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DEVELOPMENT OF ANIMAL HUSBANDRY IN THE TERRITORY OF THE REPUBLIC OF KARAKALPAKSTAN IN DIFFICULT ECOLOGICAL CONDITIONS

Abstract: *The article provides information on the general condition of the various phytocenoses of plants growing in the arid areas of the Southern Aral Sea due to unfavorable natural climatic conditions. Ways to increase the productivity of plant phytocenoses, develop animal husbandry and at the same time preserve the diversity of wildlife are shown. Field research was carried out in all regions of the Republic of Karakalpakstan, in districts, deserts and specially marked points on the dried bottom of the Aral Sea in stationary and semi-stationary conditions.*

Key words: *Southern Aral Sea region, agricultural crops, extreme-ecological situation, collector-drainage, animal husbandry.*

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Introduction

Anthropogenic impact on the biosphere leads primarily to physical, chemical and biological pollution of the environment. The drying up of the Aral Sea caused its bottoms to be covered with finely dispersed salt-dust aerosols. These aerosols rise under the influence of eolovial forces (winds) and enter the environment and pollute the land to varying degrees. The main direction of winds in the southern Aral Sea, ie 60-70%, moves to the north, northeast, south, southwest. Consequently, most of the salt-dust aerosols rising from the seabed sink to the northern districts of the Republic of Karakalpakstan, located on the southern side of the sea, where the biotic and abiotic substances receive the first blows of these aerosols. Among them, the opposite effects on biotic objects have their own forms and manifestations. Prevention and elimination of these side effects is one of the most pressing issues today [2, 3, 6].

Due to unfavorable natural climatic conditions in the arid regions of the Southern Aral Sea, the general condition of different phytocenoses of plants growing in these areas has undergone various changes.

One of the most pressing issues is to eliminate these contradictions, increase the productivity of plant phytocenoses, develop animal husbandry and, at the same time, identify ways to preserve the diversity of wildlife.

Materials and Methods

Field research was studied in all regions of the Republic of Karakalpakstan, districts, houses, deserts and specially marked points on the dried bottom of the Aral Sea in stationary, semi-stationary conditions.

Route research was carried out in four directions:

Route 1 began on the left bank of the Amudarya river and continued from the Karakalpak part of Ustyurt and the western part of the dried bottom of the Aral Sea to the border of the Republic of Kazakhstan;

Exploration on Route 2 began on the right bank of the Amudarya river in the irrigated and non-irrigated areas of Karakalpakstan, the Karakalpak part of the Kyzylkum, Akpetkey and the dried Aral Sea to the border with the Republic of Kazakhstan;

Route 3 continued from the southern and southwestern parts of the Republic of Karakalpakstan to the borders of the Republic of Turkmenistan.

Route 4 was explored from the east and southeast to the end of the border of the Republic of Karakalpakstan [11].

Commonly accepted methods of geobotanical and ecological research have been widely used in scientific research.

The study also used special guidelines with the methods adopted by the Research and Production Association of Amelioration and Irrigation Research Institute, Uzbek Livestock Research Institute, Karakalpak Agricultural Research Institute, Center of Hydrometeorological Service of the Republic of Uzbekistan.

The study of biological properties and morphological characteristics of plants was carried out in two stages of ontogeny (virginil and generative) in the experimental plots selected by I.G. Serebrjakov (1962) [5].

Morphological changes related to the continuation of plant development were studied in the main phases: vegetation, budding, flowering, fruiting, and relative dormancy. For the onset of the phase, the time of emergence was assumed in 10% of the plants, and in 50–60% of the complete phase (Hamonnevsky, 1997).

To study the underground structure of plants, according to the method of M.S. Shalt (1960), in each variant were extracted by washing (dissection) the roots of three plants. Soil samples were selected from the genetic horizons of the experimental plot when establishing the boundary conditions of the distribution of the root system in the mechanical and chemical composition of the soil. The nutritional value of plants was calculated according to Yu.K. Novoselov (1983) [9].

From the Ministry of Water and Agriculture of the Republic of Karakalpakstan, data from farms and reports of other organizations in the research work on their zoning for the production of abundant crops from common agricultural crops used.

Documents with reports of the Ministry of Water and Agriculture of the Republic of Karakalpakstan and data from its constituent farms, the Committee of Ecology and Environmental Protection of the Republic of Karakalpakstan, the Hydro-Geological Melioration Expedition of the Republic of Karakalpakstan and other organizations were used in the research work on their zoning in order to grow a rich harvest of common agricultural crops.

Mathematical processing of the results of research work was carried out using the methods of G.N. Zeitsev (1984) and analysis of variance (Dospekhov 1985), as well as the introduction of computer programs and, in this case, electronic computers [3, 7, 8, 10, 11].

Results and Discussion

Despite the negative effects of such extreme environmental conditions, we encounter some forage desert plants that have adapted to the region. For example, in the strongly saline soils of the dried bottom of the Aral Sea: black saxaul, tamarix, sagebrush, various halophyte plants, in the dry bottom of the sea, where from time to time mixed water with collector-drainage waters, as well as ground artesian water in and around the protruding areas, reeds, sedges, and other plants grow to adapt to these areas, forming various solitary or mixed phytocenoses. Of course, any plant needs a certain amount of water. There is no fresh water in these places. Therefore, where there is water of different mineralization in the reserve (collector-drainage water, ground artesian water, residual water, etc.), we need to use the reserve water on a scientific basis to grow useful plants and improve the productivity of their phytocenoses [1, 4, 10].

Conclusion

Thus, forage adapted to harsh extreme-ecological conditions, halophyte from desert plants, alfalfa, licorice, reed plants, which are adapted to additional salinity and low water, serves as a fodder warehouse. If the water from the reserve is directed to the development of field fodder production, cattle breeding will develop rapidly on the bottom of the dried Aral Sea.

Establishment of solid fodder bases on the bottom of the dried Aral Sea, in addition to a rich harvest of livestock, wild animals: pigs, badgers, rabbits, saigas, deer, muskrats, mink; from birds: some ducks, pheasants, hawks, quails; fish adapted to living in salt water: snakefish, grass carp, smelt, carp, etc.; some predators: wolves, foxes, etc. will be the basis for breeding and maintaining their diversity.

In areas where collector-drainage waters flow into the lakes, it is important to grow ordinary reed plants and improve the productivity of their phytocenoses. According to the results of our research work in 2014-2017, 97-98 centner/ha of reed straw can be obtained annually from reed plants using KS-1 collector-drainage water. If the technical forces are sufficient, it is possible to harvest 100-200 centner/ha per hectare.

If the water of this reserve is directed to the development of field fodder production and scientific work, then cattle breeding will develop rapidly, and the wildlife will increase, and their biodiversity will be fully preserved. Thus, the needs of our people in food and beverages will be fully met.

Forage adapted to extreme ecological conditions, halophyte from desert plants: black saxaul, olaputa, alfalfa, licorice, reed, adapted to additional salts and low water the plants serve as additional fodder storage for pastures.

Establishment of solid fodder bases on the bottom of the dried Aral Sea, in addition to a rich harvest of livestock, wild animals: pigs, badgers, rabbits, saigas, deer, muskrats, mink; from birds: some ducks, pheasants, hawks, quails; fish living in salty water: snakehead, grass carp, smelt, carp, etc.; some predators: wolves, foxes, etc. will be the basis for breeding and preserving their diversity.

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