

## QUANTITATIVE DYNAMICS OF SMALL MAMMALS IN BIOCOMPLEXES

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Animals are one of the important components of biocenoses. Species composition, distribution, quantity, lifestyle, specific ways of adaptation and many other aspects of their ecology, first of all, with the natural conditions of their habitat. The mechanisms of adaptation to the changing conditions of the living environment and the laws of the formation of relations within the population allow to study and develop specific measures to stabilize the ecological situation in the area. The scales of variability of biocomplexes are very large, and therefore an important ecological issue is the development of a strategy for the protection of fauna that ensures the stability of biogeocenoses, as well as the classification and evaluation of the values of environmental factors in terms of the quantitative dynamics of animals [2].

The reaction of populations to changes in management mechanisms and living conditions, as well as the study of their mobility is a decisive factor in the structure and quantitative dynamics of animals. A sharp reduction in the number of intrazonal and widespread species has occurred. Studying the diversity of fauna species and the state of populations, their important representatives, the mechanisms of controlling their quantitative dynamics can help to restore and create different types of ecosystems (water bodies and floodplains with different hydrochemical regimes, reed swamps, forests, sand and gypsum deserts and etc.).

65 species of mammals belonging to 6 genera, 16 families and 41 genera are recorded in the territory [5]. Mesophilic and hydrophilic species (23 species) are common in the Amudarya lowlands, xerophils (24 species) live in Kyzylkum and Ustyurt, and eurybionts are found in the Amudarya plains (8 species) and in Ustyurt (about 11 species) in the fauna complex of Southern Aral Bay mammals [6].

The analysis of the distribution of mammal fauna by ecological biotopes in the South Aral Bay region shows that most species (more than 62%) are distributed in sandy-desert and clay-gravel landscapes; in the desert landscape - about 6%, in the forests - 16% (found mainly in the valley and Amudarya delta) [2,5,6;].

The zoogeographical analysis of the fauna shows that the formation is derived from elements of different origins. Basically, it is related to the faunal complexes of the desert and Kazakhstan-desert. An important place in the faunal complex of the archipelago is closely related to species of Iranian-Afghan, Mughal and Mediterranean origin. They are characterized by specific adaptations to the conditions of sand and clay-gravel deserts [1,3]. At the same time, many species that do not usually go to deserts and are widespread in Asian sands live here, as well as mesophilic species of southern countries. Mammals of this region include representatives of the Palearctic, which are widely distributed in arid deserts, deserts and semi-deserts, as well as species originating from the Indo-Himalayas. Species of different origins are characterized by specific types of contact with the external environment, and also adopt the northern desert regions in different ways [2,3].

As a result of the lowering of the level of the Aral Sea and the process of desertification, as a result of the drying up of many lake systems in the delta, the habitats of mesophilic species are drastically reduced. In recent years, 33 species of mammals belonging to 5 families have been recorded in Sernam ecosystems. According to the analysis of the species composition of the fauna of the Amudarya valley and delta, they are very close to the fauna of the mixed zones of the sand desert (Kyzylkum, Karakum) and the gypsum desert (Southern Ustyurt). Many

species of mammals living in the Amudarya valley and delta (21 species) are common in the adjacent deserts [1,5].

The hydrological regime of the Amudarya is one of the main factors determining the size of the areas suitable for meso- and hydrophilic animal species and the surface of the lakes. Strong and continuous winds of dust and salt penetrate the forests and reeds, as well as sand and gypsum deserts, and deteriorate the habitats of these orca animals. Sudden changes in natural conditions in the area have reduced the habitats of certain species (*Microtus Ilaeus*, *Ondatra Zibethica*) and expanded at the expense of areas freed from other animal species (*Rhombimus Opimus*) [4]. The famous regions of Amudarya include landscapes of different character (forests and reeds, water bodies, empty lands and salt marshes, agricultural lands and pastures, islands and sands, etc.), and this ensures the diversity of its fauna. 45 species of mammals live in the valley and delta of Amudarya. 28 species were recorded in biogeocenoses of grove complexes, in reeds growing around water bodies. Currently, species recorded in the famous ecosystems of the delta (*Crocidura suaveolens*, *Microtus Ilaeus*, *Mustela nivalis*, *Mustela Putorius*, etc.) are decreasing in distribution area and decreasing in number [3,4].

A powerful factor in the transformation of the desert landscape is the exploitation of desert pastures, the formation of settlements and railways, and other man-made processes that degrade the main habitats are closing the main rational migration routes, and thereby isolating small populations in the urbanized conditions of the desert landscape. All this ensures a decrease in the diversity of species at the expense of rare species, an increase in the number of common species, a decrease in the total number of populations, a violation of its adaptive functions and structure. Thus, the intensive degradation of the natural ecosystem of the region has put terrestrial animal populations in extreme conditions, that is, the protective and nutritional conditions in their habitats have deteriorated. Due to this, the role of natural self-control in populations is violated, the connection

between the quantitative dynamics of animals and their ecological structure is broken.

The island's ecological crisis demonstrates that species composition, population density, and associated serene ecosystems are powerful determinants of mammalian population management. As a result of anthropogenic impact on natural complexes, the fauna is changing, not only species composition, but also drastic changes in the population structure and number of animals are taking place. Acceleration of aridification and desertification processes, increase of sandy and saline areas, degradation of natural complexes had a negative impact on the condition of mesophilic species. Psammophilous species do not perceive strong anthropogenic influence, and therefore the acceleration of natural environment aridification contributes to the expansion of their distribution areas.

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