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The present state of rare and threatened species and subspecies of herpetofauna in Azerbaidzhan*

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Abstract: 67 species and subspecies of amphibians and reptiles in the Azerbaidzhan Republic. 18 species and subspecies may be attributed the status of rare and disappearing (26.8%). Of this number, 8 species of amphibians and reptiles have been included in the "Red Book of Rare Species of Animals and Plants of the USSR and those Endangered with Disappearance": Pelobates syriacus, Testudo graeca ibera, Agama ruderata, Lacerta parva, Elaphe longissima, Rhynchocalamus melanocephalus satunini, Vipera ammodytes transcaucasiana and V. xanthina. The species are seriously endangered in the Azerbaidzhan: Triturus vulgaris, T. cristatus karelinii, Bufo bufo verrucosissimus, Phrynocephalus helioscopus, Mabuya aurata, Ablepharus bivittatus, Elaphe hohenackeri, Psammophis lineolatum, Vipera ursinii and Agkistrodon halys caucasicus.

At present, the herpetofauna of Azerbaidzhan is composed of 67 reptilian and amphibian species and subspecies with well-documented occurrence in this area. The contribution of different orders to this number is as follows:

Tailed Amphibia (Caudata)	2
Tailless Amphibia (Salientia)	8
Turtles (Testudines)	3
Lizards (Sauria)	28
Snakes (Serpentes)	26

These 67 taxa represent nearly 38 per cent of the herpetofauna of the USSR. Of this number, 8 taxa have been entered into the "Red Book of Rare Species of Animals and Plants of the USSR and those Endangered with Disappearance". Studying the present-day state of the herpetofauna in Soviet Azerbaidzhan, another 10 rare or endangered amphibian and reptilian species and subspecies are to be included in the Red Book of Azerbaidzhan. Altogether, 18 taxa, i.e. more than 26 per cent of Azerbaidzhan's herpetofauna are classified as rare or endangered consisting of 4 amphibian and 14 reptilian taxa.

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AMPHIBIA

Triturus vulgaris (Linnaeus, 1758)

The subspecies Triturus vulgaris lantzi (Wolt.) in Azerbaidzhan lives and its populations are decreasing in size. It is found in the Lenkoran district, i.e. in south-east of the republic. The smooth newt inhabits small and medium-sized standing or slow flowing waters and rice plantations in the zone of flatlands and foreland forests. Prior to 1974 it was found singly but in that year a small pond in the Isty-Su district accomodated about three dozen individuals of this newt subspecies (ALEKPEROV 1964, VELIEVA 1974).

The females lay eggs in April and May. After that the newts leave the water and concentrate in wet places on the shore. In day-time they lie in hiding under fallen trunks, punks, forest litter, etc. Their potential enemies are the ringed snake and water-birds. The decrease of its populations is caused by the dessication of waters and by the reduction of rice plantation areas.

Particular conservation measures for the smooth newt have not been elaborated for the moment. The small waters of the Lenkoran district inhabited by newts should be taken under natural conservancy.

Triturus cristatus (Laurenti, 1768)

The subspecies Triturus cristatus karelinii (Strauch) lives in Azerbaidzhan. It is found sporadically in the south-east (Lenkoran district) and on south-eastern slopes of Great Caucasus. The warty newt shows diurnal activity. As a rule, it inhabits woodland, forest-steppe, and mountain-steppe zones at altitudes of 600-2000 m above sea level, which are rich both in temporary and permanent waters. This newt subspecies prefers small lakelets, ponds, tarns with clear standing water of a temperature of 12 to 20 degrees centigrades and overgrown with aquatic plants. In the spring or in the first half of the summer it lives in water and only at the end of July or at the beginning of August goes ashore, where one can find it in wet grassy places under litter or hay, between roots of trees or in decaying trunks where it hibernates as well. It swims and digs well but on terrain moves very slowly and totterily. It is active from March to September. In October it begins to hibernate. Its basic diet consists of various kinds of invertebrates. The egg-laying period begins at the end of April and continues to the end of May but developing tadpoles may be observable from early June.

