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NOTES ON STUDY OF DISTRIBUTION AND NUMBER OF LIZARDS OF THE GENUS
DAREVSKIA ARRIBAS, 1997 (REPTILIA, SAURIA, LACERTIDAE)
IN AZERBAIJAN

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(Presented by Academician of ANAS I.M.Huseynova)

Hitherto 11 species (*D. caucasica*, *D. chlorogaster*, *D. daghestanica*, *D. derjugini*, *D. portschinskii*, *D. praticola*, *D. raddei*, *D. rostombekovi*, *D. rudis*, *D. valentine*, *D. armeniaca*) belonging to the genus *Darevskia* were recorded in the territory of Azerbaijan. Information about the condition of rock lizards has not been updated for a long time in the Republic. Based on our own results and literature data, information about the distribution and number of rock lizards from the genus *Darevskia* in Azerbaijan has been given. The author notes that the areas of forest lizards (*D. chlorogaster* and *D. praticola hyrcanica*) have been reduced in Talysh and these species need legislative protection. *D. derjugini* is considered to be an extinct species for the territory of the Republic.

Keywords: rock lizards, *Darevskia*, Talysh Mountains, Greater Caucasus, Lesser Caucasus, distribution, number

Introduction

Rock lizards of the genus *Darevskia* Arribas, 1997 is one of the most studied groups of vertebrates in the Palearctic. Despite the fact that a special interest in the autochthonous lizards of the Caucasian ecoregion arose in the middle of the 20th century after the revolutionary works of I. S. Darevsky [6], up to the present time numerous articles devoted to their systematics, distribution, and ecology have been published [10, 14]. Now the genus comprises 31 species, and 4 of them were described in the last 10 years [9, 15].

Despite the fact that in recent years, rock lizards have been intensively studied in Iran, Georgia, Armenia, South Ossetia, and Russia [9, 14], this group is poorly studied in Azerbaijan. It is suggested that [2], 11 species of rock lizards of the genus *Darevskia* Arribas, 1997 are distributed in Azerbaijan: Caucasian lizard, *D. caucasica* (Méhely, 1909); Green-bellied lizard, *D. chlorogaster* (Boulenger, 1908), Dagestan lizard, *D. daghestanica* (Darevsky, 1967); Artvin, or Derjugin's lizard, *D. derjugini* (Nikolsky, 1898); Kurin lizards, *D. portschinskii* (Kessler, 1878); Meadow lizard, *D. praticola* (Eversmann, 1834); Radde's lizard, *D. raddei*

(Boettger, 1892); Rostombekov's, *D. rostombekovi* (Darevsky, 1957); Spiny-tailed lizard, *D. rudis* (Bedriaga, 1886); Armenian lizard, *D. armeniaca* (Méhely, 1909); and Valentin's lizard, *D. valentini* (Boettger, 1892).

Though the genus *Darevskia* is represented by the lizards gravitating towards clarified moist forests and their derivatives (*D. chlorogaster*, *D. derjugini*, *D. praticola*), or rocky outcrops (all others), its distribution ranges are mainly located within three mountain systems - the Greater Caucasus, Lesser Caucasus and Talysh [2, 4, 6].

From 11 species of *Darevskia* cited for the fauna of Azerbaijan, 5 ones were noted within the Greater Caucasus, 5 ones in the Lesser Caucasus, and 3 ones in Talysh. Azerbaijan territories of the Greater and Lesser Caucasus do not have the same species of rock lizards. In the Greater Caucasus and Talysh the genus *Darevskia* is represented by *D. praticola* only, in the Lesser Caucasus and Talysh by *D. raddei*.

For a long time, information on the distribution and density of rock lizards within Azerbaijan was not updated. And this circumstance served as the main reason for this research.

Materials and methods

Field researches were carried out in the Talysh mountains, on the territory of the Lankaran, Lerik and Yardimli districts in 2008–2011, in the Greater Caucasus (Guba, Gusar, Gabala and Zagatala districts) in 2013–2016, and in the Lesser Caucasus (Dashkasan, Gadabay and Tovuz districts) in 2017–2018. Census, collection and viewing of materials was carried out by the generally accepted methods (by transects 3 min. width). Activity registration and abundance counts were conducted in the morning, then in the period of maximum daytime activity of the species and evening hours [7, 8].

The species identification of lizards according to morphological characteristics was carried out by the keys of I. S. Darevsky [6]. Latin names of lizards are given according to the Reptile Database [15].

Results and discussion

In Azerbaijan Caucasian, lizard, *D. caucasica* occurs on the southern slopes of the Main Caucasian Range [2, 6]. This species recorded mainly in high altitudes of Zagatala and Balakan districts. *D. caucasica* is widespread in the alpine zone (alpine-subalpine zone), and with a decrease in height and level of moisture, it is replaced by *D. daghestanica*. The greenbellied lizard, *D. chlorogaster* recorded from the Astara, Lankaran, Lerik and Masally regions [2, 4, 6]. The species rapidly reduces its distribution in Lankaran lowland and in the north parts (Vilashchay river basin). We observed *D. chlorogaster* in the vicinities of Haftoni and Havzava villages in Lankaran, as well as, for the first time, in Shykhlar and Ostair villages in Yardimli. Usually, the density of greenbellied lizard was 25–27 ind./km. The greatest abundance was noted in the vicinity of Haftoni village- 30–32 ind./km.

