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RODENTIA IN THE AMU DARYA DELTA

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Abstract
The article presents data on the registered species of Rodentia in the reserve zone of the Amu Darya Delta, especially the development of rodent (Rodentia) natural habitats, changes in the irrigation system and other construction services, comprehensive re-examination of this genus and re-evaluation of its significance.

Keywords: Rodentia, Global ecological problems, Amu Darya delta, desert zone, biodamage, landscape, urbanized areas.

Introduction

The role of species in nature, their role in biodiversity, has always been balanced by wildlife, like an unwritten law [5; 18-21]. The Lower Amu Darya State Biosphere Reserve, which is part of the Protected Natural Territories of the Republic of Uzbekistan in the Amu Darya Delta, located in the Beruniy and Amudarya districts of the Republic of Karakalpakstan, was established on the site of the former Boday Forest Reserve by the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated August 26, 2011 No. 243.

The territory of the Lower Amu Darya State Biosphere Reserve consists of 68717.8 hectares, it is located on land plots granted to the biosphere reserve for permanent use, as well as on land plots of other legal entities and individuals within the boundaries of the State Biosphere Reserve.

To achieve its goals and objectives, reserves, buffer zones and transitional zones will be allocated on the territory of the biosphere reserve.

- The reserve zone consists of 11,568.3 hectares and is a strictly guarded zone. This zone is intended for the full preservation of natural objects and complexes, scientific research and monitoring.
- The buffer zone consists of 6731.4 hectares and is intended for the preservation, reproduction and restoration of natural objects and complexes. The regime in the buffer zone is established in accordance with the law. The lands of the buffer zone shall be at the disposal or use of land users, landowners or tenants.

The transitional zone covers 50,418.1 hectares and is designed to carry out economic or other activities that do not harm natural objects and complexes in the biosphere reserve. The lands of the transitional zone shall be at the disposal or in the use of other land users, landowners and tenants.

In this protected natural area, species included in the Red Book of the Republic of Uzbekistan, as well as rare species included in the Red List of the International Union for Conservation of Nature, as well as all species found in the wild are under protection. However, the geographical

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distribution, bioecology, and significance of rodents in this area have not been fully studied. As a result, a comprehensive study of rodents in this area is of great scientific and practical importance [1; 191-192].

A number of scientists have conducted zoological and ecological studies on the fauna of the Amu Darya Delta, particularly the Lower Amu Darya State Biosphere Reserve and its surroundings.

In our research, a total of 16 species of Rodentia in the reserve zone of the Amu Darya Delta were recorded (Table 1).

Representatives of the class of mammals and birds occupy a special place in the fauna of vertebrates during the work of the annual monitoring of spring and autumn counts.

On the territory of the reserve, it was found that among these species, the common blind mouse, the flamboyant catfish, the flat-toothed toad, and the house mouse are common. Representatives of other rodent groups were found in relatively small numbers [1; 191-192].

Table 1. Observations of rodent animals in the territory of the Lower Amu Darya State Biosphere Reserve (2023)

№	Species name	Observation and capture of rodents				Encountered circles
		Photo bowl	Through the clamping trap	№0 through a trap	By photographing	
1	Spermophilopsis leptodactylus	+	-	-	+	3
2	Spermophilus fulvus	+	-	-	+	3-4
3	Allactaga Severtzovi	+	-	-	-	1-3
4	Allactaga bobrinskii	+	-	-	-	1-3
5	Lepus tolay	+	-	-	-	1-4
6	Dipus sagitta	+	-	-	-	1-4
7	Cricetulus migratorius	+	-	-	+	2
8	Ellobius talpinus	+	+	-	+	1-8
9	Ondatra zibethica	-	-	-	+	1-2 va 8
10	Microtus transcaspicus Satunini	-	-	-	+	1,4,6 va 8
11	Meriones tamariscinus	+	+	-	+	1-8
12	Meriones Eryhrourus	+	-	-	-	3-4
13	**Meriones meridianus**	+	-	-	-	3-6
14	Rhombomys opimus	+	-	+	+	2
15	Nesokia indica Gray	+	-	+	+	3-7
16	Mus musculus	+	+	-	+	1-8
	Total	**14**	**3**	**2**	**10**	

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As can be seen from the table above, out of a total of 16 species, 14 were detected through a photolocket, 3 through a squeezing trap, 2 through a No. 0 trap, and 10 through photography.

In connection with global environmental problems, the spread of various types of changes occurring in the structure of natural complexes, along with their impact on the bio-ecological properties, leads to their importance in nature and the national economy and the acquisition of various properties. This situation is also exacerbated by the fact that some species occupy new habitats by changing their distribution areas, and their numbers in some local areas are increasing. Rodent species (Rodentia) are widespread in Uzbekistan and are distinguished by their natural and cultural zones, as well as their quantitative indicators and importance.

The results of previously conducted research dedicated to this group are insufficient for use today. In particular, the development of natural habitats of rodents (Rodentia), changes in the irrigation system and other construction services require a comprehensive study of this genus and a reassessment of its significance.

