

On the presence of a southeastern European Smooth Newt near Vienna (Austria)

The Smooth Newt form of middle and northern Europe, and thereby the area of Vienna (Austria), is *Triturus vulgaris vulgaris* (LINNAEUS, 1758) (CABELA et al. 2001). In southeastern Europe (the Apennines- and Balkan peninsula), and Asia Minor, *T. vulgaris* is represented by morphologically and chorologically more or less defined forms, for example: *T. v. schreiberei* (WOLTERSTORFF, 1914), *T. v. meridionalis* (BOULENGER, 1882) and *T. v. graecus* (WOLTERSTORFF, 1905), but also intermediary populations covering large areas. Questions about taxonomy and systematics including the interpretation of the complicated *Triturus vulgaris* distribution patterns were dealt with in SCHMIDTLER & FRANZEN (2004).

In early 2001, in the Kaltenleutgeben area, southwest of Vienna, Smooth Newts were detected, the males of which (fig. 1) were conspicuously different from the nominate race, *T. v. vulgaris* (fig. 2) (J. TÖPFER, Wien; M. DUDA, Perchtoldsdorf, pers. comm.). Soon after, the implausible occurrence was encountered by G. S., and again in subsequent years by the remaining authors. A number of these male and female individuals were examined (Natural History Museum Vienna, NHMW 36350:1-29, NHMW 37558:1-5, and some more in the field). The conformity of these Smooth Newts to *T.*

*v. graecus* was so strong that the subspecific assignment was evident based on morphological and color-pattern characteristics of breeding males (reddish nape stripe present; pronounced dorso-lateral ridges along body sides; dorsal crest emerging from the posterior nape, smooth, low, with vertical stripes; unspotted ventral caudal crest; dark, thin caudal filament present, 6-8 mm long; webbing on hind feet dark, well developed - characters according to SCHMIDTLER 1983, RAXWORTHY 1990 and SCHMIDTLER & FRANZEN 2004). These Smooth Newts are now identified as *T. v. cf. graecus*.

From the first molecular systematic analysis (r-RNA; MTV and MTG samples below) (W. MAYER, pers. comm.), the genetic distance of these non-native Smooth Newts (NHMW 36350: 1-2 [MTV-4, MTV-5]) to animals of the nominate race of the Vienna basin (NHMW 36349: 3 [MTV-8]) is certainly just as great as to *T. v. graecus* from Ioánnina of northwestern Greece (NHMW 36348, captive bred [MTG-1]) or an individual from Giannouli of northeastern Greece (NHMW 33535 [MTV-1]). The molecular analyses support the supposition that presently, genetically different forms were placed together under the name *T. v. graecus*, which was also seen by SCHMIDTLER & FRANZEN (2004).

During numerous excursions to the Vienna Woods in 2001 to 2004, the area in which *T. v. cf. graecus* occurred was delimited to a convex polygon area of approximately 2 km<sup>2</sup> between Kaltenleutgeben and

Table 1: The water bodies of the study area (Kaltenleutgeben, southwest of Vienna, Austria) in which southern Smooth Newts *Triturus vulgaris* cf. *graecus*, were found, along with other newt species.

Number in Fig. 3	Type of Water Body	Surface (m <sup>2</sup> ) / Depth (m) / Altitude (m a.s.l.)	Year of Formation	Place Name	Sympatric Newt Species (Genus <i>Triturus</i> )
1	Pond <sup>1)</sup>	~400/?/380	1995 <sup>1)</sup>	Großer Flösslberg	<i>T. carnifex</i>
2	Pond	~2000/?/400	End of 1980's	Großer Flösslberg	<i>T. carnifex</i> , <i>T. a. alpestris</i>
3	Pond	~100/?/560	1997	Großer Flösslberg	<i>T. carnifex</i>
4	Ruts	-/-/470-520	-	Großer Flösslberg	
5	Pond	~8000/20/350	1995	NW Slopes of Parapluiberg	
6	Ditches above Pond #5	-/-/360	-	NW Slopes of Parapluiberg	<i>T. carnifex</i>
7	Wooded Pond	~250/?/480	?of natural origin	Parapluiberg	<i>T. carnifex</i> , <i>T. a. alpestris</i>
8	Pooling Spring	< 30/?/400	?of natural origin	SW Josefsware SE Slopes of Parapluiberg	<i>T. carnifex</i> , <i>T. a. alpestris</i>

<sup>1)</sup> Small ephemeral, regularly emptied water bodies have been present there since the 1980's.



Fig. 1: Breeding male Smooth Newt *Triturus vulgaris* cf. *graecus* (WOLTERSTORFF, 1905), (NHMW 37558: 1) from the Kaltenleutgeben area (Großer Flösslberg, site 2 in table 1 and figure 3), southwest of Vienna.

Perchtoldsdorf, just southwest of Vienna (fig. 3). The maximum distance across this polygon is 2.2 km (sites 3 to 8). The study area comprises the northeastern most extension of the Kalkstein-Wienerwald at an altitude of approximately 350-560 m, in which natural, large stagnant water bodies are not available.

