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## ECOLOGICAL STATE OF BIODIVERSITY IN OLD-BERDIANSK FORESTRY

*The conditions for biodiversity of Old-Berdiansk forestry conservation, researching it as well as its ecological state are given in the article. The typology of forest plantations is considered.*

*Keywords: biodiversity, forestry, typology, ecological condition.*

The reasons causing ecological problems are nature conservation and the environment protection. That is why its principal method is forming and development of natural forest reserves and protected areas such as forestry. To determine the current status and further development of the biodiversity of our country, region, district it needs to analyze and control each natural object.

Old-Berdiansk forestry researching started in 1950 by scientific expedition led by AL Bellegarde. The expedition studied forests, subordinated to Melitopol forestry enterprise, to which Old-Berdiansk forestry belongs. The research focused on the study of soil, flora and fauna, the climatic characteristics of the territory and served as the basis for substantiating forestry-growing conditions for artificial forests in steppe zone of Ukraine. That is, soil scientific, hydro-climatic, biological and silvicultural researches were being conducted. They fully examined forest reserve and later such studies had never been conducted.

When researching the properties of forest areas generally adopted ecological, bio-geo-coenosis and geo-botanical methods as well as statistical, mathematical and evaluation methods were used. Evaluation of recreational potential of Northwest Azov plantations was conducted on the database of draft project organization and development of "Melitopol forestry" enterprise. Old-Berdiansk forestry" of Zaporizhia Regional Forestry and Hunting [6], evaluation description, field studies of certain sections of the area were being researched according to modified methodology using software.

The *purpose* of the article is to research ecological biodiversity state in Old-Berdiansk forestry as a silvicultural landscape in the steppe.

Old-Berdiansk forestry is a man-made forest, that is why it is considered the silvicultural anthropogenic landscape.

Massive Old-Berdiansk forest is the green oasis in arid Pryazovska Steppe. Being anthropogenic by origin it has not become isolated from the environment and from its very planting it started close interchanging of matter and energy with the adjacent natural systems. Along its border natural coexistence of forest, steppe and water objects is being realized [1].

Modern landscape topological structure of Old-Berdiansk forestry was described on the basis of valuation description analyzing plantations of trees within the boundaries of quarters as of 01.01.2009 [6] and its field research. Landscape and topological features of Old –Berdiansk forest massif are preconditioned by its spatial location on the left bank of the Molochnaia river valley at the very confluence of the river Arabka. Landscape structure of the territory is being complicated by river-valley landscapes

(floodplain; first, second, third, fourth, fifth and sixth above the floodplain terraces, stagnant lakes, wetlands, coastal landscapes) as well as minor relief changes in topographic surfaces (gully, hollows, hills and erosional forms).

Old-Berdiansk forestry is the part of regional recreational silvicultural systems of Northwest Azov, being the reserve for the recreational activities development in the steppe zone of Ukraine. Forest bio-geo-coenosis possessing their ecological properties form the basis for further formation and development of forestry biodiversity. Determining of the ecological state in forest areas is essential for optimizing as well as efficient use of the territory and biodiversity development.

Based on the existing forests division into groups and protection categories, their functional value as well as practice, having already been set, in forestry holding and use for the next auditing period, the following business entities have been formed:

- forests of environmental protection purpose with restricted mode of use on the plain;
- recreation and health forests with special mode of use on the plain;
- protecting forests with special mode of use on the plain.

The main tree species in Old-Berdiansk forestry are: ordinary honey locust (*Gleditsia triacanthos*), oak (*Quercus robur*) and white acacia (*Robinia pseudoacacia*). In addition, there are some cultures of pine (*Pinus sylvestris*) and Crimean (*Pinus nigra pallasiana*), field maple (*Acer campestre*) in small numbers and maple (*Acer platanoides*), birch (*Betula*) as well as some other species: Juniperus virginiana (*Juniperus virginiana*), the average spirea (*Spiraea media*). Hornbeam elm (*Ulmus minor arpinifolia*) grows in impurity, Virginia bird cherry (*Prunus virginiana*), Japanese Sophora (*Styphnolobium japonicum*), maclura orange (*Maclura pomifera*), Indian Rose (*Rosa chinensis*), Phellodendron amurense (*Phellodendron amurense*), Forsythia (*Forsythia*), Ailant (*Ailanthus*) and 14 species of willow (*Salix* L.). From the bushes there grow yellow acacia (*Caragana arborescens*), smoke tree (*Cotinus*), Tartar maple (*Acer tataricum*), on lawns - blackthorn (*Prunus spinosa*).

According to the typology of Pogrebniak P.S. within Old-Berdiansk forestry produce 11 forest types are being distinguished, among which fresh eroded grove (53.5%) dominates and dry eroded black maple grove; much less area is under dry maple-oak-lime grove (up to 10.8%) [4].

Sanitary state of forests in forestry now is considered to be satisfactory, being confirmed by the amount of dry-resistant and damaged wood. In the course of last revision period, the outbreaks of mass reproduction of pests were not observed [6].

Such animals as moose (*Alces alces*), roe (*Capreolus* Gray) squirrel (*Sciurus*), marten (*Martes*), badgers (*Meles*), wild boars (*Sus scrofa*), hares (*Lepus*), foxes (*Vulpes vulpes*) live here. Among birds – long-eared owls (*Asio otus*), waxwings (*Bombicilla*), bullfinches (*Pyrrhula pyrrhula*), yellow head beads (*Regulus regulus*) - the smallest bird in our country. But nowadays many varieties of birds are no longer there, red-footed falcon (*Falco vespertinus*), falcon - balaban (*Falco cherrug*), common buzzard (*Buteo buteo*), steppe eagle (*Aquila nipalensis*), pallid harrier (*Circus macrourus*). This is the result of environmental crisis.

Hunting is banned in the Old-Berdiansk Forestry, so we can safely say that the situation is satisfactory as well as fauna state. Prohibition of hunting gave the ground for

animals to freely multiply, grow and enrich forestry biodiversity. In recent years, there were not found any cases of leptospirosis among animals [6].

Since 1919 scabies (carkoptoz, demodicosis), having been imported from Europe, gained widespread in Ukraine [5]. In the Old-Berdiansk forestry foxes (*Vulpes vulpes*) often fall ill. In spite of the fact that not a single case of infecting by tularemia or Siberian ulcer among hunting animals or livestock was detected, such a risk still exists. More often muskrat (*Ondatra zibethicus*) and brown hare (*Lepus europaeus*) suffer from tularemia. Siberian ulcer frequently affects boar (*Sus scrofa*), roe (*Capreolus capreolus*) and other ungulate animals. The cause for this is in availability of certain number of cells of the above mentioned diseases on the territory of Zaporizhia and adjacent regions.

In conclusion it should be mentioned that the area of forest and floodplain is represented by flood-type terraced terrain including six channels of terraces of the rivers Molochnaia and Arabka. Within the floodplain and floodplain terraces and in connection with sufficient soil moisturizing and environmental insensitivity to saline soils hardwood plantations are predominant. Within the second terrace at above the floodplain the share of coniferous plants increases, within the high terraces deciduous drought-resistant plantations and coniferous pine plantations, juniper and arborvitae plantations are predominant. At the beginning of 21<sup>st</sup> century almost all forest plants don't correspond to their place of habitat and need complex researching and improvement.

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