The Dagestan lizard, *D. daghestanica* was found in Oguz and Shaki districts [6]. Hitherto, five reliable records of *D. daghestanica* within Azerbaijan are known. As a result of our field studies, *D. daghestanica* was found in the following 10 new locations: near the waterfall in Guba-Khinalig railway, Afurja, Tengealty,

Khinalig, Girdah, Bostankesh (Guba district), Laza (Gusar district), Yeddi-Gozal waterfall, Laza (Gabala district), Galajig (Ismayilli district). This fact greatly expands the available information on the chronology of the species. It has been concluded that the Dagestan lizard is the most widespread species of the genus *Darevskia* in the north of the country [13]. With significant aridity, the populations of this lizard are concentrated at waterfalls, springs, and rivers. The abundance of this species usually varied within 42–45 ind./km. The Dagestan lizard reached the maximum abundance in Khinalig - 53–55 ind./km.

As R.D.Jafarov points out [11], the Artvin lizard or Derjugin's lizard *D. derjugini* was first observed in Azerbaijan by A.V.Bogachov in 1934 in the vicinity of the Ilisu village of the Gakh district. Since then, the species has never been recorded in the Republic.

Kurin lizard, *D. portschinskii* was previously found in the vicinity of Ganja [2]. The isolated population of the Kurin lizard was first discovered by S.G.Jafarova [12] in the southern foothills of the Murovdag ridge in the Lachin region, where it is located in significant separation from the main distribution range in Georgia. The Kurin lizard inhabits exclusively the underside of dry rocks with xerophyte shrub and herbaceous vegetation. The number of species in this locality varied within 10–13 ind./km [12].

The distribution range of the meadow lizard, *D. praticola*, is represented by two fragments. The first is located along the southern macroslope of the Main Caucasus Range, where the nominative subspecies *D. praticola praticola* occurs. The second fragment encompasses the Talysh mountains and the Lankaran lowland, where the subspecies *D. praticola hyrcanica* Tuniyev, Doronin, Kidov et Tuniyev, 2011 inhabits [14]. In the Azerbaijan territories of the Greater Caucasus, the meadow lizard was recorded in Zagatala and Balakan regions [1]. According to S. B. Akhmedov [1], in plain forests around the Ititala village of Zagatala district, in the territory of 100 m², number of individuals reaches 18–20. We have recorded

this species on the southern slope of the Greater Caucasus in vicinities of the Vendam village of Gabala where its number reached 15–17 ind./km. In Talysh, the meadow lizard is known from the Masally, Lankaran, Lerik, and Astara districts; however, it has not been observed in the plain localities for several decades [2, 9]. According to the literature [1], the number of the species along the river banks between the Lerik and Lankaran regions was 8–10 individuals per 100 m². We have recorded this species in ravine of the Ganjavuchay river in the Guneshly village of Lerik, where the density was 5–6 individuals per 100 m² [4].

The Radde's lizard, *D. raddei* spread in the western and south-eastern parts of Azerbaijan. In the Lesser Caucasus, it observed in Goygol, Ganja, Shakhbuz, Shusha, Kalbajar, Lachin and Jabrayil districts [2, 6, 12]. In Talysh, *D. raddei* is known from Masally, Yardimly, Lankaran, Lerik and Astara districts [2, 5, 6, 12]. In the Lesser Caucasus, this species was recorded in the Gushchu village of Dashkasan and the Nerimankend village of Gadabay, where its number was 12–15 ind./km. In Talysh, we observed this species in vicinities of Arvana, Avash, Deman and Garavuldash villages of the Yardimly district. The number of species in the Talysh mountains was 28–30 ind./km. The maximum density was noted in the Garavuldash village - 37–39 ind./km (Fig. 1.).

In the Lesser Caucasus, within the borders of Azerbaijan, *D. raddei* is the most widespread, the area of which overlaps to varying degrees with the areas of *D. portchinskii*, *D. armeniaca*, *D. rostombekovi* and *D. valentini*.

The overlapping areas of *D. raddei* and *D. portchinskii* have their own characteristics. Numerous and widespread in the Lesser Caucasus *D. raddei* occurs from semi-desert foothills to forest and subalpine zones inclusive. Biologically, the Azerbaijan lizard is confined to dry and moderately dry crags of sedimentary rocks, their underside with dry wood-shrub and grassy vegetation. This species is to a certain extent a synanthropic, i.e. quickly populates a variety of stone buildings and buildings that mimic their natural habitats.



Fig. 1. Radde's lizard, *D. raddei*, Dashkasan, 2017 (copyright, Bunyatova S.N.)



Fig. 2. Armenian lizard, *D. armeniaca*, Gadabay district, 2018 (copyright, Bunyatova S.N.)

