



METHODS OF STUDYING THE LANDSCAPES AROUND THE AYDAR-ARNASAY LAKE SYSTEM

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ANNOTATION

The natural geographical location, boundaries, natural conditions and landscapes of the Aydar-Arnasay basin are studied. Principles and methods in the study of submerged landscapes are analyzed.

Keywords - *landscapes of Aydar-Arnasay basin, objectivity, complexity, relative uniformity, genetic-historical principles, methods of field identification of cartographic, aerospace, natural geographical units.*

INTRODUCTION

The Aydar-Arnasay basin can now be described as a "natural laboratory" that is rapidly evolving under the interaction of deserts, hills, highlands and large watersheds. Along with natural factors, anthropogenic factors influence the development of natural geographical processes in the Aydar-Arnasay basin. The study, analysis and forecasting of the Aydar-Arnasay basin and its changes, which are the product of various influences and factors, are of great scientific and practical importance⁵.

AIMS AND OBJECTIVES OF THE WORK

The interdependence of internal factors also plays an important role in the development of natural geographical processes in the Aydar-Arnasay basin. Therefore, in determining the natural boundaries of the basin, it is advisable to take into account the scope of internal and external factors. Separating the Aydar-Arnasay basin as a whole geosystem and crossing its natural boundaries is a difficult task.

The southern boundary of the Aydar-Arnasay basin is somewhat clear and runs through the foothills of the Nurata Mountains. The western, northern, and eastern natural boundaries of the basin were traversed by areas where changes in soil and vegetation were observed under the influence of groundwater from the Aydar-Arnasay Lake System (AALS).

The western boundary of the Aydar-Arnasay basin is in the eastern part of the Kyzylkum desert. Here, the boundaries of the basin are defined as the areas where the saline sands formed by the AALS and the naturally formed sandy soils meet.

The north-western part of the northern border of the basin is bordered by the Eastern Kyzylkum, the northern part crosses the state borders of Uzbekistan and Kazakhstan, and the northeastern part is directly connected with the Sandy Desert. When crossing the border in the northern region, the place of exchange of saline sandy soils with saline sandy soils under the influence of AALS and, consequently, the area of exchange of halophyte plants with psammophytic plants shall be the basis for border crossing.

The analysis of geological structure, relief, climate, ground and surface waters, soils, vegetation and fauna of the Aydar-Arnasay basin provides the basis for the formation of a scientific picture of landscapes.

Among the researches devoted to the study of landscapes around the Aydar-Arnasay lake system are A.A. Rafikov [2003]², N.I. Ismatov [2006]³, L.A. The research of Alibekov [2012]¹, M.R. Godalov [2020]⁶ and others is of great importance. According to special literature on landscape research, a number of principles and methods are followed in landscape research. The principles and methods used in our research are described below.

According to this principle, the recognition of objective laws in the formation and development of the landscapes around the Aydar-Arnasay lake system, the fact that all the allocated landscape classification units have an objective character, ie they are the purpose and importance of research, the researcher's desire or should not depend on subjective views.

Complexity is one of the most important principles, characterizing national and regional laws and factors in the formation of law.



The study and mapping of the landscapes around the Aydar-Arnasay lake system took into account the combination of all its components, the whole complex of natural conditions. First, general laws of universal and universal scientific and practical significance were considered, followed by regional and local factors and laws.

The principle of relative homogeneity is characterized by the fact that, despite the distance between the landscapes, they have in common, similarity, that is, taking into account the typological features.

According to this principle, attention was paid to the features of typological landscape units that allow them to be distinguished from private zoning units. These features form the basis for the identification, classification, classification and practical use of landscapes. The typological grouping of landscapes was based on their qualitative similarity, i.e., how the landscapes were arranged relative to each other and whether there were territorial connections between them, grouped into one typological group. Typological landscapes are included in a single classification step, but are often represented on the map by multiple scattered, separated contours (e.g., landscape type 1). At the same time, a landscape typological unit can combine a large area with basically the same type of landscape, as well as small, fragmented plots adjacent or distant (for example, landscape type 3). Landscape typological units are often "holes" or "cracks" and may have other landscape typological units in between (for example, landscape type 2 or 8).

The essence of the genetic-historical principle is to determine how the natural geographical stratification of a region took place, when and by what factors the landscapes came into being, and to what extent their internal genetic commonality. Landscape formation is a long process, and each landscape is the product of a long historical (paleogeographic) development in which the interaction of different factors that make up a landscape occurs and their proportions can change several times.

