

Modern situation and perspective of conservation of the herpetofauna in the Western Transcaucasia.

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Abstract: The Caucasian Black Sea coast region are characterized by four assemblies of amphibians and reptiles: an European group entering the area from the west, north of the Black Sea, during the end of Tertiary, an East Mediterranean group entering the area from the west, south of the Black Sea, a Caucasian group and a Colchis group. We strongly recommend the formation of four Reserves for the protection of the diverse herpetofauna which includes several species and subspecies submitted to actual or potential threats. These areas are 1. The upper Mzymta river valley, from the Aishkha mountain range up to lake Kardyvach for the protection of a unique polymorphic population of *Vipera dimniki*. This region will be seriously affected by a construction of roads, hotels, ski pists etc. for planned Olympic Winter Games. 2. The Novorossiysk Reserve which includes habitat for taxa like *Bufo verrucosissimus circassicus*, *Triturus cristatus karelini*, *Testudo graeca nikolskii*, *Lacerta saxicola sherbaki*, *Lacerta media*, *Elaphe quatuorlineata sauromates*, *Vipera renardi*, and *Vipera kaznakovi*. 3. The Gagrinskiy Reserve for protection of species like *Lacerta saxicola davevskii*, *Bufo verrucosissima*, *Hyla arborea schelkownikovi*, *Lacerta derjugini*, *Vipera kaznakovi*, *Triturus vulgaris lantzi*, *Triturus vittatus*, *Natrix megalcephala*, *Pelodytes caucasicus*, *Lacerta media* and *Emys orbicularis*. 4. The Lasistan-Shavsketian Reserve on the Turkish-Georgian border, with species like *Mertensiella caucasica*, *Hyla arborea schelkownikovi*, *Lacerta rudis*, *Natrix megalcephala*, *Natrix natrix (scutata)*, *Vipera kaznakovi*, *Lacerta mixta*, *Lacerta parvula*, *Lacerta clarkorum*.

Key words: Conservation, herpetofauna, Caucasus, Transcaucasus

INTRODUCTION

The Caucasian Black Sea coast area has a Geological and Biological History that differ from most other regions of the former USSR. The warm and humid flora and fauna during Miocene remained as a refugium almost without changes in the central and southern-east parts of Colchis, which are the lowland areas and Black Sea shores west of the Caucasian mountains where Georgia and adjacent parts of Russia and Turkey are today. During the Holocene the north-western part of the Caucasian sea shore region changed into a condition more similar to past Mediterranean conditions. Further the modern biological structure of the high-mountain belts of the western Transcaucasia was formed during pleistocene.

The Caucasian Black Sea coast region are characterized by four assemblies of amphibians and reptiles with special ecological and geographical affinity, and dispersal history (TUNIYEV, 1990). The herpetofauna can be referred to as an European group entering the area from the west north of the Black Sea during the end of Tertiary, an East Mediterranean group entering the area from the west south of the Black Sea, a Caucasian group and a Colchis group.

Seven of the species in these groups have been included in the Red Data Book of former Soviet Union. Within each group the amphibians and reptiles can be classified into common and rare species.

The red data book species have had some official protection. However, in some cases the non-protected species have a much more restricted distribution than those listed in the Red Data Book. These the more 'common ones' have in several cases only local distribution within protected areas and they may therefore disappear inconspicuously in the region as a whole.

There are two endangered reptiles amongst the European species as here discussed, and these are *Emys orbicularis* and *Vipera renardi*. All other species are quite common, and the following species can be included in this group: *Rana ridibunda*, *Bufo viridis*, *Anguis fragilis*, *Natrix natrix*, *Elaphe longissima* and *Coronella austriaca*.

Among the East Mediterranean species some, like *Lacerta praticola pontica*, *Natrix tessellata*, and *Ophisaurus (Pseudapisis) apodus* have a comparatively good situation. All the other species from the east Mediterranean complex are in a more problematic situation or close to become extinct. In this group we can find *Triturus cristatus karelinii*, *Testudo graeca*

nikolskii, *Lacerta media*, *L. strigata*, *Elaphe quatuorlineata sauromates*, *Coluber najadum*, *Coluber caspius*.

