

## **THE IMPORTANCE OF THE JIZZAKH REGION'S BIOLOGICAL DIVERSITY AS AN ECOTOURISM RESOURCE**

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**Annotation:** *The article analyzes the biological diversity of the Jizzakh region as an important natural resource for the development of ecotourism. The territory of the region is distinguished by combining mountain (the Turkestan and Nurata ranges), desert, and wetland ecosystems in a single area. Drawing on official sources, the article summarizes the flora and fauna indicators of the Zomin and Nurata state reserves and the Aydar-Arnasay lake system, and assesses their ecotouristic potential for birdwatching, botanical, safari, and mountain tourism. Under conditions of growing global demand for nature-based tourism, it is substantiated that the region's richness in endemic and rare species is a promising direction for diversifying tourism. At the same time, it is shown that certain ecological problems (a falling water level and a decline in bird numbers) create the need to adhere to the principles of sustainable use.*

**Keywords:** *biological diversity, ecotourism, protected natural areas, endemic species, Zomin State Reserve, Nurata State Reserve, Aydar-Arnasay lake system, birdwatching tourism.*

### **Introduction**

In recent decades, demand for nature-based, i.e. ecological, tourism has grown steadily in the world tourism market. The core of ecotourism is formed by the biological diversity of a given territory - the richness of its plant and animal life and the presence of endemic and rare species. The main factor that draws a tourist to a particular destination is often precisely a rare species living

there or a unique landscape. In this sense, biological diversity is regarded not only as an ecological but also as an economic resource.

Uzbekistan's overall biological diversity comprises more than 27,000 species. Nearly 4,500 species of higher plants have been recorded in the territory of the republic, together with 706 species of vertebrate animals (mammals-107, birds-460, reptiles-64, amphibians-3, fish-76). This wealth is conserved mainly through a network of protected natural areas-state reserves, national parks, and sanctuaries.

The Jizzakh region occupies a special place in this respect, two of Uzbekistan's six state reserves - the Zomin and Nurata state reserves - are located within its territory. In addition, the high Turkestan range in the south of the region, the ancient Nurata range in the west, and the Aydar-Arnasay lake system in the north bring together, within a single area, the side-by-side arrangement of mountain, forest, desert, and wetland ecosystems. Such a diversity of landscapes gives rise to a species-rich environment and serves as a natural basis for various directions of ecotourism. This article analyzes the region's biological diversity from the standpoint of an ecotourism resource.

### **Main body**

The natural foundation of ecotourism in the Jizzakh region is formed by its protected areas. The principal ones and their organizational indicators are presented in Table 1.

**Table 1.**

**Main protected natural areas of the Jizzakh region**

| <b>Object</b>          | <b>Location<br/>(district)</b> | <b>Area / status</b> | <b>Establishment<br/>and source</b> |
|------------------------|--------------------------------|----------------------|-------------------------------------|
| Zomin State<br>Reserve | Zomin, Bakhmal                 | State reserve        | 1928 (expanded<br>1994)             |

| Object                        | Location<br>(district)     | Area / status                                 | Establishment<br>and source |
|-------------------------------|----------------------------|-----------------------------------------------|-----------------------------|
| Zomin National<br>Nature Park | Zomin                      | National nature<br>park                       | 1976                        |
| Nurata State<br>Reserve       | Forish                     | 17,752 ha<br>(20,312.87 ha<br>protected zone) | 1975                        |
| Aydar-Arnasay<br>lake system  | Arnasay<br>(Jizzakh–Navoi) | Ramsar wetland<br>site                        | Ramsar - 2008               |

The Zomin State Reserve is situated in the Turkestan mountain range and was initially established in 1928 to conserve rare juniper stands aged 500 to 2,500 years and the wildlife within them. According to counts carried out in the Bakhmal division of the reserve, 30 species of mammals, 102 species of birds, 14 species of reptiles, 2 species of amphibians, and 1 species of fish have been recorded here. Landscapes rich in juniper forests, mountain meadows, and medicinal plants make this area attractive for mountain tourism, recreational (health) tourism, and botanical tourism. Natural monuments such as the roughly 700-year-old Boboyongoq walnut tree arouse particular interest among tourists.