This principle is of universal importance in landscape typological mapping and is reflected in the general development of the Aydar-Arnasay basin and adjacent areas. The history of the development of the Aydar-Arnasay basin and adjacent areas is reflected in the current landscape structure. Because the development process varied greatly in different parts of the region, several landscape types were formed according to their unique genetic origins and developmental history. For example, tectogenic - mountain and tectonic depressions; climatogenic - meadow-steppe, desert landscapes, etc.

Cartographic method. The study of landscapes began with the analysis and comparison of general geographical (topographic and survey) and thematic - geological, geomorphological, hydrological, climatic, soil, geobotanical, zoogeographic maps. The study of topographic maps provides the first important information about landscapes. By studying the topographic map, it is possible to identify many features of the landscape of the region, to clarify their boundaries. Topographic maps have been particularly important in comparing the pre-flood and current state of the AAKT area. In doing so, the cartographic materials were compared with the data provided in the space photographs and literature.

Geological, geomorphological, soil, geobotanical and other special maps have typological content, so the type and subtypes of relief, soil and vegetation served as the basis for the creation of an approximate landscape map-hypothesis on a 1: 200,000 scale topographic basis in the early stages of research. In turn, this landscape map-hypothesis identifies cases where the contours of the separated landscapes do not match the contents of the data in the fund materials and the contours of the maps we used, and clarifies the routes of expeditions to clarify the location of base points and observation sites. served as an important basis in the selection.

The aerospace method is one of the most important methods for obtaining, studying, and mapping landscapes. The spatial images clearly show the regional distribution and diversity of the landscapes around the

Aydar-Arnasay lake system. The fact that landscapes have changed under the influence of AALS and the areas of change using images has accelerated the work. Spatial images simultaneously depict the whole region and the processes taking place in different landscapes, which allowed to determine the quantitative and qualitative characteristics of landscapes, which are not always possible to determine in the field. By comparing space images taken at different times, we obtained data on how landscape changes under the influence of natural geographic processes and AALS, its intensity, and other information. Especially Google's Google earth.com. Quick and accurate information about any landscape in the area was obtained using satellite images on the website⁷.

One of the most important methods is the method of determining the natural geographical units in the field. Lands where the qualitative change of the whole landscape is manifested and the features of its nature disappear, and the signs of another landscape begin to appear, are considered to be the boundaries of landscape diversity.

During the field research, a number of activities were carried out according to the purpose of the program: geographical location, area and boundaries of the landscape; properties of landscape components and their interrelationships; natural and anthropogenic processes in the landscape; to study the nature and extent of the impact of AALS on the landscape. A number of field research methods were used, depending on the purpose and task. In particular, dotting in many landscapes, such as 1-5, 2-1, 2-3, 3-1, Tuzkon-Qli-Jizzakh (landscapes 5, 6-1, 6-2, 4, 7), Tuzkon-Khanbanditog '-Koytash mountain (2-3, 8-1, 11-1, 9-2, 13-2, 14-2 landscapes), Aydarkul-Otakurgan-Ukhum (2-4, 8-1, 9-1, 10-1 landscapes), Aydarkul-Chaklontepa-Kizilcha (2-4, 12, 8-1, 9-1 landscapes), Arnasay-Dustlik-Jizzakh (1-4, Landscapes 2-2, 4, 7) and the route expedition method was used.

CONCLUSION

Stationary surveys have been conducted over several years in 6-1, 2-4, 3-3 landscape types of 3 base experimental areas on the shores of the AALS, which differ in landscape characteristics.

The first experimental plot was a 6-1 landscape type, ie the confluence of the Qli River with Lake Tuzkon. The area is covered with alluvial deposits brought by the Qli River. The development of soil, vegetation and lake shores in this region is radically different from other areas of the Aydar-Arnasay basin.

The second base experimental plot was selected from 2-4 landscape types, i.e., the area covered by proluvial deposits formed as a result of the collapse of the Nurata mountain range. During field studies, it was found that the properties of soils and plants differed from those of soils and plants in the first baseline experimental plot, depending on the proluvial deposits.

The third pilot experimental plot was selected for 3-3 landscapes, i.e., in the northwestern part of the AALS, adjacent to the village of Boymurat. The area is covered with sands of the Kyzylkum desert. For this reason, the shores of the lake, unlike the first two experimental plots, have many armpits and curves.

During the field research, the landscapes and their components were studied in the basic experimental plots using several of the principles and research methods discussed above. During the study, daily, monthly, and seasonal changes in temperature, humidity, pressure, and wind were observed with meteorological instruments, and comparisons were made with the stock materials..

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