

*Materials of Conferences***THE ANALYSIS OF STAVROPOL REGION LAND POOL OF STEPPE AND SEMIDESERT LANDSCAPES AND WAYS OF ITS NORMALIZATION**

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The second half of the XX century was characterized by high anthropogenic stress on the fertile soils of Russian land pool, which lead to the deviation of ecological balance and the transformation of natural landscapes into natural-cultural and cultural-natural, or/in other words, into the agricultural landscapes with unstable ecological situation. Steppe and semidesert landscapes of Stavropol region are one of the most impressive example. An integration of landscape approach into the modern agricultural practice is needed for the restoration of their functional systems. The main point of soil usage system is in keeping of morphological units of natural landscapes, their hierarchical structure (outlining of countries, tracts and elementary associations), and the correlation system of all landscape units.

Nowaday province of region's steppe landscapes is presented by landscapes of rich-in-herbs cereal, cereal and dry steppes that grow on black earth that are almost utterly ploughed up now. Landscapes also function on principles of steppe landscapes. But anthropogenic processes altered the landscape system dramatically, to its benefit (forest belts planting) as well as to its disadvantage (watering, salting). The implementation of new agricultural technologies allows us to use maximum of soil resources. Up to 80% of steppe province country is ploughed up. Natural ecosystems are saved on 5–10% of it, which defines the disturbance of landscape self-regulation.

Wormwood-cereal steppes on chestnut and bright chestnut soils are most commonly present in semidesert landscapes. Large areas are occupied by saline soil and alkaline lands. Climate conditions are continental and dry. Small amount of precipitation (300–350 mm) defines the fragile relation between natural components. Natural landscape functionality still has its natural character but anthropogenic processes had a great impact on its structure. Large territories of semideserts were ploughed up with the introduction of large amounts of water into the natural turnover by Tersko-Kumskiy and Kumo-Manichskiy channels, the processes of salting started their development as well as the swamping of soils, wind erosion gained an advance that led to the desertification of semidesert landscapes. Low soil productivity defined the involvement of the great number of chemical elements, including those of toxic kind into the natural turnovers.

The exploitation of steppe and semidesert landscapes land pool, based on the denial of the importance of natural factors for modern soil-production processes lead us to the development of such degradation processes in soil cover as: water erosion – 16,5%, wind erosion – 13,33%; modern displays of water and wind erosion – 12,18%; waterlogging – 22,5%; salinization – 24,16%; other kinds of degradation processes – 11,33% (according to data of Stavropol Scientific Research Institute).

The region's steppe and semidesert landscapes soil stability is dependent on the humus content, which provides for the increase in soil's water capacity and the improvement of its structure. The more humus, absorbed calcium, and dust and small-sandy fraction is in the upper layer, the more the soil is stable against the washout.

The land pool of the region is divided into six agro-ecological groups (AEG) in the agricultural practice of the reproduction of the productivity of the soil cover that has been affected by degradation processes and adaptation of the morphological relief forms for agricultural plantings. The first AEG includes the lands of the majority of the steppe landscape enterprises that have plowed fields with the evaluation more than average level and country inclination under 1°, with the varieties of soil that can be united and used for the cultivation of all districted cultures in the system of field planting turnover. The group unites all the sub-kinds of black earth, chestnut, poic-black earth and poic-chestnut soils that have been formed under different bioclimate and hydrological conditions and are united by typical processes of soil-formation without any negative signs that affect the fertility.

The second AEG includes lands with the evaluation lower or near the average region level, with country inclination of 2–3°. The territories of plowing fields with various soil kinds that are lightly affected by erosion processes are present in this group. The group also unites the same soils as the first one but those of them that have negative signs that affect their fertility (low-erosive, low-salinized, low-sandy). This group is suitable for the cultivation of less exigent agricultural plantings and is included into the system of forage planting turnovers.

The third AEG: the areas with the moderate level wind, water and combined erosion are included here. They all can be characterized by the great relief variety but they all can be used in the system of soil planting turnovers and stay within the plowing areas.

The decrease in the anti-erosive agrotechnical measures lead us to the emerging of plowing territories that lost 26 to 50% of their land lie power (A + B). These territories were recommended for their exclusion out of plowing compound. These lands refer to the fourth group and can stay within

agricultural lands compound with the variation of their target purpose.

