

Conservation of some endemic species of the genera *leucozonella* and *archaica* and measures for their protection

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Annotation

The article examines the protection and measures for the protection of *Leucozonella corona* and *Archaica eleorica*. *Leucozonella corona* Schileyko et Rymzhanov, 2010 is a weak, naturally rare, locally distributed, endemic species. It is distributed in certain areas in the Chotkal and Kurama mountain ranges. *Archaica eleorika* Schileyko et Pazilov, 2003-weak, naturally rare, endemic species. Distributed in the hilly regions of Shahrisabz district, Kashkadarya region.

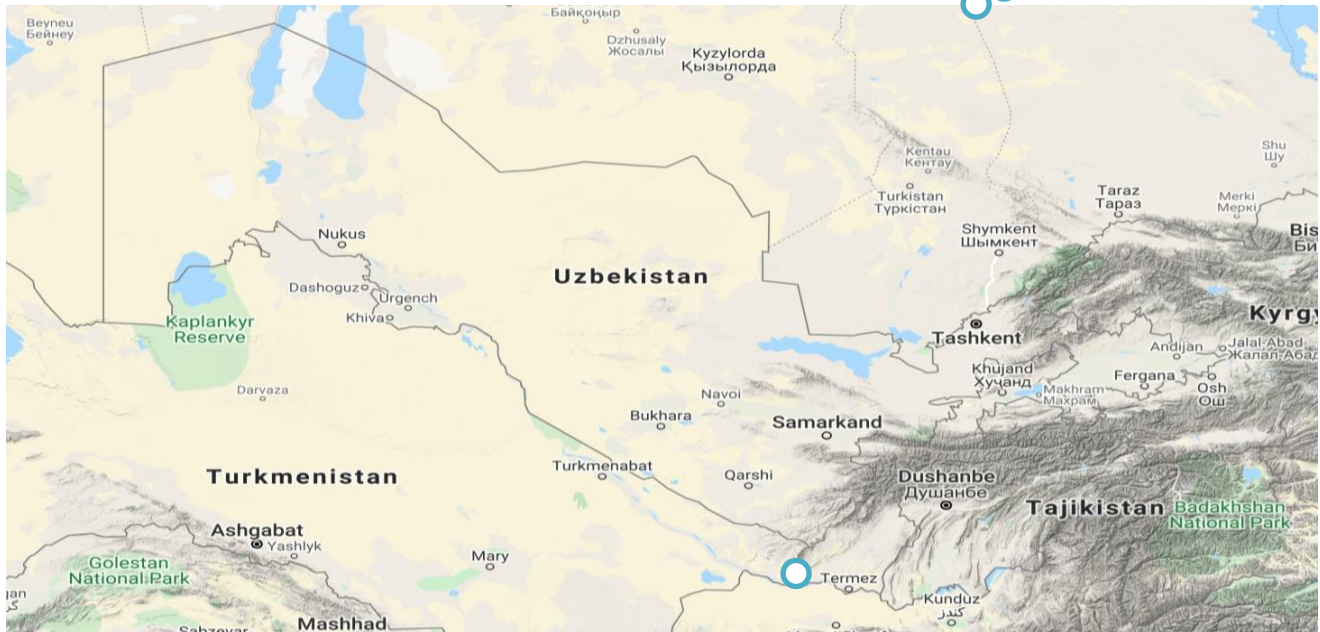
Key words: Endem, biology, limiting factor, protection

Introduction

The systematic study of the malacofauna in Uzbekistan has been organized since the early years of the 20th century, gaining particular attention in contemporary times through faunistic research. This focus is due to the significant alterations in the biologic diversity and ecological balance of the environment under the influence of anthropogenic forces in the present era. These alterations result in substantial changes in both the biological diversity and the conservation and sustainable utilization of existing species and resources. Especially in less elevated mountainous regions and remote areas, notably in the Chatcal and Kurama mountain ranges, the extensive utilization of natural resources has led to a pronounced impact on the flora and fauna, affecting their distribution and ecological balance. Therefore, the ecological systems in regions undergoing significant changes require a comprehensive analysis of the taxonomic composition, distribution, and contemporary status of correlative mollusk species, posing challenges to the current conservation efforts.

Literary Analysis and Methodology

Research materials for the years 2020-2023 were gathered from the Chatcal mountain system (Ugom-Chotqol State Nature Reserve, Teraklisoy River middle reaches), the Kurama mountain system northern slopes (Goshsoy River right bank; Lashkerak winter pasture surroundings), and the adir areas of Shahrisabz district in Qashqadaryo region (Figure 1). A.A. Shileyko's method was predominantly employed in material processing. The primary portion of the material was collected during the spring months. In the adir region, expeditions were conducted during the second ten days of April and the first ten days of June in the mountainous region. The material was mainly collected by hand, as manual collection facilitated a comprehensive study of the diverse biotopes of natural landscapes when collected by hand.



1- figure. Research areas and material collection locations.

○ - Areas where the material was collected

Leucozonella corona and *Archaica eleorika*, belonging to the Hygromiidae family, are considered endemic species in Uzbekistan, classified under the *Leucozonella* and *Archaica* genera. These species are recognized as vulnerable and endangered, given their scarcity compared to thriving and declining species. Understanding population density, creating distribution maps, and studying key ecological factors are crucial for the conservation of these species in their natural habitat.