It must be pointed out that no taxon within this east mediterranean fauna group have presently enough protection. Some of the species are locally protected in the Pitzunda-Mussera Reserve, situated at river Pzyb in Abchazia, Georgia, but this reserve is much too small to efficiently protect any of these populations.

The Caucasian complex is then much better protected, mainly because of the existence of some large Nature reserves, (such as the Caucasian, the Ritza, the Gumista and the Kintrish reserves,) and within which good populations of these Caucasian species can be found. Species of this group are *Hyla arborea shelkownikowi*, *Rana macrocnemis*, *Lacerta alpina*, *Lacerta rudis* and *Vipera dinniki*.

The species of the east Mediterranean, the Caucasian, and the European groups have comparatively large distributions and can, of course, be preserved outside this region of Western Transcaucasia, as here discussed, but the taxa belonging to the Colchis complex can naturally only be protected within the Colchis region, where they have their main distribution.

Species and subspecies more or less endemic to this region as a whole are *Triturus vittatus ophryticus*, *Triturus vulgaris lantzi*, *Mertensiella caucasica*, *Pelodytes caucasicus*, *Bufo verrucosissimus*, *Lacerta saxicola*, *Lacerta clarkorum*, *Lacerta mixta*, *Lacerta parvula*, *Lacerta derjugini*, *Lacerta agilis grusinica*, *Natrix megalocéphala*, and *Vipera kasnakovi*.

The modern Colchis forest area is a region that can be characterized by a rather stable climate corresponding to a subtropical climate with evergreen subtropical forests in the lower mountain belt. Typical with a high diversity of tree and plant species with no dominance of any single species, but today only smaller fractions of this original forest remains as undisturbed.

The herpetofauna of the higher elevations of west Caucasus has presently a good protection in the Western Caucasus Biosphere Reserve, an area of 232.000 hectares and covering the upper parts on both sides of the main range. This Reserve area was created in 1882, and it covered originally 0.5 million hectar. To give you some idea of the uniqueness of this Reserve it inhabits 26 species of Red Data Book plants. Further in Caucasus as a whole where this Reserve is a key area there are 1.600 higher plants, 1.600 lower plants, 20% endemics, 17% relicts. 820 species of the plants are found at higher altitudes and 278 (34%) of these are endemic. 32 of the plants

are in the Red Data Book.

There are 19 families of mammals, with 75 species and 81 subspecies, and of which 34 are endemic (mainly rodents). There are 18 species of fish and 10 species of amphibians, and of which 67 % are endemic. Further 18 species of reptiles, with 31 % endemic, and 7 species of reptiles and amphibians in the Red Data Book. Further there are at least 10.000 insect species, 100 molluscs, 222 species of birds of which 44 are endemic. Amphibians and reptiles characteristic for this reserve are *Rana macrocnemis*, *Lacerta alpina* and *Vipera dinniki*.

However, a great problem is that this Reserve has been reduced in size all the time, and now there are plans to construct stations for skiing, by a Hong Kong firm!. At the first event 2.000 hectares of the upper Mzymta river valley, near lake Kardyvach, will be included in this project.

The Upper Mzymta river valley, from the Kardyvach lake region down to Aishka mountain range is a unique valley in the western border of the Reserve. This part is a holocene refuge with *Abies nordmanniana*. But this particular region is presently not protected and there are plans to apply for the Olympic Winter Games to this region and to reconstruct this particular area, together with parts of the Nature reserve, to a sporting center.

Now, one can also put an historical-political perspective on the whole situation. During the old Soviet Union system certain regions were declared as Nature Reserves. The former much more closed society also made poaching and collecting of wildlife a more difficult task. Today, with the old system breaking down and before a functional new system is operating in the former USSR, one consequence is that protection of some of the Nature Reserves has changed. The situation for wildlife, and herpetofauna, has become much severe in several regions. Economical forces in a free democratic system can be very powerful and nature may suffer from commercial interests. Therefore we believe that special concern must be considered for the protection of the herpetofauna in this region as a whole. A considerable work must of course be done on the local basis by biologists and conservationists. Opinions of the international public and of international societies can be important as tools for conservation. We think one possible way is to put international pressure on local and regional authorities. International opinions might have a positive effect on conservation of nature, and the SEH will actively, through its Conservation Committee, participate in this

work. This is what we have been trying to realize earlier by focusing on the Olympic Game business at Sochi. International WWF is presently actively following up this problem.

