

## *Lissotriton vulgaris* (smooth newt): Parasitism or phoresy?

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On the 23 February 2009 an adult male smooth newt, *Lissotriton vulgaris*, with a snout-vent-length of 43mm and a weight of 4g was seen near the surface of a semi-permanent, brackish pond on the southern end of Portmarnock Strand, Co. Dublin, Ireland (53° 24' 03.4"N 06° 06' 54.1" W). The individual was caught by hand and manipulated for an examination of body condition. During the examination a leech dropped from the axial region on the left side of the newt's body. The leech was captured and preserved in 70% etOH. Subsequent inspection of the newt revealed no obvious signs of bleeding or skin damage around the area that the leech detached from, although this could have been hampered by the difficulty of locating tiny dermal abrasions against the dark colouration of the skin, and by the small size of the specimen.

The leech was identified as *Helobdella stagnalis*, a predatory species of freshwater leech that is known to parasitise the common frog, *Rana temporaria* (Tiberti & Gentilli, 2010), a species that occurs sympatrically with *L. vulgaris* at the capture site. Given that we did not observe the leech directly attached to the newt, it is not possible to decisively determine between the two candidates for the nature of this interaction: parasitism versus phoresy (the use of a host solely for transport purposes). Given that *H. stagnalis* is known to parasitise amphibians in other parts of its distribution, e.g. *Ambystoma tigrinum* in the U.S.A (Platt et al., 1993), and *R. temporaria* in Italy (Tiberti & Gentilli, 2010), we consider a strictly phoretic relationship between *L. vulgaris* and *H. stagnalis* to be unlikely. Any relationship between these two species is likely to be temporally restricted due to the bi-phasic natural history of *L. vulgaris*. This particular specimen was in the aquatic breeding phase at the time of capture and we can only assume that once the breeding phase ends newts are no longer vulnerable to parasitism by *H. stagnalis*. If this is in fact an observation of parasitism as opposed phoresy then it constitutes the first European observation of a urodele amphibian host for this leech species, and only the third record of *H. stagnalis* specifically parasitising live amphibians (Platt et al., 1993; Tiberti & Gentilli, 2010). The cryptic lifestyle of smooth

newts makes it difficult to make observations such as the one described here, and as such it is possible that the predatory leech *H. stagnalis* may have a more prevalent relationship with *L. vulgaris* than previously known.

Given that leeches have recently been identified in playing a much greater role in the localised decline of amphibian species than previously thought (for examples see Elliott & Tullett, 1984; Toledo, 2005; Romano & Di Cerbo, 2007; Wells, 2007; Ayres & Iglesias, 2008; Beukema & de Pous, 2010; Kutschera et al., 2010; Stead & Pope, 2010), coupled with their potential to serve as a vector for disease (Raffel, Dillard & Hudson, 2006), the effects of this relationship upon the smooth newt as a host organism requires further investigation, particularly since this kind of leech-amphibian interaction appears to be more prevalent than previously thought.

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