The fifth AEG includes the lands that are affected by strong degradation processes and have lost more than 50% of their land lie power (A + B) and are unsuitable for the agricultural plantings cultivation. A complex of expensive land reclamation measures is needed to be taken in order to restore their initial qualities. That includes: earthing, introduction of increased doses of organic mineral fertilizers and others. A long rehabilitation period, 10 to 20 years is also necessary.

The sixth AEG includes the territories of dry farming and earlier irrigated plowing lands that has been affected by waterlogging and repeated salinization. They cannot be used for their target and are recommended for their transfer into the stage of land reclamation construction unless special measures of the existing irrigative network reconstruction, drain conduit manifold network construction, and their salinization are taken.

Thus we can see that the guaranteed prevention of the decrease in the region's steppe and semidesert landscapes land pool is seen by the modern agricultural system in the introduction of the new approach for the land usage – adaptive-landscape agriculture. In order to realize it the making up of soil-landscape maps for each enterprise with the outlining of the agro-ecological groups is needed as well as the creation of such upper soil layer that would imitate the image of steppe: foddergrass cultivation, saving of after-harvesting leftovers, strip placement of plantings, creation of contour forest plantations.

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**THE PROBLEM OF CONSERVATION
STURGEONS (ACIPENSERIDAE)
IN THE AZOV-BLACK SEAS BASIN AND
ITS REALIZATION**

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In the past maximal landings at the each of south seas of Russia were 400-600 thousands of tons. Naturally the landing of traditional objects of trade (sturgeon, zander, sea roach etc) has lowered in 10 times and more. For example, in the Caspian sea the landing of sturgeon began in the XVI century. To the end of XIX century the landings of valuable species of fish were 300 thousands tons, out of them there were 40 thousands of tons of sturgeons. Their final overfishing occurred at the beginning of 50ies of XX century. It has happened before the building of weir and chemicalization of agriculture (Matishov, 2004). At the Azov-Black sea basin there is observed the decrease of the general land-

ings and changing of the proportions of valuable and low valuable species of fish.

The general tendency is the changing of landing structure. At the background of decrease of volumes of landing its base is compound by small fish, which were rated among not valuable. Possibly besides mentioned reasons on the structure of landing there has an influence the changing of climate. The influence of global climatic changes on the sea fishing is not finally researched, but occurring processes, particularly, the quick change of the water temperature and contents of oxygen in it, lead to the increase of population of the small species of fish, which have no economically high value, to the worsening of conditions of reproduction of valuable anadromous and semi-species of fish. The confirmation for this fact is the statistic of marketable landings. Thus, in the Azov-Black basin from the middle of XX century at the landings there are progressively prevail small species: Azov anchovy, sardelle, black sea sprat, and the landings of sturgeons for the last 20 years have sharply decreased from 1036 tons to 1,041 tons (in 2008) and are at the level, which is not only doesn't provide natural reproduction, but at the verge of extinction at all.

In connection with this the development of commodity growth of sturgeon species of fish will allow to lower the load to the populations of sturgeons, to restore them at their natural environment and give to the populace, which is live in the Azov-Black region, supplementary work places.

The successful commodity growth of sturgeons is largely defined by the presence of feed. For the overcoming of crisis at the domestic feed-production there was set a task o continue researches by the searching of effective and inexpensive species of feed raw material, to cope with production of few component fish feeds. At the result there is reached the increase of volumes of production of aquaculture and guaranteeing to the populace the valuable food production.

The most effective and cheap type of feed for the sturgeons if the fish (Nikitina, 2003; 2004). While the fish nutrition there is preserved the most stable correspondence between protein and nonprotein exchange within sturgeons. Fish that is used as feed is the most balanced feed for sturgeons and is the base of their food at the natural conditions (Nikitina, 2006).

The catch of not valuable and small herring species is carried out 11-12 months a year, what make possible the growth of sturgeons during the whole year. The cost of feed fish is low: silversides – 10 rubles/kg, inedible sprat – 7,5 rubles/kg.

Thereby, the offered way is partly solve the problem of preserving of sturgeon species of fish and guaranteeing to the populace of Azov-Black region of naturally valuable delicatessen products.

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