

Unusual egg deposition sites  
of *Euproctus platycephalus*  
(GRAVENHORST, 1829)

The salamandrid genus *Euproctus* GENÉ, 1838, consists of two species: *E. montanus* (SAVI, 1838), endemic to the island of Corsica, and *E. platycephalus* (GRAVENHORST, 1829), endemic to the island of Sardinia, in the Mediterranean Sea. The Sardinian Newt *E. platycephalus*, which is listed as Endangered B2ab (iii,iv) by the IUCN (ROMANO et al. 2009), is found primarily on the eastern side of the island in all major mountain systems, Limbara, Gennargentu and Sette Fratelli (ALCHER 1975; LECIS & NORRIS 2003; SOTGIU et al. 2010) where it



Fig. 1: Rio Serra e Scova (Gennargentu, central Sardinia, 854 m a.s.l.).

On the left, the pool where 60 eggs of *Euproctus platycephalus* (GRAVENHORST, 1829) were found 5 cm above the water line, laid in a hollow at the base of the rock wall forming the edge of the stream. The white arrow points to the exact location. On the right, closeups of the clutch at two different magnifications. Scale bars represent 5 cm length.

inhabits cool water streams, small lakes, pools and artificial channels (LECIS & NORRIS 2003; BOVERO et al. 2005). Information about the life-history of this species and in particular about egg deposition is scarce due to its elusive habits. *Euproctus* breeds in lotic water, referred to as “Model II” by SALTHER (1969). Females usually select deposition sites in a rocky area or at the basis of plants, where they lay groups of eggs (from 50 to 200) that are 4-5 mm in diameter, translucent with the whitish embryo visible inside. Small groups of *E. montanus* females lay their eggs collectively and simultaneously on the underside of a stone in the stream. The clutches which are composed of isolated eggs are guarded by the females throughout the embryonic development

(ALCHER 1981a), while *E. platycephalus* is known to lay eggs between or on undersides of stones, in crevices or, secondary, to bury them in the sand, in both cases without parental care (authors’ unpublished data from nature and captivity; ALCHER 1980, 1981a).

During herpetological surveys (1993-2011) focusing on the life history of *E. platycephalus*, the authors observed two kinds of previously unreported egg deposition sites. On 7 October, 1994, while snorkeling to find newts in the Rio Flumineddu (central Sardinia, 515 m a.s.l.), five eggs of this species were found in the fresh water sponge, *Spongilla lacustris* (LINNAEUS, 1758). On 8 August, 2011, during a survey in the Gorropu gorge (central Sardinia, 633 m

a.s.l.), about ten eggs were found attached to fresh water plants (watermilfoil, *Myriophyllum* sp.) in two pools. On 27 December, 2007, (first report of reproduction activity in winter) in a tributary of the Rio Fundu di Monti (Limbara Mountain, north Sardinia, 983 m a.s.l.), the authors detected about twenty eggs laid on the underside of a stone in the stream bed, however, in moist conditions above the water level. On 4 September, 2011, at the Rio Serra e Scova (Fig. 1, Gennargentu, central Sardinia, 854 m a.s.l.), 60 eggs were found 5 cm above the water line laid in a hollow at the base of the rock wall forming the edge of the stream. The hollow was partially filled with water, the eggs were partially under water and covered with fallen leaves and damp soil, all of them in moist conditions.

In the Sardinian Newt, parental care has never been observed and the authors never found females close to the egg clutches after oviposition. On the contrary, females of the Corsican Newt *E. montanus* guard and defend their eggs, probably from conspecific oophagy (ALCHER 1981a). Oophagy was however, reported for *E. platycephalus* too (SOTGIU et al. 2008). Hiding eggs as *E. platycephalus* usually do can be considered a protective mechanism as found in many stream breeding urodels (see NUSSBAUM 2003). This behavior represents a very first evolutionary step towards parental care, likely against stream flow and dragging, then against predators (including newts). Although *E. platycephalus* prefers streams with low or discrete abundance of aquatic vegetation (LECIS & NORRIS 2003), hiding eggs in secondary places, such as aquatic vegetation and sponge, seems to be feasible only in lentic water, where predators threaten eggs, while stream flow does not happen.

The finding of eggs near or above the water level could also be due to the fact that streams had retreated little before. However, ALCHER (1981b) noticed that in captivity a female laid the eggs close to the water surface, with some of them out of the water. Thus, one cannot exclude that the observed depositions close above the water surface could be adaptive to particular situations in some cases, e.g., when the amount of oxygen in the water is low. This topic deserves

further investigation, because deposition in a terrestrial nest and near the shoreline can be regarded as an indirect indication for parental care (NUSSBAUM 2003).

