

Predation and ingestion of a viviparous lizard (*Zootoca vivipara*) by the common wall lizard (*Podarcis muralis*) in England

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The common wall lizard (*Podarcis muralis*) is a small-medium sized lacertid that attains a snout to vent length (SVL) of about 7.5 cm and varies considerably in colour or pattern. Its diet includes a wide range of invertebrates and small lizards including its own young (Speybroeck et al., 2016). The species ranges widely in continental Europe but has been introduced into the Netherlands, Germany and Britain (Speybroeck et al., 2016). Common wall lizards are thought to impact the native viviparous lizard (*Zootoca vivipara*) through competition and displacement (Mole, 2010) but this has yet to be quantified.

The viviparous lizard is a particularly cold tolerant species occupying a wide range of habitats across an expansive range that extends from Ireland to Japan but absent from much of southern Europe (Speybroeck et al., 2016). They too vary in colour but often tend to be brown, with females possessing a dorsal stripe and the males a brightly coloured belly (Beebee & Griffiths, 2000). Viviparous lizards are the smallest and most widespread lizard species in the British Isles but their populations are declining for a variety of reasons (Beebee & Griffiths, 2000). They prefer open habitats that are undisturbed and have exposure to the sun such as railway embankments, cliffs and heathland (Inns, 2011). This can lead to them coming into direct contact with *P. muralis*.

The common wall lizard has numerous established populations in England (Quayle & Noble, 2000) and Wales. One of the most well-studied is at Boscombe Cliffs in Dorset (SW England) (Gleed-Owen, 2004; Mole, 2010). Using genetic analysis this population of *P. muralis* was found to originate from either France or Italy (Michaelides et al., 2015), whereas the nearby Seacombe population, which happens to be closest to the sighting described here, was found to be of Venetian origin (Michaelides et al., 2015).

At 15:19 h on 13 May 2020 an adult *P. muralis* was observed by PS capturing and ingesting an adult *Z. vivipara* among boulders and foliage in Winspit Quarry, Dorset (GPS: 50° 35'05.5" N 2°01' 59.1" W). The *Z. vivipara* was grasped just behind the front legs (Fig. 1) before the whole lizard was swallowed head-first in its entirety. The process lasted approximately 5 minutes, with *P. muralis* ingesting *Z. vivipara* in stages with pauses of about 30 seconds at a time, returning to a rock in direct sunlight to complete ingestion after having been briefly disturbed by a passer-by.

To our knowledge this is the first observation of *P. muralis* feeding on *Z. vivipara* although this behaviour is consistent with the known habit of this species to eat small lizards. It would seem that *P. muralis* is not only a potential



Figure 1. An adult male common wall lizard (*P. muralis*) holding a viviparous lizard (*Z. vivipara*) in its mouth shortly before consuming the smaller lizard whole

competitor of the viviparous lizard but it is also a predator. Besides competition and predation common wall lizards may potentially threaten viviparous lizard populations through transfer of pathogens or parasites although this aspect has still to be investigated.

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