

Unusual iris colour and aniridia in the barred grass snake *Natrix helvetica*

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The barred grass snake *Natrix helvetica* is semi-aquatic species found throughout north-west Europe (Kindler & Fritz, 2017). On the 14 May 2025 at approximately 12:00 h, an immature *N. helvetica* (length about 35 cm) was found feeding on a female great crested newt *Triturus cristatus* at Noak Bridge Nature Reserve, Essex, England (51.588552° N, 0.457303° W). Startled, the snake released its prey and began to feign death. It was at this time that unusual light-blue coloured irises in both eyes were noticed. The snake was handled very briefly to examine the eyes in more detail and to check the snake for any clinical signs of ophidiomycosis (Allain et al., 2024), of which it had none. During handling, it became apparent that the irises in both eyes were also incomplete with a gap in the iris in the anterior portion of each eye, a case of aniridia. Once some photographs had been taken (Fig. 1A), the snake was released at the point of capture.

The causes of such unusual iris colouration and aniridia in reptiles remain poorly understood and it is not known whether these two anomalies are connected. Several, possibly interacting factors may account for them, including rare gene mutations influencing pigmentation pathways

in the iris (Davis-Silberman & Ashery-Padan, 2008) or developmental anomalies resulting in asymmetry or unusual pigment deposition (Sabater & Pérez, 2013). Research has also demonstrated that irises in *N. natrix* are bright-orange at higher incubation temperatures and darker (almost black) at lower temperatures (Idrisova & Khairutdinov, 2018), demonstrating that incubation temperature could also be a contributing factor. Lower incubation temperatures have also been linked to lighter nuchal collar colours in *N. natrix* (Hagman et al., 2015), which this individual also exhibits (Fig. 1 A&B).

From an ecological perspective, aberrant iris colouration is unlikely to provide any strong adaptive advantages or disadvantages. However, the aniridia is likely to have impacted the ability of the snake to see properly. Unlike body patterning, which plays a crucial role in camouflage and signalling, subtle variations in iris pigmentation may not significantly influence survival or reproduction. In rare cases, conspicuous iris irregularities might alter visual acuity or reduce crypsis. To my knowledge, this is the first published report of this abnormality in *N. helvetica*.

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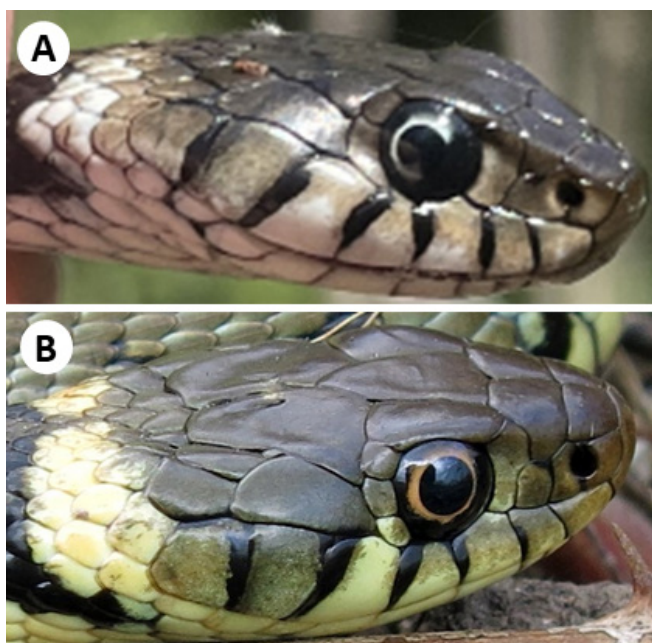


Figure 1. A. Immature barred grass snake *Natrix helvetica* showing an unusual pale blue iris colour, a gap in the anterior portion of the iris (aniridia) and a pale nuchal collar. **B.** Immature grass snake showing a normal eye and a noticeably less pale nuchal collar