Discoglossus pictus tadpoles: egg cannibalism

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The painted frog *Discoglossus pictus* is a monotypic species distributed in North Africa, Malta and Sicily (Fromhage et al., 2004; Zangari et al., 2006). It is widely distributed in Sicily, where it occupies a broad range of habitats although it is linked mainly to temporary ponds, be they anthropogenic or not (Turrisi, Lo Cascio & Vaccaro, 2007). This species adopts intermediate or opportunistic trophic strategies during the adult stage, feeding mainly on insects and on other terrestrial invertebrates (Licata et al., 2012), while the tadpoles are generalist feeders. Since it is an euriecian species and can occur in several aquatic habitats, painted frogs frequently share their breeding sites with other species of amphibians. In Sicily it coexists with *Pelophylax* sp., *Hyla intermedia*, *Bufo bufo*, *B. siculus* and *B. balearicus*, as well as the invasive *Xenopus laevis* (Lillo et al., 2011).

On 3 April 2009, during nocturnal surveys on a population of *D. pictus*, we observed the predation of *D. pictus* eggs by several tadpoles of the same species (Gosner stage 25; Fig.1a, b). The observation was made in a breeding site located in a mountain pasture (UTM 33 S 0344451 4217051; alt. 800 m), on the western mountains of Palermo (northern Sicily; Fig.3). This is a temporary pond usually with a long hydroperiod (> 10 months), measures 60 m in length and up to 150 cm deep. It has plentiful aquatic vegetation and is surrounded by abundant riparian vegetation (Fig. 2). It has already been observed that *D. pictus* tadpoles may feed on other species' clutches (Escoriza, 2014). In general, cannibalistic oophagy has been observed in several other species of amphibians (Crump, 1983). This is the first time that cannibalistic oophagy has been observed in *D. pictus* tadpoles.

Aquatic organisms living in temporary water bodies are subjected, during the hydroperiod, to intense natural selection and competition, which favour species with successful and efficient strategies. For example, species with synchronised explosive breeding can reduce the risk of cannibalism by limiting the differences in size and development between individuals (Crossland & Shine, 2011). Since *D. pictus* does not have a definite breeding season, spawning events occur at different times, thus creating conditions for cannibalistic oophagy. The potential consequences of this behaviour involve population regulation and may impact on age class structure (Crump, 1983). The benefits of practicing cannibalism are gaining energy and nutrients, as well as reducing the number of possible competitors.

Figure 1. Detail of temporary pond illustrating several *D. pictus* tadpoles eating eggs of its own species (a). Enlarged detail showing a tadpole of *D. pictus* eating eggs of the same species (b).

Figure 2 Photograph of the study area

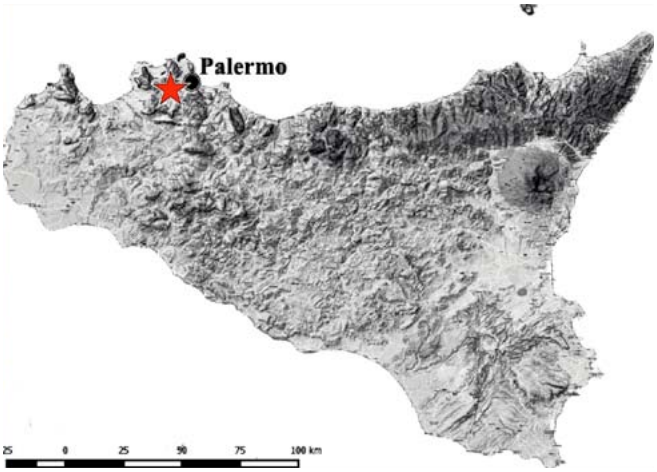

Figure 3 map of Sicily showing the study area (red star).

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