The Nurata State Reserve was established in 1975 to preserve the lineage of the endemic Severtsov's sheep, which is listed in the Red Books of Uzbekistan and of the International Union for Conservation of Nature (IUCN). According to official data, 847 plant species have been identified in the reserve, of which 32 are listed in the Red Book, its fauna includes 260 species of vertebrate animals (mammals -35, birds-200, reptiles-21, amphibians-3, fish-1) and 864 species of invertebrate animals. The Severtsov's sheep population, which numbered 100-150 head before the reserve was established, has stabilized in recent years and reached 1,400-1,600 head. This endemic species

can serve as the reserve's ecotouristic "brand", herds of argali recorded by camera traps are a strong drawing factor for wildlife-watching tourism.

A comparative distribution of the fauna of the two reserves by systematic groups is shown in Diagram 1.

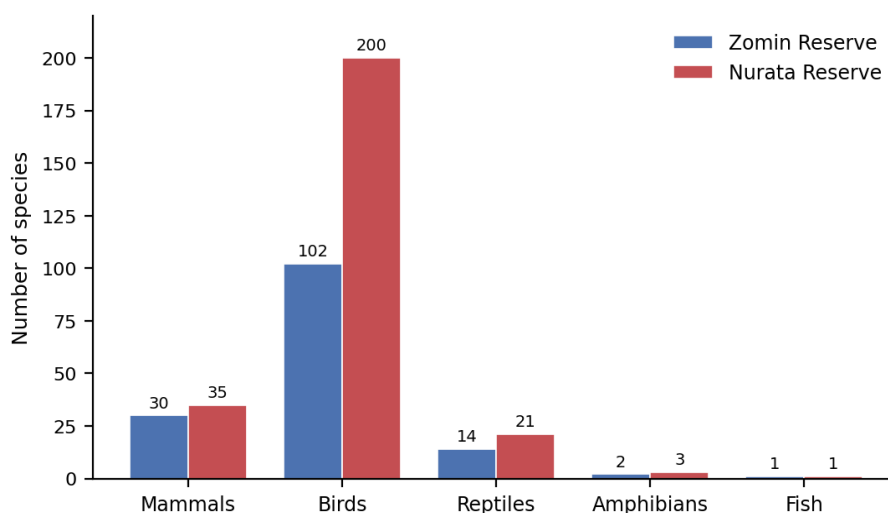


*Diagram 1. Distribution of vertebrate animal species by systematic groups in the Zomin and Nurata reserves*

Formed in 1969 as a result of the discharge of water from the Chardara reservoir, the Aydar-Arnasay lake system is an important site for migratory and waterfowl birds and was included in the Ramsar Convention list in 2008. According to sources, around 192,000 birds of 37 species were recorded in this area earlier, whereas in subsequent years their species composition and numbers have declined markedly as a result of a falling water level and increasing salinity. Species listed in the Red Book - the Dalmatian pelican, the white-headed duck, and Pallas's fish eagle - occur here. The wetland environment itself is a unique resource for birdwatching tourism and scientific-ornithological excursions, at the same time, the fragility of the ecosystem requires that tourism here be organized solely on the basis of sustainable, nature-conservation principles.

The analysis above shows that each component of the region's biological diversity serves a particular direction of ecotourism. These correspondences are summarized in Table 2.

**Table 2**

**Correspondence of the Jizzakh region's biological diversity with ecotourism directions**

| <b>Ecotourism direction</b>        | <b>Main resource (species/ ecosystem)</b> | <b>Main area</b>                |
|------------------------------------|-------------------------------------------|---------------------------------|
| Birdwatching                       | Waterfowl and migratory birds             | Aydar-Arnasay lake system       |
| Wildlife, safari tourism           | Severtsov's sheep (endemic argali)        | Nurata reserve                  |
| Mountain and health tourism        | Juniper forests, mountain meadows         | Zomin reserve and national park |
| Botanical, medicinal-plant tourism | Medicinal and endemic plants              | Zomin, Nurata                   |

This, the mountain, desert, and water ecosystems concentrated within a single territory make it possible to design mutually complementary routes for different groups of tourists - birdwatchers, naturalists, and active-recreation enthusiasts. This helps to smooth out seasonality and to distribute tourism throughout the year.

**Conclusion**

The biological diversity of the Jizzakh region constitutes a solid and distinctive natural resource base for the development of ecotourism. The close arrangement of mountain (Zomin), desert-mountain (Nurata), and wetland (Aydar-Arnasay) ecosystems, the presence of rare species such as the endemic Severtsov's sheep, and the network of protected areas turn the region into a

promising area from the standpoint of ecotourism. At the same time, the falling water level and the decline in bird numbers at Aydar-Arnasay show that biological diversity is a form of wealth that is both a resource and in need of protection. Therefore, in planning ecotourism, it is essential to strictly observe the principles of load management, monitoring, and involvement of the local population.

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