Chemia, fizyka i biologia na potrzeby społeczeństwa XXI wieku; nowe makrojerunki studiów I,II i III stopnia

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Projekt realizowany ze środków Unii Europejskiej w ramach Europejskiego Funduszu Społecznego
Goitered Gazelle (*Gazella subgutturosa*) is a forgotten species of large herbivores in Uzbekistan. One species of genus *Gazella* occur in Uzbekistan. It is Goitered gazelle (*Gazella subgutturosa subgutturosa* Guld. 1780).
**Distribution**

Goitered gazelles were formerly distributed across most of Uzbekistan’s deserts and semi deserts.

However, numbers and range have decreased sharply over the last 40 years, especially during the 1970s. The range of the species is steadily shrinking and fragmenting, and surviving populations have become isolated (Flint, Prisyazhniuk, 1986; The Red Data Book of USSR, 1984)
Habitat

Goitered gazelles inhabit:
- flat or gently hilly areas,
- grass- saltwort (*Salsola*) deserts,
- shrub and low-shrub deserts,
- semi deserts and steppes,
- consolidated sand dunes,
- areas with occasional clumps
  of saxauls (*Haloxylon aphyllum*),
- and sands fixed by plant cover.

The wet solonchak in central part of Kyzyl Kum
Gazelles prefer areas with **clayey and detritus soil** and can inhabit **broken terrains** but do not visit areas with drifted sands. They occur in **desert foothills** and **may penetrate up mountain valleys to altitudes of 2,000 – 3,000 m** (The Red Data Book of USSR, 1984; The Red Data Book of Uzbekistan, 2006).
Current status

The largest remaining populations of goitered gazelles are found in the north of the country, one in **southern Ustyurt Plateau** and other in **Kyzyl Kum Desert** to the southeast of the Aral Sea.

Surveys during 1981–84 (Sabilaev and Koptsev 1986) indicated that goitered gazelles had become absent from the central and eastern parts of Ustyurt, and that they were extremely rare in the southern and northeastern parts. The only part of Ustyurt where gazelles were more or less common is an area of about 6,000 km2 of the Sam and Matay Sands, near **the Sarykamysh Depression** in the south of Ustyurt. Numbers in 1980s were not exceeding 400-500. This means the Ustyurt gazelle population has decreased by more than 10-12 times in 30-35 years.

The goitered gazelles’ paths
In the Kyzyl Kum Desert, gazelle numbers have also decreased by 12-13 times over the last 30 years. By 1983-84, goitered gazelles had either become rare or had disappeared completely from an area of about 30,000 km². A relatively numerous and stable population of about 1,200 gazelles survived in northwestern Kyzyl Kum, in sands southeast of the Aral Sea (Flint & Prisyazhniuk, 1986; Reimov et al., 1989). Current numbers of these populations are unknown.
Preliminary short-term investigations show existence of small isolated populations in other parts of **Kyzyl Kum Desert**. These are populations in central part of Kyzyl Kum in **Kuljuktau Desert Mountains** and around **Karakir Lake**. Besides, exist small populations in southwest of Kyzyl Kum in **Sundukli, Kimirekkum sands and Karnabchul steppe**. Current numbers of these populations are unknown (Soldatova & Salimov, 1997; Marmazinskaya & Mardonov, 2004; Marmazinskaya, 2012).
Current status

On the data of the Red Data Book of Uzbekistan (2006) at present the total number is about 5-6 thousands, but this is not exact data.

Status within the country is Vulnerable, declining (VU:D)

Global status is Lower Risk/near threatened

The Kuljuktau Desert Mountains
Possible migration between countries

Migration between Uzbekistan and Turkmenistan occurs in:

- Sundukli Desert (Southwest of Kyzyl Kum Desert)
- Kymyrekkum sands (Southwest of Kyzyl Kum Desert)
- Horezm region (Western part of Kyzyl Kum Desert)
- Ustyrt Plateau (Sarykamysh Depression in the south of Ustyrt) (Marmazinskaya & Mardonov, 2004)
Possible migration between countries

Migration between Uzbekistan and Kazakhstan occurs in:

- Kokayaz place (Central part of Kyzyl Kum Desert)
- the north of Ustyurt Plateau
- the Aydarkul Lake area (Southeastern part of Kizil Kum Desert)

(Marmazinskaya & Mardonov, 2004)
### Threats

During the 1950s, **intensive development of the area began**, involving *construction of settlements, drilling of oil wells*, and *construction of gas pipelines, railways, and watercourses*.

The Salt Lake with saltwart *Salicornia sp.* community on the shore.
Threats

Large areas of gazelles have been destroyed or altered by improvement and ploughing, or by the planting of cotton and other crops.

In a number of areas, gazelles have come under pressure from competition with increased numbers of domestic livestock. Goitered gazelles have, in many cases, been forced onto poor-quality grazing land, such as areas of loose sand and broken terrain with ravines and dry watercourses.

