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FAUNAL COMPOSITION, DISTRIBUTION, AND CONSERVATION OF MAMMALS INHABITING THE ARAL SEA REGION NATIONAL NATURE PARK

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Abstract
This article examines the species composition, spatial distribution, habitat characteristics, and conservation of mammals found within the Aralkum National Nature Park. The study is based on monitoring surveys conducted in 2025 and data from the State Cadastre of Wildlife. The analysis focuses on specific representatives of carnivores, even-toed ungulates, and insectivores. Observation data indicate that jackals, foxes, and jungle cats were relatively prevalent among the recorded species. The decline of reed beds and tugai forests, alterations in the water regime, and habitat degradation are identified as critical factors that must be addressed in mammal conservation efforts. These findings can be used to improve mammal monitoring and plan both scientific and practical measures for biodiversity conservation within the national nature park.

Keywords: Aral Sea region, national nature park, mammals, faunal composition, biodiversity, state cadastre, monitoring, habitat, conservation.

Introduction

Preserving biodiversity, ensuring the stability of natural ecosystems, and regularly assessing the status of wildlife populations are among the vital tasks of modern ecology. In the Aral Sea region—where natural conditions are constantly changing—studying the fauna, identifying environmental factors affecting their habitats, and developing science-based conservation measures are of particular importance.

Mammals play a crucial role in the food chains of natural ecosystems. While predatory species help naturally regulate populations of rodents and other small animals, herbivorous and omnivorous mammals interact closely with vegetation, soil, and other ecological components. Therefore, studying the species composition and spatial distribution of mammals is a key aspect of assessing ecosystem health.

The Aral Sea National Nature Park encompasses a variety of habitats, including tugai forests, reed beds, shorelines of water bodies, shrublands, and adjacent arid landscapes. The alternation of these biotopes creates specific ecological conditions for mammals to forage, take shelter, reproduce, and move across the territory.

In the Republic of Uzbekistan, the conservation and use of wildlife are regulated by law. The regulation approved by Resolution No. 914 of the Cabinet of Ministers on November 7, 2018, establishes the procedures for state registration, tracking utilization volumes, and maintaining the state cadastre of wildlife. Cadastral data serves to systematize information on the distribution, population size, habitats, qualitative indicators, and economic valuation of animals [1].

The relevance of this study is driven by the need to analyze the species composition and distribution of mammals in the Aral Sea National Nature Park based on existing monitoring data, assess their habitats, and establish a scientific and practical foundation for future conservation efforts.

The purpose of this study is to analyze the species composition, spatial distribution, and ecological characteristics of mammals found in the Aral Sea National Nature Park based on 2025 monitoring data, and to develop recommendations for their protection.

Research objectives:

1.Identifying the mammal species recorded in the National Nature Park and characterizing them by taxonomic groups.

2. Analyzing the spatial distribution and primary habitats of the species.

3. Comparing the number of observations recorded during the 2025 monitoring.

4. Examining the factors negatively impacting mammal habitats.

5. Developing practical recommendations for wildlife monitoring and conservation.

Materials and Methods

Data from the 2025 wildlife monitoring and state cadastre provided by the Orolbo'yi National Nature Park served as the materials for this study. The analysis included the following species: Canis lupus, Canis aureus, Meles meles, Vulpes vulpes, Felis chaus, Sus scrofa, and Crocidura suaveolens.

According to the available information on the field observation methodology, animal counts were conducted using transect surveys, photo and video recordings, tracking signs of life activity, and literature reviews. Camera trap images were also used to identify certain species.

Descriptive, comparative, and ecological analysis methods were employed to process the data. The recorded numbers for each species were compared, and information regarding their habitats and spatial distribution was synthesized.

It should be noted that the available data reflect the number of animals recorded through various observation methods. Because the frequency of observations, the area covered, and

the duration of the surveys were not fully specified, the recorded numbers were not interpreted as absolute population size or population density.

Research Findings and Analysis

Mammal Species Composition

According to the provided 2025 monitoring data, seven mammal species were recorded within the Aralboyu National Nature Park. These include four species from the order Carnivora, one even-toed ungulate species, and one insectivorous mammal species, while data for the remaining species require further clarification.

The submitted species list and observation metrics are presented in Table 1.

