

## Amphibians and reptiles of Estonia: list, geographic relationships and current situation

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The natural history of Estonian amphibians and reptiles was first documented over two hundred years ago (FISCHER 1777, 1791). However, despite of the number of publications on the herpetofauna, most authors in the 19th and 20th century only made passing remarks on distribution. Little research has been carried out on herptile biology and ecology. The last complete review of the amphibians and reptiles of Estonia was HANS KAURI's treatise in 1946 (KAURI 1946). This meant an important increase in our knowledge as the author collected all records of faunistic information known earlier.

Increase in the knowledge of the herpetofauna of Estonia began with the studies of PEETER ERNITS in the 1970s. Special attention was directed to the morphological variability of amphibians. Since 1982 a mapping project of amphibians and reptiles has been in progress, preliminary distribution maps of some species have been published (ERNITS 1989a, 1989b, 1990). Ten years after a first progress report about the status and problems of the Estonian herpetofauna (ERNITS 1982) it seems logical and useful to briefly review the knowledge on the current situation.

This report is essentially a review of the literature. The author went through all the most important literature on herpetology in Estonia and adjacent regions, popular works, reports, etc. Some amphibian species (*Bufo bufo*, *Bufo calamita*, *Pelobates fuscus*) were given special attention and the study was carried out with the aid of questionnaires, newspaper articles, broadcasting and field work by the author. A great number of records referring to the distribution were received from biology students of Tartu University and from many friends of nature in Estonia during 1986-1991.

### Annotated list of species

The Estonian herpetofauna consists of 10 species (forms) of amphibians and five species of reptiles. These are:

#### Amphibia

*Triturus vulgaris*: Widespread and common throughout all parts of the country, including the West-Estonian Archipelago. Breeds in most kinds of still water.

*Triturus cristatus*: Found only in a few scattered localities in all regions of the mainland part of Estonia. In the central part of the country in some previously known breeding ponds has become extinct. Current status uncertain.

*Rana temporaria*: Common all over the mainland part of the country but absent from the Island Saaremaa in the Baltic Sea. In most regions the populations of the species are reported to be abundant. Occurrences of oligodactyly and polymely in common frogs were found (TALVI 1987, unpublished observations).

*Rana arvalis*: More or less common in all parts of the country including most Baltic Islands, but at least in northern and central Estonia with sporadic distribution. Little is known about its current status, in most places it is probably less common than the common frog.

*Rana esculenta*, *Rana lessonae* complex: Widespread and abundant in South-Estonia, less common with scattered distribution in Central and North Estonia. Absent from islands. According to the modern investigation methods the occurrence of the *Rana lessonae* and *Rana esculenta* has been proven. Estonian green frogs should mostly live in pure L and mixed LE population system (ERNITS 1989, 1989b). Little is known about its current status, ecology.

*Bufo bufo*: Widespread and common throughout the country, does not seem to be threatened at present.

*Bufo calamita*: Distributed in the western coastal area and western archipelago. Locally not unrare, but in most sites populations have declined sharply during the past twenty to thirty years. In Estonia the natterjack toad reaches to the northern and eastern border of its range.

*Bufo viridis*: Found only in a few localities in the southeastern and southern parts of Estonia, mainly in the coastal region and on islands of Lake Peipsi. Little is known about the status of its populations, in some localities seems to be common. Estonian populations of *Bufo viridis* represent the northernmost border of distribution of the species.

*Pelobates fuscus*: Found only in the southeastern and southern parts of Estonia. Current status uncertain, but the species has probably become much rarer as a result of intense cultivation of the land; destruction and the filling up of small ponds. The northernmost border of the range of the spadefoot toad runs through.

## Reptilia

*Lacerta vivipara*: Seems to be widespread and common everywhere in Estonia, as well as in the Western Estonian Islands. Lives in widely different biotopes.

*Lacerta agilis*: The distribution in the Estonian mainland is restricted to small and isolated relict populations (ERNITS 1990). The species is not found on Baltic Islands. According to the earlier literature data it is possible that the distribution and commonness of the sand lizard has decreased in Estonia during the past half century.

*Anguis fragilis*: Distributed around Estonia, but probably only locally common. Current status uncertain.

*Natrix natrix*: Widespread and common in western coastland and on islands, the populations are usually reported to be rather abundant there. In other parts of country the occurrence of the species is sporadic.

*Vipera berus*: More or less common in all parts of Estonia, including the western archipelago.

### Geographic relationships

The Estonian herpetofauna seems to be formed by post-glacial immigration from the south-east (*Bufo viridis*), south (majority of the species), and south-west (*Bufo calamita*). *Rana ridibunda* and *Emys orbicularis* – previously recorded have become extinct. Several amphibian and reptilian species extend their ranges rather close to Estonia. *Bombina bombina* and *Coronella austriaca* occur in Latvia, Lithuania and the northern part of Pihkva district, *Hyla arborea* in southern Lithuania and Byelorussia. The records of all the above-mentioned species in the 20th century indicate no northward extension of the ranges. On the contrary, most of these seem to be more or less relict in nature and declining in number.

Some Estonian populations of amphibians represent the northernmost distribution limits of these species (*Bufo calamita*, *Bufo viridis*, *Pelobates fuscus*).

### Current situation

From the point of view of distribution and commonness, three groups of herpetiles can be identified nowadays in Estonia:

#### Rare and vulnerable species

*Triturus cristatus*, *Bufo calamita*, *Bufo viridis*, *Pelobates fuscus*, *Lacerta agilis*

#### Less common species with sporadic distribution

*Rana arvalis*, *Rana lessonae*, *Rana esculenta*, *Anguis fragilis*, *Natrix natrix*

#### Common, widely distributed species

*Triturus vulgaris*, *Rana temporaria*, *Bufo bufo*, *Lacerta vivipara*, *Vipera berus*

The status of some species seems to vary from year to year. Many local populations of amphibians and reptiles are reported as having been declining during the last two-three decades. *Bufo calamita* became extinct in many places in western Estonia and the Baltic Islands, *Bufo viridis* in southern Estonia. The number of localities of *Pelobates fuscus* also drastically diminishes. *Triturus cristatus* and *Lacerta agilis* must be also regarded as endangered species in our country.

The main reason for the decline or the extinction of the amphibian and reptile populations is considered to be the destruction of habitats (e.g. draining of wetlands, intensive forestry practice, filling of ponds, destruction of water bodies by cattle). Effects of pollutants, acid precipitation and collection may be involved in the decline of the herptile populations in Estonia.

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