The Rostombekov's lizard, *D. rostombekovi* recorded in the surroundings of Goygol Lake, the upper reaches of the Ganjachay river [6], the environs of Gadabay and the Gylynychly village of the Kalbajar district [12]. According to S.G. Jafarova [12], in Gadabay number of lizards reach up to 10–12 ind./km, in Kalbajar - 8–10 ind./km. We noted this species in vicinities of Shadakh, Chovdar, Chaykend (Dashkasan), Papagchilar (Tovuz), and Miskinly villages (Gadabay). The number of species in these localities varied within 20–22 ind./km.

The spiny-tailed lizard, *D. rudis* within Azerbaijan is known from the basin of the Katekhchay river in Zagatala Natural Reserve [2]. Along the tributaries of the Katekhchay river in the reserve area the number of this species reached 15–17 ind./km.

Initially, the Valentin's lizard, *D. valentini* was recorded in Kalbajar and Lachin dis-

tricts [3]. At the Chalbair upland in the Lachin district, the number of this lizard reaches locally 30–40 ind./km. But in Kalbajar the abundance of *D. valentini* is significantly lower – 4–6 ind./km [3, 12].

The Armenian lizard, *D. armeniaca*, was previously found in the upper reaches of the Turyanchay and Ganjachay rivers in Ganja and around Goygol Lake [6], as well as in vicinity of the Alchaly village in Kalbajar and in Gadabay [12]. According to S.G. Jafarova [12], there were recorded 15 specimens per 1 km in Kalbajar, and 9–11 specimens in Gadabay. We have also noted this species in Chaykend (Dashkasan), Agamaly and Chanagchy villages (Gadabay). Typically, the number of Armenian lizards were 17–21 ind./km. The greatest number of the species reached in vicinities of Chanagchy village – 30–33 ind./km (Fig. 2).

None of the representatives of the genus *Darevskia* included in the Red Book of the Azerbaijan Republic. However, taking into account our data and previously published results [9], *D. chlorogaster* and *D. praticola hyrcanica*, which distribution range was significantly reduced in the Talysh mountains and Lankaran lowlands, should be included in the lists of protected animals. Apparently, *D. derjugini*, which has not been observed for more than 80 years, should be considered disappeared on the territory of the republic.

Thus, in Azerbaijan the most endangered status belongs to species confined to the humid forests of the Hirkan and Colchid types.

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AZƏRBAYCANDA DAREVSKIA ARRIBAS, 1997 (REPTILIA, SAURIA, LACERTIDAE) CİNSİNƏ AİD OLAN KƏRTƏNKƏLƏLƏRİN YAYILMASI VƏ POPULYASIYA SİXLİYİ HAQQINDA**S.N.Bünyatova**

Azərbaycan ərazisində qayalıq kərtənkələri cinsinə aid 11 növ qeydə alınmışdır (*D. armeniaca*, *D. caucasica*, *D. chlorogaster*, *D. daghestanica*, *D. derjugini*, *D. portschinskii*, *D. praticola*, *D. raddei*, *D. rostombekovi*, *D. rudis*, *D. valentini*). Uzun müddət növlər haqqında heç bir məlumat olmamışdır. Şəxsi materialların və ədəbiyyat məlumatlarının analizi əsasında Azərbaycanda yayılan *Darevskia* cinsinə aid növlərin yayılması və sayı tədqiq olunmuşdur. Müəllif tərəfindən Talışda yayılan qayalıq kərtənkələlərinin (*D. chlorogaster* və *D. praticola hyrcanica*) sayının azaldığını və bu növlərin qanun çərçivəsində mühafizə olunduğu qeyd edilir. Həmçinin *D. derjugini* növünün respublikada nəslinin kəsilməsi ehtimal edilir.

Açar sözlər: qayalıq kərtənkələləri, *Darevskia*, Talış dağları, Böyük Qafqaz, Kiçik Qafqaz, yayılma, say

К ИЗУЧЕНИЮ РАСПРОСТРАНЕНИЯ И ЧИСЛЕННОСТИ ЯЩЕРИЦ РОДА DAREVSKIA ARRIBAS, 1997 (REPTILIA, SAURIA, LACERTIDAE) В АЗЕРБАЙДЖАНЕ**С.Н.Бунятова**

На территории Азербайджанской Республики отмечены 11 видов ящериц, относящихся к роду *Darevskia* (*D. armeniaca*, *D. caucasica*, *D. chlorogaster*, *D. daghestanica*, *D. derjugini*, *D. portschinskii*, *D. praticola*, *D. raddei*, *D. rostombekovi*, *D. rudis*, *D. valentini*). Сведения по состоянию скальных ящериц в стране длительное время не обновлялись. Данные по распространению и численности скальных ящериц рода *Darevskia* в Азербайджане получены на основании результатов собственных исследований и анализа литературных источников. Автор отмечает, что ареалы лесных ящериц Талыша (*D. chlorogaster* и *D. praticola hyrcanica*) сокращаются, в связи с чем эти виды нуждаются в законодательной охране. Вымершим видом для территории республики следует считать *D. derjugini*.

Ключевые слова: скальные ящерицы, *Darevskia*, Талышские горы, Большой Кавказ, Малый Кавказ, распространение, численность