

A predation case of *Anguis graeca* Bedriaga, 1881 (Squamata: Anguidae) by *Lacerta trilineata* Bedriaga, 1886 (Squamata: Lacertidae) from Central Greece

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Lizards constitute the most numerous reptile group in Greece containing 41 species of which 21 belong in lacertid family (Lymberakis et al., 2008; Valakos et al., 2008; Gvoždik et al., 2010; Psonis et al., 2017; Kalaentzis et al., 2018; Kornilios et al., 2018; Kotsakiozi et al., 2018; Strachinis et al., 2019). Mediterranean lacertid lizards consume almost all orders of Arthropoda and some Gastropoda, very small vertebrates and even some plant elements (Carretero, 2004), fruits (Brock et al., 2014; Mačát et al., 2015) or eggs (Brock et al., 2014; Žagar et al., 2016). However, some cases of saurophagy (Capula and Aloise, 2011; Dias et al., 2016; Andriopoulos and Pafilis, 2019) and cannibalism (Grano et al., 2011; Žagar and Carretero, 2012; Madden and Brock, 2018) have been recorded in some species. Here we report the occurrence of saurophagy by large lacertid on a heterospecific range-restricted anguid lizard.

The Balkan green lizard *Lacerta trilineata* Bedriaga, 1886 appears to be a generalist predator whose diet includes a wide variety of Arthropoda, Gastropoda, Arachnida, Isopoda, insect larvae but also plant material (Sagonas et al., 2014, 2015). The species is the largest lacertid in Greece (SVL: up to 16 cm) and is one of the most widespread lizards, occurring throughout the mainland and many islands (both in the Ionian and

Aegean Seas) in a wide variety of habitats (Valakos et al., 2008). Outside of Greece, *Lacerta trilineata* is distributed from the NE Adriatic coast to Albania, Republic of North Macedonia, Bulgaria, SE Romania and western Anatolia (Speybroeck et al., 2016).

The Greek slow worm *Anguis graeca* Bedriaga, 1881 is a long bodied, legless lizard (TL: 50 cm; SVL: 22 cm) that occurs in mainland Greece (western Macedonia; western and central Greece; northern Peloponnese; Kerkyra and Euboea Islands), Albania, southern Montenegro and NE Republic of North Macedonia (Jablonski et al., 2016). *Anguis graeca* mainly occurs in vegetated and humid localities and usually it is found hidden in vegetation and under woodland debris (Valakos et al., 2008). Little is known regarding predators, mortality causes and general threats of the Greek slow worm. Conversely, for the closely related slow worm *Anguis fragilis* Linnaeus, 1758 which has been better studied, there are fairly good data concerning its predators. Among its major potential predators, snakes and birds, while more rarely frogs, toads, various mammals, including domestic cats, are mentioned (Smith, 1990; Fuke, 2011).

On 9th July 2019, during aquatic sampling in a backwater riparian wood of the Spercheios river valley (38.5350°N, 22.1859°E; 33 m a.s.l.) we observed the following saurophagy on the range-restricted anguid. The day was sunny and the temperature approximately 37°C. During field work, at 1140 h, at the edge of a vernal pool inside a Plane tree *Platanus orientalis* forest, the first author heard a distinctive sound of rustling dry leaves and immediately saw a Balkan green lizard running with its prey held in her jaws. The area was shady, covered by dense vegetation consisting of Great fen-sedge *Cladium mariscus* and other grasses. A few seconds later the animal moved several meters further down in sparse vegetation where it remained for approximately 1.5 minutes. Within that short period all participants were able to observe it. This new location

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Figure 1. Predator and prey: Adult individual *Lacerta trilineata* holding in its jaws a juvenile *Anguis graeca* which it then consumed at the Spercheios river valley's riparian forest, Fthiotida, Central Greece. Photo by Apostolos Christopoulos.

provided ample photographic opportunity and enabled the identification of predator-prey species (Fig. 1). The predator being an adult *Lacerta trilineata* and the prey was a juvenile *Anguis graeca*, still alive while photographed. Finally, the Balkan green lizard moved again inside the dense vegetation where it killed and consumed the Greek slow worm. This case is the first known consumption record of *Anguis graeca* by *Lacerta trilineata*.

There is no evidence that any of the larger European lizards consume slow worms, however recording is scarce (Smith, 1990). According to existing literature, the slow worm has never been mentioned as part of the Balkan green lizard or other *Lacerta* species diet (Angelici *et al.*, 1997; Crovetto and Salvidio, 2013; Mollov and Petrova, 2013; Sagonas *et al.*, 2015, 2018), thereby the present observation may be the first recorded case. This appears one of the few recorded predation events and also supports Fuke (2011) who commented that juvenile slow worms have even more predators than adults. This record sheds light on both the feeding behaviour of an important generalist predator and a locally common range-restricted anguid lizard that remains poorly studied.

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