Table 1. Mammal species recorded in the Aral Sea Region National Nature Park in 2025

№	Scientific name of the species	English name	Number registered, head
1	Canis lupus	Wolf	2
2	Canis aureus	Jackal	78
3	Untidy messy	Badger	6
4	Vulpes vulpes	Fox	26
5	Felice Chaus	Jungle cat	21
6	Sus scrofa	Wild boar	7
7	Crocidura suaveolens	Minor bleeding	9
	Total	**7 types**	**149**

Note: The figures in the table were compiled from the 2025 monitoring records provided by the user. Unless they have been verified through a recount as distinct individuals, they should not be considered the total population size.

As shown in the table, the jackal ranks first in the number of recorded observations, with 78 individuals. It is followed by the fox (26 individuals) and the jungle cat (21 individuals). Lesser white-toothed shrews were recorded at 9 individuals, wild boars at 7, badgers at 6, and wolves at 2.

These figures reflect relative differences in species encounters during the monitoring period. However, they are insufficient to draw definitive conclusions about the actual population size or abundance of these species. Reaching such conclusions requires accounting for the frequency of repeat observations, the duration of camera trap operation, the transect length, and the survey area.

Wolf — Canis lupus

The wolf is an ecologically significant species among the predatory mammals of the national nature park. According to the provided inventory data, it inhabits the Qarabek section of the area, specifically within the tugai forests and adjacent desert landscapes.

As an apex predator, the wolf influences the populations of other animals. Its habitat use depends on food resources, water sources, available cover, and the impact of human activity.

During the 2025 monitoring, two individual wolves were recorded. This result reflects the specific conditions observed at the time, and the overall population of the species in the area should not be assessed based on this figure alone.

Factors that may impact the wolf's habitat include the shrinking of tugai forests, changes in the water regime, and the degradation of natural landscapes. To conserve the species, it is crucial to preserve its movement corridors, prevent poaching, and conduct regular monitoring using camera traps.

Golden jackal — Canis aureus

The golden jackal is the most frequently recorded mammal species in the research data, with 78 individuals documented during the 2025 monitoring. According to the available data, the jackal inhabits various parts of the national nature park, including the area around Lake Davudkul, reed beds, areas with tree and shrub cover, tugai forests, and adjacent desert zones.

The jackal is a highly adaptable predatory mammal whose diet can include small mammals, birds, reptiles, invertebrates, and certain plant-based food sources. Its dietary composition varies depending on local conditions and the season.

The higher number of sightings compared to other species suggests that the jackal may be relatively common in this region. However, attributing this to population growth requires monitoring results obtained using the same methodology as in previous years.

Conservation efforts for the jackal should focus on preserving its natural habitats, considering its role in the food chain, and mitigating potential human-wildlife conflicts.

European Badger — Meles meles

The badger has been recorded in the Andrey Division of the National Nature Park. Available data indicate that the species occurs around Lake Dovudkol, as well as in reed beds, areas with tree and shrub cover, tugai forests, and adjacent dry habitats.

Primarily nocturnal, the badger feeds on invertebrates, small vertebrates, fruits, and other available food sources. It is characterized by its habit of digging underground burrows for shelter.

During monitoring conducted in 2025, six individual badgers were recorded. Key ecological requirements for this species include soil suitable for burrowing, adequate food resources, and the preservation of shelter sites.

To conserve the species, it is recommended to maintain habitat integrity, minimize human disturbance around burrowing sites, and regularly document monitoring results.

Red Fox — Vulpes vulpes

The fox has been recorded in the Dovudkul border areas of the national nature park. According to the provided cadastral data, it inhabits reed beds, tree and shrub thickets, flat tugai floodplains, and adjacent desert landscapes.

The fox is a predatory mammal capable of adapting to a wide range of ecological conditions. Its diet can include rodents, birds, reptiles, insects, as well as certain fruits and other plant matter. Consequently, the fox plays a role in regulating small animal populations and maintaining food chains within natural ecosystems.

During the 2025 monitoring, 26 individual foxes were recorded. While this result indicates that the fox is relatively common among the documented species, comparable data collected over several years are required to determine the population's stability or growth rate.

Preserving the fox's habitat, protecting its natural food resources, and preventing poaching will help maintain the ecological role of this species in the area.

Jungle Cat — Felis chaus

The jungle cat is one of the predatory mammals of conservation importance in the national nature park. According to the provided data, it is found around Lake Dovudkol, in reed beds, in thickets along the banks of water bodies, and in areas with tugai vegetation.

The habitat of this species is closely linked to areas near water with dense vegetation cover. The jungle cat feeds on small mammals, birds, and other small vertebrates. Consequently, it forms an integral part of the food webs in riparian ecosystems.

According to the 2025 monitoring results, 21 jungle cats were recorded. This information is significant as a monitoring record that confirms the presence of the species in the national nature park. Seasonal observations and repeated camera-trap data are needed to fully assess the status of its population.

