

Reintroduction of the European Tree Frog (*Hyla arborea*) in Latvia

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1. Introduction

It is a well-known fact that reintroduction of species, together with restoration and/or protection of the essential biotopes, is a central aspect of nature protection. Several important international agreements and guiding documents on nature conservation such as the Bern Convention, also stress the need for reintroduction of endangered species. Zoological gardens and parks play an important role in this process, because they are able to provide breeding *ex situ*, in order to create a reserve for further release into the natural habitats of the species (*in situ*). 'The World Zoo Conservation Strategy', prepared in 1993 by The World Zoo Organisation and The Captive Breeding Specialist Group of IUCN/SSC, is fully devoted to this problem.

Aiming at this particular aspect of nature conservation, Laboratory of Ecology was founded in the Riga Zoo in 1987. It started the project to reintroduce the Tree Frog (*Hyla arborea* L.) to Latvia in 1988. The Latvian Fund For Nature joined the project since 1990.

The Tree Frog is listed in the Red Data Book of Latvia under Category I (endangered species) (Latvijas PSR Sarkanā grāmata 1985). Data on the distribution of the Tree Frog in Latvia are rather incomplete (Latvijas PSR Sarkanā grāmata 1985; Siliņš un Lamsters 1934). Several faunists of German origin (Fischer, Seidlitz, Schweder) have mentioned the species as being present in Latvia in the XVIII–XIX centuries, the vicinities of Riga and even the northeastern part of Latvia being given as

localities for this species. Additional observations have been reported during this century, especially during the first half. Several reports from southwestern Latvia (Liepāja region) and Vidzeme (Madona region) have even been received in the 1980s. *Hyla arborea* was last heard calling in 1968, on lake Pape, which is located in the southwestern corner of Latvia (ca. 56°05'N).

Many experts consider the Latvian distribution and past records on *Hyla arborea* to be doubtful. One of the main arguments against is the absence of a single preserved specimen in museum collections. We do not consider this assumption to be convincing, because it is not very realistic to think that all the researchers confused and muddled the Tree Frog, which has a rather characteristic appearance, with another anuran.

More serious are arguments, based on the fact, that the northern distribution for present stable localities is situated several hundred kilometres south from Latvia (Arnold and Burton 1979) (however, one locality was recently reported from Lithuania). The closest large and stable *Hyla arborea* population is located in Western and Southern Belarus (mainly south of 54°N). At the same time, it should be mentioned that, according to several sources, the Tree Frog also occurs in Skåne (Southern Sweden), as far north as 58°N. These localities usually accommodate 5 000 to 8 000 adult specimens (Ahlén et al. 1992).

We think that there are no theoretical grounds to oppose the claim that, in recent past, the northern border of the Tree Frog's area of distribution also

3. Results

The results of this reintroduction programme proved the following:

1. *Hyla arborea* can normally hibernate in the climatic conditions of Latvia. Six winters passed since the reintroduction began. The first five winters were comparatively mild, with little or even no snow, and with frequent frost. However, winter of 1993/94 was extremely cold; temperature frequently stayed below -20°C for longer period, and there was not much snow. Nevertheless, especially in spring 1994, calling was very active during the breeding season and also the calling period itself was much longer than usual: calling was recorded from 26 April to 14 June.
2. In the wild, released Froglets reach sexual maturity and can successfully breed. Tadpoles were found at the reintroduction site for the first time in July 1991. Thus, under these conditions, females can reach sexual maturity in three years. Tadpoles were also observed in 1992–94.
3. Tree Frogs are spreading around the site they were released initially. The first calling males outside the pond where the juveniles were initially released, were observed in spring 1993. In 1994 calling males were recorded in seven different ponds; some of them are situated more than 2 km from the original reintroduction site. Tadpoles were also found in one of these distant ponds.

Our experience proves that it is possible to restore a stable *Hyla arborea* population in Latvia. Unfortunately, it is difficult to estimate the present size of the population.

Future observations of the reintroduction area

are planned for the coming years. Possibility of selecting the second reintroduction site in another part of Latvia where the microclimate and biotopes would be suitable, has considered as well. Finally, it must be stressed that serious attention should also be paid to the legal status of the reintroduction sites, especially by establishing protected areas there.

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References

- Ahlén I., Andrén C., Nilson G. 1992: Sveriges grodor, ödlor och ormar. — Naturskyddsrensningen, Stockholm.
- Climate of the Belorussian SSR. — Minsk Hydro-meteorological Observatory, 1976 (In Russian).
- Pasaules zemes un tautas. — Zvaigzne, Rīga 1978. (In Latvian)
- Climatic Atlas of the Latvian SSR. — Zvaigzne, Rīga 1972. (In Russian).
- Ge I.J., Qin X.D. et al. 1986: Further aspects of gonadotropin-releasing hormone research. — Biopolymers 25:255–266
- Latvijas PSR Sarkanā grāmata. — Zinātne, Rīga 1985 (In Latvian).
- Latvijas PSR mazā enciklopēdija. — Zinātne, Rīga 1969., 2. sēj. — 78. lpp. (In Latvian).
- Siliņš J., Lamsters V. 1934: Latvijas rāpuļi un abinieki. — Valtera un Rapas akc. sab., Rīga. (In Latvian).
- Yablokov, A.V. (Яблоков, А.В.) 1987: [Population Biology. — Visshaya shkola, Moscow] (In Russian).
- Tauriņš E. 1982: Latvijas ziditājdzīvnieki. — Zvaigzne, Rīga.
- Wagner W.E.Jr. 1986: Tadpoles and pollen: observations on the feeding behaviour of *Hyla regilla* larvae. — Copeia 3: 802–804.