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Species of poisonous snakes fauna of nakhchivan autonomous republic of Azerbaijan

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Abstract

The article is devoted to the results of the study of the taxonomic status and ecological characteristics of poisonous snake species distributed in the territory of the Nakhchivan Autonomous Republic. Materials for research were collected in various biotopes and landscapes in the highlands of the region during 2011-2023. In the herpetofauna of the autonomous republic, information is given about 3 types of poisonous species - *Macrovipera lebetina*, *Montivipera raddei*, *Pelias eriwanensis*.

Keywords: Poisonous snakes, taxonomy, ecological feature, trophic relationship, Serpentes

Introduction

Species of poisonous snakes occupy an important place in the reptile fauna of the Nakhchivan Autonomous Republic. As you know, snakes the food web maintainig trophic relationships and the balance of the number of species in biogeocenoses. If the snake is destroyed, it will be difficult to control the number of rats and other pests of agriculture.

After the discovery of biologically active components (enzymes) in snake venom and their medicinal properties at the beginning of the last century, increased attention was paid to the study of poisonous snakes. And for the extraction of poison, it became necessary to learn the ways of keeping these species in artificial conditions [5].

Snake venom is a valuable medicinal raw material and preparations made from it are widely used in medical and diagnostic research and in the treatment of various diseases. Therefore, the study of the ecology of the species of poisonous snakes, their real natural resources, ways of sustainable use and effective protection is of primary importance.

The territory of Nakhchivan AR is 5.5 km² thousand. Sometimes it borders wit the Iranian IR and Turkey, in the north-west, in the north-east with the Republic of Armenia. The absolute height of the area territory varies greatly from 600 m. n.u.m. in the village of Kotam, Ordubad district up to 3906 m. n.u.m. at the highest peak of the city. Hood of the Zangezur hars.

The main part of the region is mountainous, where mainly Mediterranean vegetation prevails. Medicinal, aromatic and bulbous plants prevail in the plant cover, from the point of view of species richness.

Materials and Methods

The first detailed studies of the herpetofauna of this mountainous country were conducted in 2011-2023. in route, expedition, stationary and camera-laboratory conditions. To clarify the systematic position of the species of snakes discovered by us, the data of the existing research works of Alekberov, Sharifov, Alieva, Iskanderova were used., and others и сайтов Интернета [1, 2, 3, 4, 7, 8, 16, 17].

Species belonging to the majority of snakes observed in nature is determined by color photographs. If it is necessary to study the species, some caught individuals of snakes in fabric bags are delivered to the laboratory and after euthanizing with ether, they are placed in a pre-prepared mixture (9 parts of 40% formalin: 91 parts of 700 ethyl alcohol) in a sealed container. Identified and fixed specimens of poisonous snake species are placed in 700 alcohol and stored in the laboratory of zoological research of the Institute of Bioresources of the Nakhchivan Department of the National Academy of Sciences of Azerbaijan.

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Results and Discussion

Poisonous snakes of Azerbaijan have been studied for a long time as part of the herpetofauna. As a result of studies of herpetofauna in Azerbaijan, carried out for the first time from 1830 to 1920 by traveling scientists (E. Menetrie, 1859, G. Rudde, 1879, A. B. Shelkovnikov, N.A. Kirichenko and others) The composition of the herpetofauna, as well as snakes, was almost determined in the Imperial Academy [15].

In 1929-1939, employees of the Zoological Institute and the Zoology Sector of the Transcaucasian Branch of the USSR Academy of Sciences N.I. Sobolevsky, S.A. Chernov, A.B. Bogachev and others, and then in 1951, specialists from the Zoological Institute of the Academy of Sciences of the Azerbaijan SSR R.D. Jafarov and A.M. Alekberov conducted a more detailed study of the species of poisonous snakes and established new faunal and environmental data.

In general, special studies of poisonous snakes in Azerbaijan began in the 1960s. In this area, special merit belongs to Alekberov and his students Sherifov, Aliev and Iskenderov. In the works of these authors, the faunistics (morphology, geographical distribution, number, density) of poisonous snakes in Azerbaijan, their maintenance in artificial conditions to obtain snake venom, as well as exploitation and breeding are described in detail [21, 22].

Due to the fact that the territory of the Nakhchivan Autonomous Republic is geographically separated from Azerbaijan, the degree of study of Serpentes fauna species along with other animal species was insufficient compared to other areas of the republic.

Currently, the systematics of the fauna of Caucasian snakes, especially species belonging to the Viperidae family of various viper complexes (*Vipera lebetina*, *V. xanthina*, *V. ursini*, *V. berus* etc.) has changed significantly (N.B. Anan'eva *et al.*, 2004; B.S. Tuniev and others, 2009). The last literary data on the taxonomy and geographical distribution of

the Caucasian ophidofauna are given in the works of B.S. Tunieva and others 2009, [14, 20].

Information on the types of poisonous snakes of the herpetofauna of the autonomous republic is given below

Class: Reptilia

Order: Squamata

Suborder: Serpentes

Family: Viperidae

Genus: *Macrovipera*

Species: *Macrovipera lebetina obtusa* Dwigubsky, 1832-Levent's viper

Features Body length reaches up to 2 m, weight is usually 3 kg. The most poisonous, long and thick snake living in the region. Slow moving.

The front part of the head is blunt, there is an obvious separation of the neck. The head is spotless. The upper side of the head is covered with small scales. The dorsal side of the trunk is brown or gray-black, sometimes with large blackish, indistinct spots. The middle part of the trunk is brick-red, the edge of which is covered with a continuous strip of black spots, which narrows on the back of the tail. The abdomen is slightly reddish, or yellow-white, with black dots on the surface. The end part of the tail is yellowish.

