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KEY WORDS: Reptilia: Squamata: Serpentes: Bolyeriidae, *Bolyeria multocarinata*, Karl August MÖBIUS, Round Island, Mauritius, newly discovered specimen, extinct species

SUBMITTED: August 24, 2004

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## On the lower limit of the altitudinal range of *Triturus alpestris* (LAURENTI, 1768) in Slovakia

In Slovakia, *Triturus alpestris alpestris* (LAURENTI, 1768) is found particularly in coniferous forests in the central and northern parts of the country at altitudes between 350 and 1,850 m a.s.l. (LÁC 1963, 1968). Since distributional data from more recent decades are relatively rare, of regional interest only (e.g. GREGOR 1983, 1987; KMINIAK 1997) or remained unpublished (KAUTMAN pers. comm., observations of the authors),

the knowledge on the distributional pattern of the species in Slovakia has not increased substantially since.

In 1994, two lower elevation localities of *T. alpestris* were discovered in the Upper Nitra Valley near the town of Prievidza in central Slovakia. Both of them are situated in oak-hornbeam forests with sparsely growing pines and beeches in the vicinity of the urban area. In Púšť' (48°44'54"N / 18°38'35"E, 349 m a.s.l.), the specimens were taken from small shallow water ditches in open forest glades, mainly on old forest roads and in drainage channels along them. In Nedožery (48°49'20"N / 18°40'04"E, 308 m a.s.l.), the newts were observed in a similar habitat, but they were also found directly in the Nedožery reservoir in its upper, sparsely vegetated, shallow waters. The larvae were deposited in the collections of the Slovak National Museum - Museum of Natural History in Bratislava. The coordinates and altitudes were taken to the nearest 10 m and 1 m, respectively, with the use of Garmin® eTrex Vista® GPS after appropriate calibration. In 1995, the established fish population caused the disappearance of the newts from the reservoir, but they still occurred in small water pools in the area. Both populations were randomly observed during the entire last decade.

*Triturus alpestris* is no longer considered a typical mountain species (ZAVADIL 1991). Lower elevation localities are known from various parts of the range (ROČEK et al. 2003). In the Western Carpathians, it was found at 280 m a.s.l. in Český Těšín (Czech Republic) by OPATRŇY (1978) and in the Polish part of these mountains it is distributed above 450 m a.s.l. (ŠWIERAD 1988). According to LÁC (1968), the distribution of *T. alpestris* in Slovakia is restricted to altitudes between 350 and 1,850 m a.s.l. However, it seems that the lower altitudinal limit, estimated on 350 m a.s.l., was theoretical. A record at this altitude unprecisely localized in the Šiatorske Mts. mentioned by LÁC (1968) was no longer included in a later paper (KLUCH et al. 1969). Instead, an other locality - Lake Izra at 486 m a.s.l. in the Slanské Mts. (Tokajské Mts. in KLUCH et al. 1969) - was considered the lowest altitudinal record in the country. Later, GREGOR (1987) found the species in eight spots

between 380 and 500 m a.s.l in north-eastern Slovakia. These lower altitude records may be indicative of effects of different hydrogeological conditions on the altitudinal distribution of the Alpine Newt – and probably other amphibian species too – in the eastern part of the country (the Tisa river catchment). This phenomenon was also observed e. g. in fishes of the genera *Zingel* and *Gymnocephalus*, occurring there at lower altitudes than in the rest of the country (HENSEL 1979).

The new locality records at altitudes of 308 m and 349 m a.s.l. move the lower altitudinal limit of the range of *T. alpestris* in Slovakia down to about 300 m a.s.l. Both localities are situated close to the margins of the forest zone and near by urban and agricultural zones. Thus, the species is unlikely to occur in lower parts of either of these areas. However, lower record localities may be found in the south along the Nitra river, where suitable woodland habitats exist.

Possible pathways for the spreading of the species to lower altitudes in central Slovakia are the valleys along the Nitra river and Hron river. However, its presence is always restricted to woodland zones. According to KLUCH et al. (1969) and KAUTMAN (unpublished), the Alpine Newt is not found in mountains of southern Slovakia. This seems interesting in respect of the known distribution of the species in the Matra Mts. and Bükk Mts. in adjacent Hungary (DELY 1959; KLUCH et al. 1969). In contrast to what has been observed in the more northerly parts of the species' range (JUZSCZYK 1974, ZUIDERWIJK 1997), *T. alpestris* does not occur in the Slovakian lowland proper (as low as 94 m a.s.l. in the Bodrog river area). Although the species is unlikely to be distributed much below 300 m a.s.l., it seems that its presence below 500 m a.s.l. is not as rare as was considered by KLUCH et al. (1969).

**ACKNOWLEDGEMENTS:** We thank J. KAUTMAN (Slovak National Museum - Museum of Natural History Bratislava), L. KOČIAN and K. HENSEL for discussion and P. MIKULIČEK and Z. GRUJBÁROVÁ (Department of Zoology, Comenius University, Bratislava) for valuable comments on the manuscript.

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**KEY WORDS:** Amphibia: Caudata: Salamandridae: *Triturus alpestris*, Slovakia, distribution, altitudinal range.

**SUBMITTED:** May 19, 2004

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Autor(en)/Author(s): Jandzik David, Lezovic Juraj

Artikel/Article: [On the lower limit of the altitudinal range of Triturus alpestris \(LAURENTI, 1768\) in Slovakia 181-182](#)