



## **POPULATION STRUCTURE ANALYSIS IN RODENTS**

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<b>Article history:</b>	<b>Abstract:</b>
<b>Received:</b> April 26 <sup>th</sup> 2024 <b>Accepted:</b> May 24 <sup>th</sup> 2024	The article presents the analysis of population structure in rodents. In the analysis of the population structure, the territorial etiological structure of the population, the density and growth rates of the population, and the genetic structure of the population were evaluated.

**Keywords:** Population, Mechanism, Structure, Homeostasis, Generation

According to modern views, a population is a set of representatives of a species united by the common origin and habitat, having the property of self-management, maintaining its integrity and relative freedom in time and territory, having a complex internal structure. Most research in the field of modern population ecology is devoted to the study of adaptive mechanisms (integration of the main parts) that ensure the integrity and stable existence of populations in a changing external environment.

Academician I.A. Shilov (1977) called the mechanisms that are similar to the morphophysiological processes occurring in living organisms as mechanisms that support population homeostasis, and conditionally divided them into three main groups: (1) mechanisms that form and support the territorial etiological structure of the population, (2) mechanisms responsible for population density and growth rates, (3) mechanisms supporting population genetic structure [7].

Normal functioning of any population is ensured by its structure. That is, in the first place - the distribution of representatives in the territory in accordance with the law (territorial structure) and with the system of orderly relations between them (etiological structure). A stable and at the same time sufficiently flexible territorial-etiological structure serves as the basis of mechanisms supporting population homeostasis [1].

The population is a whole because there is a constant communication of representatives and a constant exchange of information between them. These processes are carried out due to the complex forms of behavior that govern the relations between individual representatives. Therefore, we can talk about population homeostasis. That is, behavioral adaptation that ensures the formation and support of the territorial-etiological structure of the population. Studying the age structure, which is one of the main characteristics of the population, is of primary importance. Because it reflects the control mechanism and dynamics of quantity. In turn, the age composition determines the further growth and size of the population. The sex and age structure also varies between years and seasons.

In simultaneous births, the ratio of sexes is close to 1:1. Based on the statistical processing of the data, it was determined that the majority of the representatives caught in the spring period were men (58.9%), in summer and autumn the ratio of the sexes in the population is equal (51.5% of men and 48.5% of women), and in winter more men were hunted (53.8%) For example, representatives of the *Microtus Ilaeus* population born in spring and early summer are characterized by a short but active life cycle, rapid growth and sexual reproduction, active participation in reproduction and early death in autumn [4]. Observations have shown that the representatives born in this year, which appeared in July and after, represent the late autumn generation, which has a continuous life cycle, slow growth and development. In winter, they hardly grow, and in early spring they are in an immature state, that is, in a state before wintering [1,3].

But in the spring, they begin intensive growth and sexual maturation. But after that they begin to reproduce for the first time in their life. Until April-May, the population consists mainly of wintering representatives, then the young generation born in this year is added and makes the main part of the population external (up to 70%). Thus, in the first half of the summer, the increase in the population is provided by the wintering representatives, and in the second half by the representatives of the young generation born in May-June. Late-born representatives make the bulk of the animals that go to the countryside and provide a healthy population [6]

The considered features of the age structure of the rodent population have important adaptive significance [5]. First, they allow for the planned use of the population's productive forces: each generation participates in only one reproductive period - in the year of birth or after wintering. Secondly, in such a structure, the birth dates of the young generation are relatively evenly distributed over the entire snow-free period, which ensures a relatively complete and rational use of the living environment, as well as prevents competition [8]. Third, the age-related polymorphism of the



population contributes to their stability to a wide range of different conditions, protects the population from extreme, but short-term and one-sided effects.

The damage caused by one generation is quickly compensated by the second generation due to rapid maturation and intensive reproduction. Under favorable conditions, the population revises its structure, that is, to realize the maximum potential of reproduction. In unfavorable conditions, it directs it to minimum production. It was found that the rate of growth and development characteristic of representatives of different generations is not limited by genetics, can be repeated and changed, including in the case of adaptation [2,4].

At a low population size and its poor condition, early puberty captures many young representatives, because the availability of free places for their reproduction is not limited. On the contrary, the sexual activity of representatives of the young generation is relatively limited during the spring of the animals, because many older representatives push the new additions to poor habitats, and as a result of adaptive stress.

According to scientists, in the Lower Amudarya delta, the reproduction period of the rodent population varies depending on the environmental conditions of different years. The appearance of the reproductive period of the population is weak. However, due to the relatively strong activity of males during this period, they fall more often than females. Thus, the population at low density mobilizes all production characteristics and all reproduction potential, and at high density - inhibits reproduction.

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