

COSACOV: LJAMM 6963. General Roca Department – (4) Villa Regina (39°46'S, 67°16'W, 300 m a.s.l.). 09 September 2006. CHF PEREZ, L. ROSALES: LJAMM 6526-33. (5) 35 km NE Chichinales, rural area, (38°49'S, 66°47'W, 260 m a.s.l.). 28 April 1998. L. AVILA, M. MORANDO, D. PEREZ: LJAMM 94. (6) Chimpay (39°03'S, 66°18'W, 171 m a.s.l.). 16 January 1998. D. PEREZ: LJAMM 27, 28.

Neuquén Province: Confluencia Department – (7) Provincial Road, Portezuelo Grande dam, west shore of Los Barreales Lake, Cerros Colorados Dam Complex (38°29'S, 68°56'W, 468 m a.s.l.). 6 March 1999. L. AVILA, M. MORANDO: LJAMM: 1777. (8) Villa El Chocon, paleontological excavation site, (39°15' S, 68°46'W, 469 m a.s.l.). 18 December 2006. L. AVILA, CHF PEREZ, N. FRUTOS, M. KOZYKARISKI, A. COSACOV: LJAMM 6967-9.

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First record of a natural male hybrid of *Bufo (Pseudepidalea) viridis* LAURENTI, 1768 and *Bufo (Bufo) bufo* LINNEUS, 1758 from Austria

Natural hybridisation of *Bufo (Pseudepidalea) viridis* LAURENTI, 1768 and *Bufo (Bufo) bufo* LINNEUS, 1758 was reported occasionally from Germany, the Czech Republic and Italy (HEMMER & BÖHME 1974; GLAW & VENCES 1989; ZAVADIL et al. 2003; BRESSI et al. 2000; VLČEK 1997; ZAVADIL et al. 2003). Additionally, hybrids of both species were bred in the laboratory by MONTALENTI (1932, 1933), HERTWIG et al. (1959), ZAVADIL & ROTH (1997) and BRESSI et al. 2000. According to MONTALENTI (1932, 1933), HERTWIG et al. (1959), VLČEK (1997), ZAVADIL & ROTH (1997), BRESSI et al. (2000) and ZAVADIL et al. (2003), hybrid spawn, tadpoles and toadlets from these two species are subject to high mortality. The obvious rareness of viable hybrids among *Bufo (Pseudepidalea) viridis* and *Bufo bufo* accords with the recent view of the parental species representing different genera (FROST et al. 2006). Nevertheless, there are documented records of adult hybrids in nature (HEMMER & BÖHME 1974; GLAW & VENCES 1989; BRESSI et al. 2000).

On April 2nd, 2007, the author observed a young, calling male toad of intermediate external appearance when compared to both possible parental species (*viridis* and *bufo*) (Figs. 1-3). The toad was found in an artificial pool in the village of Perchtoldsdorf (District of Mödling, Lower Austria, Austria), 223 m a.s.l. The basic color of the dorsum was grey-brown; the pattern of the blackened, greenish dorsal spots did not show the characteristic "camouflaging" arrangement of *viridis*. Also the near brass color of the iris was intermediate between the red iris of *bufo* and the yellow-green of *viridis*. The pattern on the upper lip and the single tubercles underneath the toes were characteristics of *viridis*, while the crème-white basic color of the ventral side combined with fine black spots looked rather as in *bufo*. The parotids had the typical shape of a "horse-shoe", like those of the hybrid described in HEMMER & BÖHME 1974. Also remarkable were the pointed, horny warts



Figs. 1-3: Natural male hybrid of *Bufo (Pseudepidalea) viridis* LAURENTI, 1768 and *Bufo (Bufo) bufo* LINNEUS, 1758 from Perchtoldsdorf, Austria. Photographs: M. DUDA.

resembling those of older *bufo* specimens. Mating and defence call were the same as in *bufo*. The combination of the above features reveals the hybrid nature of the toad. In addition, the descriptions of hybrid specimens in MONTALENTI (1933), HEMMER & BÖHME (1974), GLAW & VENCES (1989) and BRESSI et al. (2000) are in good agreement with that of the Austrian specimen.

Moreover, a hybrid copulation between a male *B. (P.) viridis* and a female *B. (B.) bufo* was observed at the abovementioned pond later in April. At the moment of writing this note (May 2007) approximately 100 hybrid tadpoles inhabit the pool.

The young male hybrid was collected, preserved and inventoried at the Museum of Natural History in Vienna (NHMW 38552, leg. et don. W. MAYER). According to MONTALENTI (1932, 1933) and HERTWIG et al. 1959 only tadpoles of the parental combination *B. (P.) viridis* male x *B. (B.) bufo* female are able to survive the first 12 days after hatching. Therefore it is likely, that the Austrian hybrid resulted from such a parental combination. Further molecular biological and genetic research will reveal more details about the parental origin of the animal.

Three main reasons for natural hybridisation of sympatric *B. (P.) viridis* and *B. (B.)*

bufo have been described in the literature: HEMMER & BÖHME (1974) suspected that the presence of an intermediate landscape character between forest and open grassland would favor hybridisation between the forest species *bufo* and the open grassland species *viridis*. GÜNTHER & PODLOUCKY (1996) mentioned the overlapping of the spawning seasons of the late breeding *viridis* and the early breeder *bufo* caused by "late springs". ZAVADIL & ROTH (1997), BRESSI et al. (2000) and ZAVADIL et al. (2003) suggested that natural hybridisation of both species is a result of landscape degradation and lack of spawning sites.

All three reasons apply to the area, where this first documented Austrian hybrid was found. The land use is dominated by one-family units surrounded by extremely cultivated gardens. The structure of these gardens – mowed lawn combined with groups of shrubs and trees – represents a park-like landscape in which the life conditions for amphibians are heavily affected by the poor habitat quality due to intensive gardening and high landscape fragmentation by motorways, railways and minor roads. Furthermore, there are very few potential spawning sites for amphibians in the area. The author's 30 cm deep and 6 m² large pond was originally installed to exclusively aid the decreasing population of *Bufo viridis*. However, because of the paucity of suited aquatic habitats, five species of amphibians – *Lissotriton vulgaris* (LINNAEUS, 1758), *Bufo* (*B.*) *bufo*, *B.* (*P.*) *viridis*, *Rana dalmatina* BONAPARTE, 1839, *Pelodytes punctatus* (PALLAS, 1771) – were observed at this small pool since its construction in April 2005. But overlapping of the spawning seasons due to 'prolonged winters' could have been the reason for hybridisation as well: in 2003-2006 the east Austrian flatlands were characterized by winter conditions extending into beginning of April. It should also be mentioned that the long-term phenology data in CABELA et al. (2001) show a potential overlapping time of the spawning seasons of *B.* (*B.*) *bufo* and *B.* (*P.*) *viridis* in April for the study area.

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KEY WORDS: Amphibia: Anura: Bufonidae: *Bufo* (*Pseudopelodytes*) *viridis*, *Bufo* (*Bufo*) *bufo*, natural hybridisation, Austria

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