Geographical distribution: Near East, North Africa, East Asia. On the territory of the autonomous republic lives its subvid - *Macrovipera l. obtusa*. It is spread in the vicinity of the city of Nakhchivan, the village of Gahab, on the slopes of the mountains Darydag and Ilandag, on the territory of Julfin, Ordubad and Shahbuz districts and other localities of the region (Figure 1). 3 snakes were caught on a livestock farm on the outskirts of the city of Nakhchivan and in the botanical garden of the Institute of Bioresources.



Fig 1: Distribution area of Levent's viper

Habitated biotopes. Inhabits forestless flat and rocky territories. It is observed in ruins, sadakh and on fields.

Nutrition. Small rodents, birds, lizards and snakes are the basis of the diet. First, it kills the prey with poison, and then swallows it.

Reproduction: The female lays 5-7 eggs.

Poison. A rat's bite kills in a few seconds. Even a snake bite

can kill an animal, such as a horse and a camel (O.O.Guru, 1999).

Genus: *Vipera*

Species: *Montivipera raddei* (Boettger, 1890) - Radde's mountain viper

Features body length reaches 99 cm. The head is triangular in shape with a thinly expressed neck interception. The upper surface of the head is covered with small, ribbed scales.

Vertical pupils. The upper part of the body is gray-brown, with oblique stripes or angular spots. The edges of these spots are dark, the inside is lighter, sometimes they have a blackish color. Spots on the upper surface of the tail form a thin strip. The bottom of the tail has a yellowish-white color, with black dots or small spots.

Geographical distribution: South of Armenia, north-east of

Turkey, north-west of Iran. The species in Azerbaijan is distributed only on the territory of the Nakhchivan Autonomous Republic. It lives on mountainous areas of Shahbuz, Ordubad, Julfin and Babek districts. The species is especially often found in the territories of "Derebogaz" Shahbuz, "Gabagly also" Ordubad and "Khezinedere" Julfin districts. Two individuals were caught in "Hezineder" (Figure 2).



Fig 2: Distribution area of the Radde viper

Habitated biotopes. Inhabits forestless mountain areas, various rare forests, sometimes stony areas in forests.

Nutrition. Small rodents, lizards, birds and snakes make up the base of the fish. It mainly feeds at night, during the day the viper becomes inactive, hides under stones. She is slow in movements, bites under compulsion.

Reproduction. The female gives birth to 3-9 cubs.

Yad. He can be dangerous for human life. A fatal case from the bite of this species is not known.

Genus: *Vipera* (*Pelias*)

Species: *Pelias erevanensis* (Christoph, 1861) - Steppe viper
 Features A snake with a body length of about 50 cm or a little more. The surface of the head is covered with small scales of irregular shape (oblong, polygonal) and shields (one of them is large). Vertical pupils.

The dorsal surface of the viper is painted in a light brown-white background or in an olive-green color. Against this background, a dark brown zigzag strip along the spine is clearly distinguished, sometimes broken into separate spots. Often, the outer edges of the inner strip are of a darker color.

On the sides of the trunk and tail, there is a row of dark small spots, reaching the ventral shields. This row can consist of two parts. Shields located outside the spots with black dots. Abdomen yellowish-white. There may be black dots or spots on this background.

Geographical distribution: France, East Austria, Hungary, Central Italy, Serbia, Croatia, Bosnia-Herzegovina, Severnaya Macedonia, Albania, Romania, Severnaya Bulgaria, Greece, Turkey, Northwest Iran, Armenia, Georgia, Russia, Kazakhstan, Kyrgyzstan, China and east of Uzbekistan.

Распространен на subalpine and alpine (territories of the Batabat plateau, the vicinity of the villages of Paragachay and Pazmari of the Ordubad district) meadows of the autonomous republic.

Habitated biotopes: The view rises up to 3000 m. above sea level Inhabits grassy and stony areas. Sometimes it is observed in forested places and bushes. Winter hibernation is spent in rodent burrows, rock cracks, etc.



Fig 3: Distribution area of the Yerevan viper

Reproduction: Babies are born in July-August. The female brings 4-10 cubs.

Nutrition: The basis of nutrition is insects, sometimes lizards and snakes. First, poison kills the victim. It is the smallest poisonous snake in our territory. During the day, she prefers to hide in hidden places.

No deaths from the bite of the steppe viper have been recorded.

Conclusion

Snake, scorpion and insect bites are common occurrences in our daily lives. We can say that we are luckier in that the animal species of our fauna are less poisonous than species in the world.

These animals do not pose a danger to humans under normal conditions. They can be dangerous if teased by a nature lover, researcher, or just a person relaxing in nature. To protect snake species, it is necessary to take specific measures in their areas of high abundance and be more careful.

During the research, it was established that *Macrovipera lebetina* is the most widespread and numerous species of venomous snakes in the herpetofauna of the Autonomous Republic. Other species are distributed in limited areas.

Snakes are unloved and even scary creatures. The main reason for this is that these animals are considered poisonous and dangerous. This mentality stems from the lack of information people have about snakes. Most species of snakes are non-venomous, although some are poisonous.

At the same time, you need to be careful from poisonous snakes. It must be remembered that these animals, if not disturbed, never harm humans.

When bitten by snakes, skillful provision of medical care and injection of a special anti-snake serum to the bitten person is the key to successful treatment.

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