



DISTRIBUTION OF THE RODENTIA GROUP IN THE FOREST ZONE AND OASIS-PLANTING ZONE LANDSCAPE

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ABSTRACT

The article provides information on the Lower Amu Darya delta and the cultural landscape (oasis) as a result of human activity, research conducted in the Bekpay forest, and changes occurring as a result of human activity.

The intensifying water shortage process is also affecting the forest landscape's living conditions. Forests are completely changing their former natural conditions, remaining between two winters.

Due to the varying properties of soil-forming factors (материнская порода, relief, climate, groundwater, vegetation cover) in the Lower Amu Darya delta, its soil cover is also heterogeneous. A large part of the delta consists of meadow, alluvial, and irrigated meadow soils. Meadow alluvial and meadow marsh soils are primarily located in the center of the lower part of the present-day Amu Darya delta, with humus content reaching 2-3% in the upper part.

The vegetation cover of the Lower Amu Darya is located in connection with its relief, climate, groundwater, soil, and other natural factors. For this reason, from a geobotanical point of view, delta plants are divided into the following types: forest, halophyte, and psammophyte.

Forest vegetation covers a large area on the floodplains of the present-day Amu Darya delta, where meadow alluvial, meadow marsh, marsh, and meadow takyr soils are distributed, surrounded by reed beds. At the same time, plants such as wormwood, turanga, wild oleaster, willow, and tamarisk also grow here. Forest vegetation is also found along both banks of the Amu Darya River, in water-filled streams, and around lakes. Forests consist of two tiers: the upper tier consists of willows, jujubes, poplars, or wormwood, while the lower tier consists of tamarisk, rushes, and reeds. In the meadow-takyr, takyr soils, and salt marshes of the Amu Darya delta, the juniper formation occupies a wide area. However, in saline and saline areas,

tamarisk is displacing the tamarisk formation. In the meadow soils of the lower Amu Darya delta, plants such as wheatgrass, wheatgrass, and wormwood grow.

The unique natural conditions of the Lower Amu Darya delta have also influenced its fauna. Mammals, birds, and fish are more widespread in this delta than in other deltas. There are 222 bird species, 31 mammal species (mainly rodents), and 30 fish species.

To protect the forest landscape and its birds and other animals in the Lower Amu Darya delta, the Lower Amu Darya State Biosphere Reserve, as well as the Lower Amu Darya (which nurtures the delta landscape and its birds and fish), Nuruntek (which nurtures the forest landscape and pigs, jackals, pheasants), and Khorezm (which nurtures the lake landscape and its waterfowl), have been established. The natural resources of the lower Amu Darya delta are diverse, the most important of which are land and water resources. In this delta area, there are about 2.4 million hectares of irrigated land. But currently, only 0.6 million hectares of land are irrigated.

The second essential resource is reed beds and meadows. There were about 0.5 million reed beds in the delta area, but now its area is decreasing year by year due to water shortages in the Amu Darya delta. Reed beds are a source of high-quality fodder and raw silage. According to the data, 8 tons of silage can be obtained from 10 tons of reeds.

The third essential resource is the muskrat, which produces high-quality fur. However, in recent years, due to the drying up of rivers and lakes in the Amu Darya delta, both the production and fishing of muskrat pelts have been declining. The Lower Amu Darya delta is divided into natural-geographical regions such as Chimboy, Qo'ng'iro't, Beltov, and Khorezm, based on its natural conditions and, in particular, the characteristics of its soil vegetation.

Each layer of the forest is distributed according to a specific pattern among the ecological groups of the animals inhabiting it. Today, the ecological situation in forests like the Bekpay Grove, which we observed, is significantly deteriorating due to the decline in anthropogenic factors and living conditions compared to previous ones.

It would not be an exaggeration to say that all these changes are due to the drying up of the Aral Sea. Therefore, in such a difficult ecological situation, changing our approach to nature based on preserving and protecting it, not just taking from it as much as we can, but helping it is our sacred, humanistic, and Muslim duty today - that is, our duty and obligation to nature.

In the Bekpay forest, the number of native animal species, as well as rodents, has decreased, their range has narrowed, and their numbers have decreased (Figure 3.2.1). The overall populations of reptiles, birds, and mammals in the forest biocenosis are declining, and the inter-ecosystem chain between them is in a state of disruption.

When analyzing student reports conducted in 2023-2024, considering the presence of rodents in the Bekpay forest, such as the flat-toothed rat, the woodpecker, the house mouse, the common blind mouse, and other species, we see that the populations of Ondatra, the Transcaspian steppe mouse, and the sandpecker are declining and are at risk of extinction from the biocenosis.

In studies conducted in the Bekpay forest, reptiles such as water snakes and swift lizards were frequently encountered, while the remaining species were few in number, and their numbers were declining year by year.

Among nesting birds that lay eggs and hatch chicks, there are many sparrow-like birds, while the palm-winged partridge, lime, monkey, crow, and falcon are few.

The cultural landscape (oasis) is the result of human activity (Figure 3.3.1). Currently, this zone is experiencing unprecedented salinization, and its living conditions are at risk. This threat stems, firstly, from the salty dust rising from the dried seabed of the Aral Sea, and secondly, from the continuous influx of collected salt water into rivers and canals due to increased drought. As a result, the already saline soil is becoming highly saline, its soil structure is being disrupted, and its fertility is declining.

Due to excessive salinization, many croplands are falling out of cultivation. This is gradually leading to the discovery of salts, creating unfavorable living conditions for many species of animals that dig their nests in the earth's surface and layers, causing them to change their long-held habitats. The reason: Salinization occurs due to the death of many plant species, which are the basis of their diet, and the general deterioration of the ecological state of their habitat.

Many species, forced to relocate, are playing the role of synanthropes, abandoning their natural habitats and migrating to croplands, fields, orchards, alfalfa fields, cotton and rice irrigation canals, and inter-field vacant lands, experiencing significant adaptation.

Especially in recent years, the expansion of wheat cultivation to ensure grain independence in our republic has led to an increase in grain-eating species. This situation is causing significant economic losses due to the increase in agricultural pests. Since wheat is a crop that doesn't require much water, a very favorable ecological situation is emerging for moisture-loving species.

Considering that in forests and dense reed beds, a pair of flat-toothed aphids, specialized in feeding on their roots and bark, digs 7 meters of soil per day with their offspring, producing 20 tons of soil per hectare in one summer, and causing the roots of fruit and ornamental trees to wither, it is not difficult to imagine the economic damage caused by a single flat-toothed aphid.

Considering the 5-10-fold increase in the number of grain-feeding house mice, tamarisk, and other species in wheat fields and around them, and their diet of 200-400% of their body weight, i.e., 40-50 meals a day, their very short harvest period due to the wheat being doughy, is only 5-10% of the total yield in open fields. It also causes even more damage in large grain warehouses and elevators.

Many species belonging to the rodent order suffer from various highly dangerous infectious diseases such as plague and tularemia, posing a significant threat to human life. Because both wild and domestic animals, as well as humans, are equally susceptible to these diseases, they are transmitted to humans through these animals, their products, and flea mites, which are ectoparasites on their bodies.

Thus, changes occurring as a result of human activity are leading to a change in the habitat of some species, their penetration into cultivated areas, household plots, orchards, gardens, alfalfa fields, and wheat fields.

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