Most of the water bodies colonized by *T. v. cf. graecus* are man-made, created at the end of the 1980's in prior active limestone quarries, as reported by G. MERKL (pers. comm.). In the vicinity of these waters, lie small water-filled ruts (fig. 3, site 4) and ditches (fig. 3, site 6), in which *T. v. cf. graecus* were also detected. In addition, a heavily shaded, wooded pond (fig. 3, site 7)

and a pooling spring (fig. 3, site 8), are inhabited by *T. v. cf. graecus*. Further site characterization is in table 1.

Interestingly, the authors found no phenotypes of the nominate race in the waters colonized by *T. v. cf. graecus*, whereas, outside this area, *T. v. vulgaris* is the only form (fig. 3). The nearest known sites where *T. v. vulgaris* occurs are at distances of 1.6, 2.0 and 2.1 km from the *T. v. cf. graecus* sites. Expansion is hampered for the *T. v. cf. graecus* Smooth Newts in the north by roads, settlements and the river of the Dürre Liesing river valley, and in the east by vineyards, but not in the south and west, apart from a lack of permanent stagnant waters in this forested terrain.



Fig. 2: Breeding male Smooth Newt of the nominate race *Triturus vulgaris vulgaris* (LINNAEUS, 1758), (NHMW 37559: 1) from the Kaltenleutgeben area (Wallnerwiese, Teichgasse, ■ in figure 3), southwest of Vienna.



Fig. 3: Map of the Kaltenleutgeben area southwest of Vienna (Wien, Austria) indicating the water bodies in which *Triturus vulgaris* cf. *graecus* (●) and *Triturus vulgaris vulgaris* (□ and ■) have been found.

Numbering of water bodies corresponds with table 1. Scale represents six kilometers.

■ - Wallnerwiese, Teichgasse (Kaltenleutgeben); site where the specimen represented in figure 2 was captured.

No prior documentation of any newts including specimens released into the wild is recorded from the study area (CABELA et al. 2001). It is not known whether Smooth Newts of the nominate race lived in these waters before the appearance of *T. v. cf. graecus*; however, the possibility clearly exists, even though the majority of the water bodies are recent. At present, two additional species of newts *Triturus carnifex* (LAURENTI, 1768) (sites 1, 2, 3, 6, 7, 8) and *T. a. alpestris* (LAURENTI, 1768) (sites 2, 7, 8) co-occur with *T. v. cf. graecus*. Since there is no essential difference in the expansion potential between these three newt species (BLAB & al. 1991; SCHÄFER & KNEITZ 1993; ARNTZEN 2003; SCHMIDTLER & FRANZEN 2004), assumptions are that the indigenous newt *T. v. vulgaris* is also able to colonize this area, as it is well known that *T. carnifex* and *T. a. alpestris* are

commonly sympatric with *T. v. vulgaris* (CABELA et al. 2001).

Because of the small size of the distribution range, the young age of the water bodies and the great distance (about 800 km) to the nearest natural habitat of *T. v. graecus*, it logically follows that this occurrence of southern European Smooth Newts may only be understood as a result of a release event within the last 15 years. Although the various forms of the Smooth Newt interbreed and produce fertile offspring (SCHMIDTLER & FRANZEN 2004), *graecus* and *vulgaris* phenotypes were found in this investigation to be mutually exclusive among the water bodies. Whether or not Smooth Newts in the Kaltenleutgeben and Perchtoldsdorf area are genetically pure southern forms, or that the southern form is phenotypically dominant within a mixed population of *T. v. vulgaris*

and *T. v. graecus*, must be determined and further examined to explain the apparent absence of *T. v. vulgaris*.

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## *Triturus italicus* (PERACCA, 1898) in the Lepini Mountains: new north-western range limit

*Triturus italicus* (PERACCA, 1898) is a newt endemic to southern Italy. The northern limits of its distribution are located in the province of Ancona (region of Marche) and in the Ausoni Mountains (region of Lazio) at the Adriatic and the Tyrrhenian side of the Apennines, respectively (BOLOGNA 2000) (fig. 1). The first sighting of *T. italicus* for Lazio was reported in 1981 (cf. BONIFAZI & CARPANETO 1990). To date about 50 breeding sites have been recorded for southern Lazio (CORSETTI, in press) while its presence has never been recorded for the province of Rome (RM) (cf. BOLOGNA 2000; CORSETTI 1994, 2000; CORSETTI & CAPULA 1992). In this note we report the first data on the presence of *T. italicus* in an area north of the Ausoni Mts.

Between 2003 and 2004, we found the newt in five localities between 700 and 1,020 m a.s.l. in the Lepini Mts.: One in the district of Castro dei Volsci (province of Frosinone), three in the district of Segni (RM) and one in the district of Montelanico (RM). We report here also on a record locality in the district of Carpineto Romano (RM) where the newt was found in spring 2004 (MARCO A. BOLOGNA, pers. comm.). In some of these localities more than one breeding site was present. In total we found eleven breeding sites where we observed adult males and females, as well as neotenic individuals. Our observations move the known north-western limit of the range of the Italian Newt about 35 km in a northward direction along the Tyrrhenian side of Apennines (fig.1). Moreover, the site at 1,020 m a.s.l. in the Lepini Mts. represents the new altitudinal record for this species in the region of Latium where it was not known from above 900 m a.s.l. before (BOLOGNA 2000). Among the reported breeding sites, ten were stony wells and only one was a natural pond; they were all located in pastures, with or without shrubs.

*T. italicus* is protected by regional law number 18 of 1988 and the newt's conservation is usually implemented by preserving

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