Warty newts were detected in stomach contents of common and ringed snakes and of water-birds. Decrease in the size of warty newt populations is caused by dessication of lakes and ponds (ALEKPEROV 1964, VELIEVA 1974). Particular conservation measures for warty newt are not elaborated as yet.

Pelobates syriacus Boettger, 1889

It is a Caucasian endemic with decline in population size, occurring sporadically in south-eastern Azerbaidzhan and in Nakhitshevan ASSR (BANNIKOV et al. 1977, PAPANYAN 1956, VELIEVA 1974). It inhabits semi-deserts and very infrequently mountain steppes, and the shores of temporary and permanent waters. It has been recorded also in abandoned irrigation canals. This frog lives on soft grounds but it is able to exists on hard stony soils, too. Leading a hidden nocturnal mode of life, it passes the daytime burrowed in the ground or under stones (ALEKPEROV 1978, BANNIKOV et al. 1977, DAREVSKIĬ 1975, PAPANYAN 1956).

Breeding in this species is quite obscure. The egg-laying period takes place from the second half of March to May. From about the middle of June, in the south-east of the republic well-grown tadpoles with body-lengths of 90-110 mm may be encountered.

Decrease in the size of its populations are caused by the extention of agricultural areas, by drying out and ploughing up of its natural habitats. This species is under protection in the Kizil-Agatsh Natural Conservancy Area and has been entered into the Red Book of USSR.

Bufo bufo (Linnaeus, 1758)

In Azerbaidzhan rare is the only subspecies Bufo bufo verrucosissimus (Pall.) It may be found in the Lenkoran district and on the south slopes of the Great Caucasus. It inhabits the edges and

clearsings of forests and during the breeding season fenwoods, too. The reproduction of this subspecies has not been studied as yet. Particular conservation measures have not yet been elaborated.

REPTILIA

Testudo graeca ibera Pallas, 1814

The distribution and size of the populations of this species decrease rapidly. It may be encountered everywhere and it inhabits dry steppes and semideserts, hilly and shrubby submountain regions, as well as lowland forests and orchards. Along a 10 km route in the Shirvan-steppe under shrubs 21 individuals were found, in orchards and vegetable gardens 17, on river- and canal-banks 17, and in fields 7 specimens (ALEKPEROV & SHARIFOV 1968).

The Testudo graeca ibera reaches sexual maturity at the age of 12-14 years. Mating is observable from April to May, sometimes to the middle of June. Females lay eggs three times a year: in June, July and August (BANNIKOV 1951). Remains of young turtles may be found in stomachs of foxes and predatory birds. The decrease of its population size during the last 20 years was caused by uncontrolled hunting and by the tillage of the natural habitats of this subspecies (ALEKPEROV 1975), which is under protection in the Shirvan Natural Conservancy Area. This species has been entered into the Red Book of USSR (DAREVSKIĬ 1975).

Agama ruderata Olivier, 1804

This is a rare species with decreasing population size. It lives in the south and south-east of Azerbaidzhan, in Dzhabrail and Zangelan districts and in Zuvand (ALEKPEROV 1978, ALEKPEROV & DZAFAROVA 1978, DROZDOV 1966). It inhabits arid stony places, the precipices of mountain steppes and river valleys with scattered vegetation (ALEKPEROV 1978, ALEKPEROV & DZAFAROVA 1978). Along a 1 km route in Dzhebrail district (near the village Shuku-Breili) 4 or 5 individuals were found. Its reproduction and mating system have not been studied sufficiently. This lizard has been entered into the Red Book of USSR, but particular measures for its protection have not been elaborated so far. It needs protection on the unbroken lands near the village Shuku-Breili, district Dzhebrail.

Phrynocephalus helioscopus (Pallas, 1771)

This species with of its populations decreasing in size and number has a restricted area of occurrence in Nakhitshevan ASSR, in the south-eastern part of Azerbaidzhan (Zuvand), and in a small area on the south-eastern half of the Apsheron peninsula (between stations Puta and Karadag), but at the last locality it has been rarely found in recent years.