The geographical distribution of Uzbekistan, encompassing several biogeographic regions, contributes to the high biodiversity of its fauna. However, in the last decade, the Uzbekistan fauna has undergone anthropogenic influence due to intensive resource utilization. Consequently, certain species, including terrestrial mollusks, have experienced a decrease in both their range and abundance, with some facing the risk of extinction.

It is noteworthy that, despite the discovery of over 150 terrestrial mollusk species in the current Uzbekistan region, only 2 species have been officially listed in the Uzbekistan Red Book [1]. Recommendations for conservation have been proposed for more than 10 species [2, 3, 4, 5, 6], primarily belonging to the Bradybaenidae and Enidae families, while only *Leucozonella globuliformis*, a species within the Hygromiidae family, has been recognized as vulnerable [7].

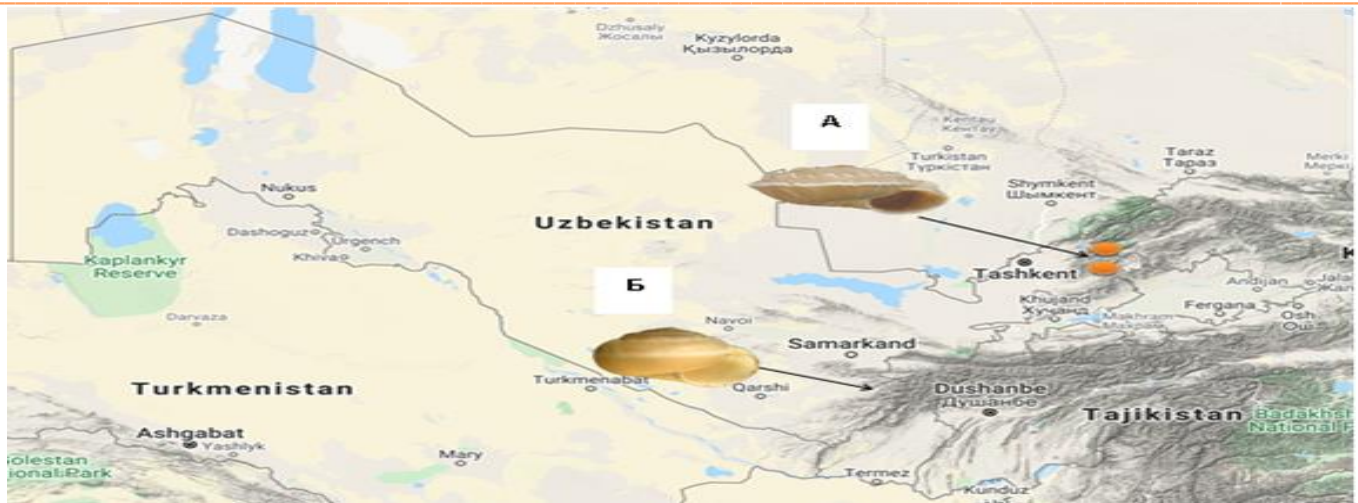
Results

According to the findings of the conducted research, it is possible to designate the following species from the Hygromiidae family, considered as vulnerable species for conservation based on the guidelines of the International Union for Conservation of Nature (IUCN) [2]:

Leucozonella corona Schileyko and Rymzhanov, 2010 - Vulnerable, naturally scarce, locally distributed, an endemic species. It has been observed in specific regions of the Chatcal and Kurama mountain systems (Figure 2). Inhabiting altitudes between 1500-2000 m above sea level, it resides above rocky formations.

Biology: Not fully understood. Population density allows for one individual per 5-10 m².

Critical factors: Elevated recreational activity, depletion of their natural habitat as a result of extracting rock formations for construction materials, leading to the disappearance of the natural living space.



2-figure. A-*Leucozonella corona*, B- Distribution map of *Archaica eleorika*.

Archaica eleorika Schileyko and Pazilov, 2003 - Vulnerable, naturally scarce, an endemic species. Located in the adir regions of Shahrissabz district, Qashqadaryo region. It resides at altitudes between 1200-1300 m above sea level, among stony vegetation.

Biology: Not fully understood. Population density allows for one or two individuals per 2-3 m².

Critical factors: The modification of the adir region, disturbance in the distribution of moss and stony vegetation, leading to the disappearance of the natural living space, excessive use of living areas by mollusks, acting as a disturbance beyond the natural limits

Discussion

Conservation Measures: Studying their biology, preserving habitats, considering vulnerable and endangered species as 2 (VU:R) according to the recommendations, it is advisable to include them in the Red Book of the Republic of Uzbekistan. The information presented above illustrates that, as a result of anthropogenic influences, agricultural activities, and recreational development, the excessive utilization of living areas by mollusks as a disturbance beyond the natural limits has led to the shrinking and even disappearance of natural habitats in some regions [8,9,10].

Conclusion

A distribution map of *Leucozonella corona* and *Archaica eleorika* species found in Uzbekistan has been compiled. The ecological characteristics of *Leucozonella corona* and *Archaica eleorika* species in the natural conditions of Uzbekistan have been elucidated. Conservation measures have been recommended for *Leucozonella corona* and *Archaica eleorika* species. It is advised to include *Leucozonella* and *Archaica* generations, after studying the population status, gathering new information about the species requiring conservation, in the Red Book of the Republic of Uzbekistan with the designation of 2 (VU:R).

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