To our knowledge it must be strongly recommended to create four areas in west Caucasus and Georgia as future Nature reserves due to their unique animal communities, and

which is clearly expressed in herpetofauna diversity. Within these four areas representatives of the east Mediterranean-, the Colchis- and the Caucasian reptile and amphibian complexes are found in comparatively good numbers. These four regions, essential for protection of the different faunal assemblies are (Figure 1):



Figure 1: The location of the four suggested Nature Reserves in the Western Transcaucasus (stippled, at arrows). The suggested Mzymta River Reserve is surrounded by the large Caucasian State Biosphere Reserve (dark stippled), which as well is submitted to future changes of borders due to planned Olympic Winter Games. The proposed Shavsheto-lazistanskiy Reserve on the Georgian border towards Turkey would be a continuation of the planned Turkish Reserve around the town Hopa on the Turkish side of the border.

First the upper Mzymta river valley, from the Aishkha mountain range up to lake Kardyvach, and to incorporate it with the Caucasian Reserve for protection of the unique polymorphic population of *Vipera dinniki* found in this particular valley (NILSON *et al.*, 1994). This is one region, together with parts of the large Caucasian Nature Reserve, that will be seriously affected by a construction of roads, hotels, ski pists etc. for the planned Olympic Winter Games.

Second, we strongly recommend formation of the Novorossiysk Reserve (which goes from cape Utrishi to mountain Papay and village Dzhubga), and which includes habitat for taxa like *Bufo verrucosissimus circassicus*, *Triturus cristatus karelini*, *Testudo graeca nikolskii*, *Lacerta saxicola sherbaki*, *Lacerta media*, *Elaphe quatuorlineata sauromates*, *Vipera renardi*, and *Vipera kaznakovi*.

Third, we strongly recommend formation of the Gagrin'skiy Reserve, from the Russian-Georgian border area of river Psou and village Salme to river Bzyb in Abshasia. It would be separated from the already existing small coastal reserve Pitzunda-Mussera by only a 15

km wide cultivated zone. This region includes narrow gorges of the SW slope of the Gagrin'skiy range with part of the Colchis flora in gorges and deciduous forests of the Mediterranean type on the slopes, from sea-level to about 900 m altitude. This is for protection of species like *Elaphe longissima*, *Natrix tessellata*, *Anguis fragilis*, *Lacerta saxicola darevskii*, *Bufo verrucosissimus*, *Hyla arborea*, *Lacerta derjugini*, *Vipera kaznakovi*, *Triturus vulgaris lantzi*, *Triturus vittatus*, *Natrix megalcephala*. Further also *Pelodytes caucasicus*, *Lacerta media* and *Emys orbicularis*.

Finally, we strongly recommend the formation of the Lasistan-Shavsketian Reserve in Georgia. This suggested Reserve is on the Turkish-Georgian border, and the same habitat and faunal structure continues along the Pontic range into northeastern Turkish Anatolia, as is well known from the Hopa town area. In this last case we are presently working, through the SEH Conservation Committee and the Council of Europe, together with Turkish Environmental Authorities to define the important key area in the Turkish part of the Lazistan region, mainly in the surroundings of the town Hopa. This is the

well known, and up to now the single known locality outside the former USSR for the attractive viper, *Vipera kaznakovi*. For the protection of this taxon, as well as the rest of the fauna, a Turkish reserve will be created around Hopa in cooperation with SEH, CoOE and Turkish authorities. What is important is if the Georgian part could as well be protected a comparatively large and faunistically most important region could be created in this border area. Such a Reserve would protect species like *Mertensiella caucasica*, *Hyla arborea*, *Lacerta rudis*, *Anguis fragilis*, *Natrix megalcephala*, *Natrix natrix (scutata)*, *Vipera kaznakovi*, beside

species like *Elaphe longissima*, *Lacerta mixta*, *Lacerta parvula adjarica*, *Lacerta clarkorum*.

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