This lizard inhabits small takirs, i.e. the dry grounds of temporary lakelets with solonchak-soil, sand-hills, as well as on gritty soils with scattered vegetation. On a wheat-field of half a hectare with 10-12 individuals of were counted (S.K. DZHAFAROVA, pers comm.).

The mating in this lizard has been studied unsatisfactorily. Reduction of its population size in Nakhitshevan ASSR may be ascribed to the tilling of takirs, which are its biotopes of primary importance. Particular conservation measures have not been elaborated as yet. It will be necessary to take some takirs under natural conservancy in Nakhitshevan ASSR (ALEKPEROV 1978).

Mabuya aurata (Linnaeus, 1758)

It is a rare lizard species of Azerbaidzhan and has been found in the Ordubad district of Nakhitshevan ASSR, where it is represented by the subspecies Mabuya aurata septemtaeniata (Reuss). It inhabits semi-deserts and rarely submountain regions with rock-glaciers covered by xerophytous plant communities. In a course of a two-hour excursion, only 5 individuals of this subspecies of lizard were found. The size of its populations, however is constant (ALEKPEROV 1978, CHERNOV 1939). Particular conservation measures for this species have not been elaborated as yet.

Lacerta parva Boulenger, 1887

This species of Asia Minor is one of the rarest lizards of Azerbaidzhan. At first, in 1916, two individuals were found only. There is no information of its recent occurrence in this republic.

The ecology of this lizard in Azerbaidzhan has not been studied as yet. In Soviet Armenia it inhabits mountain steppe regions with xerophytous vegetation at 900-1000 m above sea level and also enters the cultivated zone. In Armenia females lay eggs twice in a season: from the end of June to the beginning of July for the first time and at the beginning of August for the second time. One brood consists of 2-5 eggs with a size of 13-18 mm.

Ablepharus bivittatus (Ménétriès, 1832)

This species is rare in the Azerbaidzhan Republic and occurs in Lenkoran district and Zuvand as well as on Azerbaidzhan areas of Small Caucasus (Kelbadzhari and Latshin districts). This lizard inhabits first of all mountain regions up to 2200 m above sea level. Its characteristic habitats are stony slopes overgrown with astragals and other xerophytous plants, rarely edges of forest plantations.

This lizard species has a diurnal mode of life: it moves during the warm and sunny hours of the day. At the end of June and at the beginning of July the females lay 3-5 eggs each.

The reduction of population size of this species is caused by the grazing of domestic animals and in some years by high floods. It would be necessary to prevent the pasturing of domestic animals on some hill-sides (Pirtshaia Mishni, Latshinsk district) with an area of 4-5 hectares each (DZHAFAROVA 1979).

Elaphe hohenackeri (Strauch, 1873)

This is a rare species, too, and it occurs in the Little Caucasus and in the south-east of the Azerbaidzhan Republic. It inhabits forest regions of mountains and hills and eventually the lowland forests as well. It resides in thinned woods and forest edges, orchards in thickets among rocks and on river-banks.

Its reproductive biology has not been studied satisfactorily as yet. The decrease of its population size is the result of deforestation activity and hunting by man. It is necessary to protect this snake species in the woodlands of Bitshenak in Nakhitshevan ASSR, near Gilintshli (Kelbadzhar district), and Mishni (Latshinsk district), on Karabakh plateau, etc.

Elaphe longissima (Laurenti, 1768)

The Aesculapian Snake has limited distribution in Azerbaidzhan. It occurs in the forest region of the South-East (Lenkoran district) only. On a route of 10 km in length one may find 2-3 specimens of it near the village Talish (DROZDOV 1966). This snake species has been entered into the Red Book of USSR and is under protection in Natural Conservancy Areas of Kizil-Agatsh and Girkan (ALEKPEROV 1978, BANNIKOV et al. 1977).