The primary conservation measures for the jungle cat include preserving reed beds and tugai forests, regulating drastic changes in the water regime, preventing poaching, and reducing habitat fragmentation.

Wild boar — Sus scrofa

The wild boar has been recorded in the Andrey section of the national nature park. According to available data, this species inhabits areas featuring dense reed beds, tugai forests, and shrublands.

The wild boar is an omnivorous animal that feeds on the underground parts of plants, seeds, fruits, invertebrates, and other food sources. By rooting in the soil in search of food, it can alter the soil surface and the microhabitats of certain areas.

During the 2025 monitoring period, seven wild boars were recorded. Conserving the species requires preserving dense vegetation cover and natural habitats, ensuring access to

water sources, and minimizing human disturbance within the animals' movement corridors.

Lesser white-toothed shrew — Crocidura suaveolens

The lesser white-toothed shrew is one of the small mammals recorded in the Andrey section of the National Nature Park. The available data indicate its presence in steppe, forest, and tugai biotopes.

Lesser white-toothed shrews belong to a group of mammals that feed primarily on insects and other small invertebrates. Their ecological significance is reflected in their trophic interactions with invertebrates living on the soil surface and in the plant litter layer.

During the 2025 monitoring, nine lesser white-toothed shrews were recorded. To further improve the monitoring of this species, it is advisable to use trapping methods tailored for surveying small mammals, along with standard routes and repeated seasonal observations.

Factors Affecting the Habitat

The provided cadastral data identifies the shrinking of reed beds and tugai forests, along with changes in the water regime, as the primary limiting factors for mammals. These factors can impact the size and quality of habitats, food resources, available cover, and the movement of animals across the area.

The decline of tugai forests and reed beds poses a significant ecological threat, particularly to species reliant on the banks of water bodies. Reduced vegetation cover can limit shelter and breeding sites for animals and disrupt the structure of food chains.

Meanwhile, changes in the water regime affect the condition of moisture-dependent plants and the food resources linked to them. Therefore, it is recommended to monitor mammals in conjunction with gathering ecological data on the condition of water bodies, reed beds, and tugai forests.

In doing so, it must be taken into account that these factors do not affect every species equally. Determining the degree of impact requires analyzing the correlation between habitat conditions and animal occurrence rates based on multi-year data.

Discussion

Research findings indicate that representatives of various ecological groups of mammals inhabit the "Orolbo'yi" (Aralkum) National Nature Park. Among carnivorous mammals, the relatively frequent sightings of golden jackals and foxes may be attributed to their ability to utilize diverse habitats and their varied diets. Conversely, for species tied to riparian biotopes, such as the jungle cat, the preservation of reed beds and riverbank vegetation is of particular importance.

However, caution must be exercised when comparing different species solely on the basis of raw observation counts. Factors such as the animals' elusive behavior, daily activity patterns, the likelihood of passing in front of camera traps, and the specific survey methods

employed all influence observation results. For instance, a low number of records for large carnivores does not automatically imply that they are extremely scarce in the area.
In this regard, future monitoring efforts should record not only the number of observations for each species, but also the sampling effort, observation duration, camera trap days, transect length, season, and precise geographical coordinates. This approach will enable the creation of a dataset comparable across years and allow for a more reliable assessment of the status of species populations.

Conclusion

1. Seven mammal species were recorded in the 2025 monitoring materials submitted for the Aralkum National Nature Park: the gray wolf, golden jackal, European badger, red fox, jungle cat, wild boar, and lesser white-toothed shrew.
2. The golden jackal (78 sightings), red fox (26 sightings), and jungle cat (21 sightings) accounted for the highest number of recorded observations. These figures represent individual monitoring records and, on their own, do not reflect actual population sizes.
3. The spatial distribution of these mammals is closely tied to reed beds, tugai forests, the shores of water bodies, shrublands, and adjacent arid landscapes. Preserving this diversity of habitats is vital for conserving the national nature park's fauna.
4. Existing cadastral data identify the reduction of reed beds and tugai forests, along with changes in the water regime, as major limiting factors. Assessing the impact of these factors on the species requires regular monitoring of both habitats and animal occurrences.
5. To improve mammal monitoring in the national nature park, it is recommended to use standardized transects, systematically log camera trap data, record geographic coordinates, and establish a multi-year electronic cadastral database.
6. The collected data can serve as a baseline for future in-depth studies of the mammalian fauna in the Aral Sea National Nature Park, ecological assessments, and the science-based planning of biodiversity conservation measures.

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