certain regime.

Any activity, changing the hydrological mode, or bringing about drastic changes in the natural landscape, or menacing with decrease or destruction of ecological, esthetic, recreational qualities of natural complexes and the historical and cultural objects, is forbidden.

Carrying out prospecting and oil and gas extraction works is authorized on the basis of licensing, with the particular nature protection mode taken into account, and with the agreement reached by the administration of the nature park, nature protection services and performance of special conditions, and with all requirements minimizing the environmental damage met.

REFERENCES

1. Buyvalov, Yu.A. How to create the management plan of a national park. M, Publishing house of the Center of protection of the wild nature, 2002. 127 p.
2. Strategy of management of national parks in Russia. M: Publishing house of the Center of protection of the wild nature, 2002. 36 p.
3. The federal law «About especially protected natural territories» (with changes and additions) No. 33-FZ, 1995.