Rhynchocalamus melanocephalus satunini (Nikolsky, 1899)

This species may be found very rarely and lives in South Nakhitshevan ASSR only. It inhabits stony semi-deserts on dry slopes with thinned xerophytous vegetation. Particular conservation measures have not been elaborated as yet. It will be necessary to protect the semi-desert virgin areas of Artemisia in the Ordubada district.

Psammophis lineolatum Brandt, 1838

This very rare species was recently discovered to occur in Azerbaidzhan. It was found near the village Kiarim-Kula Diza (Dzhulfa district, Nakhitshevan ASSR). It inhabits heaps of big rocks and stones. Persecution of this animal has to be strictly forbidden. One area of 10-15 hectares with virgin soil near Kiarim-Kula must be taken under natural conservancy (ALEKPEROV 1978).

Vipera ursinii Bonaparte, 1835

In Azerbaidzhan the subspecies Vipera ursinii renardi (Cristoph) occurs in decreasing numbers. It occurs in the eastern, south-eastern and south-western parts of the republic (ALEKPEROV 1978). It inhabits very different regions, including high-altitude steppes, alpine meadows, stony hill-sides, frequently overgrown with xerophytous vegetation, semi-deserts, grassy sand-hills, and rarely cultivated field. Its distribution ranges from 700 m (near Shemakha) as far as 2500 m above sea level (lake Kanligel, Nakhitshevan ASSR; Isty-Su, Kelbadzhar district: ALEKPEROV 1978, BANNIKOV et al. 1977). On the Karabakh plateau (2000-3000 m above sea level) 3-4 snake per hectare were found in a subalpine meadow.

Mating takes place usually in the middle of May. The gestation period is 30 to 130 (mostly 105-110) days long. Between the beginning of August and the middle of September, females produce 5-6 (or 3-16)) youngs which measure 12-18 cm in length. Their lifetime is 7-8 years in nature.

The principal causes of the reduction of population size of this snake are the encroachment of agriculture on its biotopes, collecting and persecution by man. Its hunting must be forbidden, protected and controlled alpine meadow areas should be demarcated in the Batabat district and over Isty-Su with an area of 3-5 hectares each, where the pasturing should also be prohibited (ALEKPEROV 1978, BANNIKOV et al. 1977).

Vipera ammodytes (Linnaeus, 1758)

This is a threatened endemic species that has been entered into the Red Book of the I.U.C.N. In Azerbaidzhan part of the Little Caucasus probably its subspecies Vipera ammodytes transcaucasiana Boul. occurs.

It inhabits shrubby stony slopes (ALEKPEROV 1978, DAREVSKIĬ 1975) and mixed and coniferous mountain forests (BANNIKOV & MAKEEV 1976, MUSKHELISHVILI 1970). It is necessary to identify the localities and estimate the sizes of its populations in order to elaborate the conservation measures required.

Vipera xanthina Gray, 1849

This is a threatened species also and it has been entered into the Red Book of the I.U.C.N. In Nakhitshevan ASSR the subspecies Vipera xanthina raddei Boett. occurs. It inhabits mountainous and submountain regions covered with thinned forests and xerophytous shrub vegetation, stony slopes (ALEKPEROV & SHARIFOV 1978, DAREVSKIĬ 1975). The distribution of this species extends up to an altitude 2250 m above sea level. The mean number of snakes per hectare is 2-3 and in hibernation period on some places this figure is as high as 10. Mating takes place in May. It is an ovoviviparous snake. Offsprings are delivered in the middle of August.

The most important cause for the reduction of its distribution and population size is the increase of the area of land affected by Man. It has been entered into the Red Book of USSR and its hunting is forbidden. There is a need for propaganda for conservation of its populations.

Agkistrodon halys (Pallas, 1776)

In the South-East of Azerbaidzhan the subspecies Agkistrodon halys caucasicus Nik. occurs with decreasing distribution and population size. It inhabits different biotopes: mountain regions as well as submountain and lowland forests. It prefers cliffs and stony areas with shrubby and grassy vegetation and the fringes of forests. Its distribution stretches up to an attitude of 2200 m above sea level, where it lives in deforested dry places. Its populations are small, but there are no exact data on their sizes.

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