The results of previously conducted research dedicated to this group are insufficient for use today. In particular, the development of natural habitats of rodents (Rodentia), changes in the irrigation system and other construction services require a comprehensive study of this genus and a reassessment of its significance.

On Earth, mammals are the largest group, occupying all the continents of the world. They are primarily adapted to live in forests and bushes, as well as in open ground. For example, rodents live on trees, while in open ground there are many species of rodents [5; 249 p.].

Due to the diversity of natural conditions in the Amu Darya delta, the distribution and number of representatives of rodent communities in different landscapes will be reflected in different indicators. As a result of our research, rodents found in the delta are differently distributed. The table below shows data on the number of species based on the number of species per square kilometer in areas where they are widespread. Specifically, when the average number of species per square kilometer was 1-10 individuals, it was accepted as a small number of species, 10-100 individuals on average, and more than 100 individuals on average (Table 2).

Table 2. Information about the biotopes and number of some species of rodents (Rodentia)

№	Types	Distributed territory	Number
1	*Spermophilus fulvus* -***Citellus fulvus* L., 1823**	Natural landscapes	++
2	*Allactaga elater* -***Allactaga elater* L., 1825**	Natural landscapes and border zones of agrocenosis	+
3	*Ondatra zibethicus* -***Ondatra zibethicus* L., 1766**	It is widespread in all water bodies that pass through natural and cultural landscapes	+++
4	*Meriones tamariscinus* -*Meriones tamariscinus* (Pallas)., 1773	Distributed in natural and cultural landscapes	++
5	***Meriones meridianus* -*Meriones meridianus* P., 1773**	Distributed in natural and cultural landscapes	++
6	*Nesokia indica* -*Nesokia indica* Gray., 1830	Distributed in natural and cultural landscapes	+++
7	***Mus musculus* - *Mus musculus* L., 1758**	Distributed in natural and cultural landscapes	+++

Note: + - in the infinite number; ++ is the average number; +++ is a large number

According to A.S. Saidov (2012), in Tajikistan, over the past 50 years, the plain and semi-desert zones have been subjected to the influence of anthropogenic factors, and these areas serve as a

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benchmark for studying the patterns of distribution and population changes of animals, particularly rodents [2; 46-b.].

Plain zones in Uzbekistan have also undergone transformation to varying degrees under the care of farms specializing in agriculture and watering. Especially in recent years, the intensification of activities aimed at the development of surface and underground resources in these areas is the reason for further intensification of these changes.

A sharp change in the natural conditions of these territories, which are the main habitats of rodents, is the reason for the biotopic distribution of the species, their number and dynamics, as well as other differences in their ecology.

In the second half of the last century, the transformation of natural landscapes in the desert zone of our republic into irrigated agricultural landscapes, the emergence of irrigation systems occupying a wide area of different volumes and lengths created a number of favorable conditions for the survival of some species found here, while some xerophytic species caused changes in their habitats or adaptation to their anomalous conditions or disappearance from these lands.

As a result of these changes, which caused successions in the region, the number of some species increased sharply, and their participation in the biodamaging process also increased. The creation of new settlements in newly developed areas has led to a closer interaction between rodents and people. Rodents found in our republic today can be conditionally grouped according to their distribution patterns in different biotopes as follows:

1. Rodents common in natural and modified landscapes with low humidity. Examples of such landscapes include the natural desert zone, sanctuaries, abandoned areas that are not farmed, and so on. In such landscapes, Spermophilus fulvus, Allactaga elater, Meriones tamariscinus, Meriones meridianus are widespread.
2. Rodents common in cultural landscapes with relatively high humidity - such landscapes include areas around agrocenoses, irrigation systems and their drylands. In such landscapes, species such as Ondatra zibethicus are widespread.
3. Rodents that are distributed directly in populated areas - this group can include species that are widely synanthropized in urbanized areas and are on the verge of synanthropization. Examples include Nesokia indica and Mus musculus.

References

1. Матрасулов Ғ.Ж., Курбанова Г.С., Сипатдинова Г.А. Қуйи Амударё давлат биосфера резервати кичик сутэмизувчилар фаунаси биоэкологияси/ Межд.науч-прак. Конф. «Инновационные основы сельскохозяйственных и биоэкологических исследовании в регионе приаралья», 17 марта 2023 года, г. Нукус часть II, 191-192 с.
2. Саидов А.С. Распространие, систематика, экология и практические значение грызунов Таджикистана. Автореф. дисс. на соис. канд. биол. наук. Душанбе, 2012. 46 с.
3. Asenov G.A., Turekeeva A. J. Qoraqalpog'istonda tarqalgan kemiruvchilarning aniqlagich kaliti. Nukus 2015. 48 –b.
4. Jumanov M.A., Asenov G.A., Bekbergenova Z.O., Qoshanov D.E. "Qaraqalpaqstannıń haywanat dunyası" -Nókis. 2020. - 640 b.
5. Laxanov J.L. "Umurtqasizlar zoologiya".-Toshkent.: 2005. 249 b.

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