REFERENCES: ALCHER, M. (1975): L'urodèle *Euproctus platycephalus* (GRAVENHORST, 1829): répartition géographique et exigences thermiques.- Vie et Milieu, Paris; 25 (1): 169-179. ALCHER, M. (1980): Maintien en captivité des amphibiens torrenticoles *Euproctus platycephalus* et *E. montanus* (Urodela, Salamandridae). Conditions d'obtention de la reproduction de l'espèce sarde.- Revue Française d'Aquariologie, Nancy; 7 (2): 61-64. ALCHER, M. (1981a): Sur l'existence de soins parentaux chez *Euproctus montanus* (Urodela, Salamandridae).- Amphibia-Reptilia, Leiden; 2:189-194. ALCHER, M. (1981b): Reproduction en élevage de *Euproctus platycephalus* (Urodela, Salamandridae).- Amphibia-Reptilia, Leiden; 2: 97-105. BOVERO, S. & SOTGIU, G. & ANGELINI, C. & DOGLIO, S. & GAZZANIGA, E. & PICCIAU L. (2005): New data on the distribution of the Sardinian brook salamander (*Euproctus platycephalus*) in southern and western Limbara mountain complex (Sardinia).- Herpetological Bulletin, London; 93: 17-20. LECIS, R. & NORRIS, K. (2003): Habitat correlates of distribution and local population decline of the endemic Sardinian newt *Euproctus platycephalus*.- Biological Conservation, Barking; 115: 303-317. NUSSBAUM, R. A. (2003): Parental care; pp. 527-612. In: SEVER D. M. (Ed.): Reproductive biology and phylogeny of Urodela. Enfield (Science Publishers). ROMANO, A. & SINDACO, R. & ANDREONE, F. & LECIS, R. & EDGAR, P. & SCHMIDT, B. & CORTI, C. (2009): *Euproctus platycephalus*. The IUCN Red List of Threatened Species 2009: WWW document e.T8371A12907837. available at < <http://www.iucnredlist.org/details/8371/0> > [<http://dx.doi.org/10.2305/IUCN.UK.2009.RLTS.T8371A12907837.en>. - last accessed: February 1, 2017]. SALTHER, S. N. (1969): Reproductive modes and the number and sizes of ova in the urodeles.- American Midland Naturalist, Notre Dame; 81: 467-490. SOTGIU, G. & BOVERO, S. & ZANCOLLI, G. & ANGELINI, C. (2008): Analisi della dieta di *Euproctus platycephalus*; pp. 460-463. In: CORTI, C. (Ed.): Herpetologia Sardiniae. Latina (Societas Herpetologica Italica / Edizioni Belvedere) ["Le Scienze" 8, pp. 504]. SOTGIU, G. & BOVERO, S. & BIELBY, J. & DOGLIO, S. & FAVELLI, M. & GARNER, T. W. J. & GAZZANIGA, E. & MARROSU, M. & TESSA, G. & ANGELINI, C. (2010): Dati aggiornati sulla distribuzione di *Euproctus platycephalus*; pp. 27-29. In: DI TIZIO L. & DI CERBO A. R. & DI FRANCESCO N. & CAMELI A. (Eds.): Atti VIII Congresso Nazionale / Societas Herpetologica Italica, held in Chieti, 22-26 September, 2010. Pescara (Ianieri Edizioni).

KEY WORDS: Amphibia: Caudata: Salamandridae; *Euproctus platycephalus*, oviposition, reproduction, behavior, ecology, Sardinia, Italy

SUBMITTED: June 27, 2016

AUTHORS: Giuseppe SOTGIU, Claudio ANGELINI, Stefano BOVERO & Giulia TESSA (Corresponding author < [tessagiul@libero.it](mailto:tessagiul@libero.it) >) - Non Profit Naturalistic Association Zirichiltaggi - Sardinia Wildlife Conservation, Strada Vicinale Filigheddu 62/C, I-07100 Sassari, Italy.

# ZOBODAT - [www.zobodat.at](http://www.zobodat.at)

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Herpetozoa](#)

Jahr/Year: 2017

Band/Volume: [30\\_1\\_2](#)

Autor(en)/Author(s): Sotgiu Giuseppe, Angelini Claudio, Bovero Stefano, Tessa Giulia

Artikel/Article: [Unusual egg deposition sites of Euproctus platycephalus \(GRAVENHORST, 1829\) 66-68](#)