The goitered gazelle’s lair
 Threats

The basic threats to gazelles in Uzbekistan are:

• illegal hunting,
• agricultural development,
• live stock grazing,
• habitat destruction.
**Threats**

Goitered gazelles is very sensitive to heavy snowfall and the set of severe winter conditions known as dzhut, when an ice-crust prevents access to forage. These conditions occur periodically and result in heavy mortality and widespread local extinctions (The Red Data Book of USSR, 1984; The Red Data Book of Uzbekistan, 2006).

*A desert in the Karakul Hunting Reserve*
**Conservation measures taken**

• Goitered gazelle listed in the national Red Data Book (from 1983).

• Hunting of goitered gazelle has been prohibited since 1950.

• Representation in protected areas is poor. Unfortunately no reserves have been established specifically for gazelles and the existing protected area system does not contain a significant population of this species. Small numbers of goitered gazelles occur occasionally in five reserves.

The watering place of gazelles in Goitered gazelle breeding center
A few gazelles occur in the Kyzylkum Nature Reserve (5,721 ha). This reserve lies in the western part of Kyzyl Kum and consists of two natural zones, tugai forest (3,177 ha) and sandy desert (2,544 ha). The reserve was established to protect the endangered Bukhara deer. A few gazelles sometimes enter the desert part of the reserve, but exact numbers are unknown.
Karakir Nature Sanctuary (30,000 ha), and Dengizkul Nature Sanctuary (8,620 ha) protect migratory water birds around Lakes Karakir and Dengizkul, respectively. Goitered gazelles occur around the shores of the lakes and use them for drinking (Uzbek National Strategy for Biodiversity Conservation, 1998).
Conservation measures taken

A few gazelles occur in the Karnabchul Nature Sanctuary (40,000 ha) and Karakul Hunting Reserve (6,000 ha). But exact numbers of gazelles in these reserves are unknown. There is enclosure in the Karakul Hunting Reserve in which is keeping about 20 gazelles.
A goitered gazelle-breeding center covering 5,126 ha was established near Bukhara in 1977. Here in semi wild conditions live about 200 gazelles. Two years ago, the center was given administrative control of an adjoining 9,369 ha. About 100 gazelles occur there.

There is a group of goitered gazelles consisting of 20 individuals in Tashkent Zoo.
Conservation measures proposed

It is necessary to develop a conservation strategy for gazelles in Uzbekistan. It should include:

• Anti-poaching measures;

• Expansion of the protected area system;

• A publicity and awareness campaign;

• To determine the precise current distribution and status of goitered gazelle.

The goitered gazelles’ tracks
The most important measure to conserve remaining populations is to protect them against poaching. This presents great difficulties when animals are widely dispersed in sparsely inhabited, desert habitats. It requires an effective campaign against illegal hunting by mobile teams of rangers, concentrating in areas of the gazelle concentrations.

Conservation measures proposed

The pregnant female in enclosure of the Karakul Hunting Reserve
Conservation measures proposed

In order to restore numbers, new large reserves should be created

- southeast of the Aral Sea in the northern Kyzyl Kum
- in the Sam and Matai Kum sands in northern Ustyurt
- in southern Ustyurt
- the Bukantau and Kuljuktau Ranges and adjacent strips of the central part of Kyzylkum
Goitered gazelles can survive in desert habitats with moderate levels of human land use, provided hunting pressure is completely lifted, and if additional measures are taken, such as drilling of boreholes to provide water. Therefore, it is not necessary to exclude land from agricultural use in order to conserve goitered gazelles (Marmazinskaya & Mardonov, 2000).
Conservation measures proposed

It is essential to carry out detailed surveys to determine current distribution and status of the remaining goitered gazelles in Uzbekistan. The last 30 years did not conduct special investigations on gazelle’s distribution in Uzbekistan. And we have no data on current status of this species.

*Halostahis caspia* broked by horns
Conservation measures proposed

For elaboration effective measures for conservation of the species it is necessary:

• to determine contemporary location of remaining populations,
• to reveal causes of isolation between populations and ways of seasonal wanderings and migrations (if they exist).
Special attention should be given to determination of seasonal and all-the-year-round habitats, and areas where gazelles occur sporadically.

For each population should be conducted following investigations: a study of

- number and density,
- sex-age ratio,
- spatial and social structure.
Conservation measures proposed

It is necessary to implement analyze of habitats:

- forage reserve,
- water resources,
- degree of anthropogenic pressing,
- number of livestock and interaction with them.

(Marmazinskaya & Mardonov, 2004)

The strategy to conserve and restore this species should also include increased publicity highlighting the importance of wildlife conservation.
References


Pictures by Natalya Marmazinskaya

Thank you for your attention and welcome to Uzbekistan!