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First sightings of axanthism in the Lacertidae, observed in the Greek endemic Erhard's Wall Lizard, *Podarcis erhardii* (Bedriaga, 1882)

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Lizards of the genus *Podarcis* are small, agile reptiles native to Europe that occupy a diverse range of habitats, from rocky outcrops and coastal regions to anthropogenic environments, such as gardens and walls (Speybroeck et al., 2016). Their typical colouration consists of green, brown, and olive tones, which provide effective camouflage in their natural surroundings (Marshall et al., 2016; Speybroeck et al., 2016). Ventral colour polymorphism is common in the genus (Brock et al., 2022a) and geographic variation in ventral colour polymorphism and dorsal hue, saturation, and brightness have also been observed, which highlight the diverse nature of *Podarcis* colouration (Marshall et al., 2016; Brock et al. 2020, 2022b).

Axanthism is a genetic condition that produces skin without xanthophores, erythrophores, and iridophores, which prevents the reflection of red and yellow light (Bechtel, 1995). Absence of these pigments often results in a blue or grey appearance in species that typically display yellow or green hues (Jablonski et al., 2014). While some colour aberrations are frequently documented in reptiles, observations of axanthic amphibians and reptiles, especially lizards, are rare (Jablonski et al., 2014). Due to their distinct appearance, axanthic individuals may experience different survival challenges than those with normal colouration because their colour potentially affects camouflage and thermoregulation (Allain et al., 2023).

On 2 May 2019 we observed four *P. erhardii* on Sifnos Island, Greece, that displayed a uniform bluish-grey body colouration (Fig. 1A) and lacked the typical yellow pigmentation observed in this species (Fig. 1B). Normally coloured individuals (n = 31) were caught on the same dry-stone wall along a coastal dirt walking trail that leads to Panagia Poulati and Agios Giorgos Monasteries on the southeast coast of Sifnos (36.9776°N, 24.7401°E). There were fewer of these apparently axanthic individuals than individuals with the typical *P. erhardii* colouration (11.4% blue). Individuals of both colour morphs appeared healthy with no visible injuries or malformations.

On 7 June 2022 we observed five *P. erhardii* on a dry-stone wall path along the coast of Andros Island, Greece (37.8204°N, 24.8299°E), with a similar bluish-grey body colouration (Fig. 1C) as on Sifnos, again without the green, yellow, or orange colouration typical of the species in this area (Brock et al., 2022b). These bluish individuals were found among many other, typically coloured wall lizards (n = 48; Fig. 1D). On Andros there were also fewer blue individuals than lizards with typical colouration (9.4% blue).

The rarity of axanthic colouration in lizards makes our observations particularly noteworthy and, to our knowledge, these are the first documented cases of such colour variation in the Family Lacertidae. While axanthic individuals have been reported in amphibians and some reptiles – such as the slow worm, *Anguis fragilis* Linnaeus, 1758, and snakes (Knight, 1966; Allain et al., 2023) – they are generally very rarely reported in squamates. In the genus *Podarcis*, colour morphs differ not only in colouration but also in traits like body size, parasite load, behaviour, and survival (Calsbeek et al., 2010; Brock et al., 2020), suggesting that rare colour variants like axanthic morphs could likewise be associated with distinct phenotypic and ecological differences.

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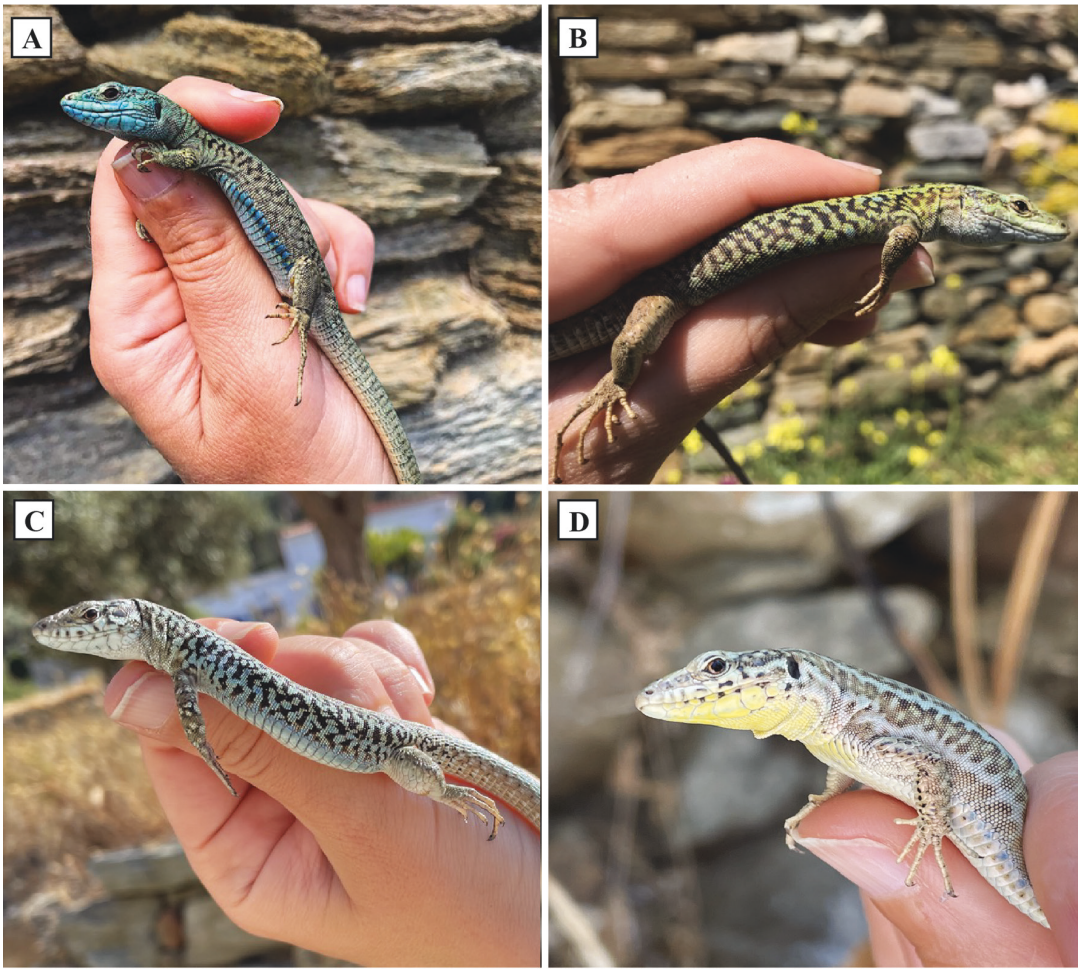

Figure 1. Colour variation in *Podarcis erhardii* on two Greek islands. (A) Adult with aberrant, axanthic colouration caught on the same dry-stone wall on Sifnos as individuals showing the typical colouration (B). (C) An axanthic individual from Andros caught on the same dry-stone wall as individuals showing the typical colouration (D).

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