

Observations of two melanistic smooth snakes (*Coronella austriaca*) from Dorset, United Kingdom.

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Abstract. We report the capture of two smooth snakes (*Coronella austriaca*) with melanistic colouration from a site in Dorset. These two individuals constitute the second published report of melanism in smooth snakes from the United Kingdom.

Keywords. Melanism, smooth snake, United Kingdom.

Melanism is the phenomenon whereby a species has abnormally large amounts of black colouring at the expense of other colours (Majerus, 1998). In reptiles this is typically a result of the over-production or dispersion of melanin by melanophores (Sherbrooke and Frost, 1989). Melanism has been described as a common and highly variable phenomenon in snakes (Lorioux et al., 2008), which is thought to occur as a result of a trade-off between increased thermoregulatory and reproductive advantages and reduced crypsis (Clusella-Trullas et al., 2007). Melanistic colouration has been observed with varying levels of frequency in a number of European snake species including: *Coronella austriaca*, *Hierophis gemonensis*, *H. viridiflavus*, *Natrix natrix*, *N. maura*, *Platyceps najadum*, *Vipera aspis*, *V. berus* and *Zamensis longissimus* (Boulenger, 1913; Andrén and Nilson, 1981; Nilson and Andrén, 1981; Luiselli, 1995; Cattaneo, 2003; Zuffi, 2008).

We encountered two melanistic smooth snakes during an ongoing mark-recapture study of a population in a commercial forestry area containing a mixture of both broad-leaved woodland and coniferous plantations, interspersed with small patches of lowland heathland in Dorset, United Kingdom. Both individuals were found on September 3rd 2008 under artificial refugia (*sensu* Reading, 1997), placed on an area of land that had been recently clear-felled (2004). The vegetation at the site was relatively homogeneous and dominated by *Molinea caerulea* and *Ulex europeas*, with small *Calluna vulgaris* plants growing through. Large amounts of deadwood and tree stumps remained on the site. The habitat surrounding the artificial refugia under which the two melanistic specimens were captured appeared to show no obvious differences to that around the other

35 refugia placed at the site. The exact locality has not been disclosed due to the protected status of smooth snakes in Britain and in order to prevent unnecessary disturbance to the individuals concerned.

The first individual captured was an immature male (Fig. 1; Snout-Vent Length, SVL = 278 mm, tail = 72 mm, mass = 15 g) that appeared to show partial melanism. The animal's dorsal surface was completely black with the exception of a small number of scale rows immediately behind the parietal scales, which were dark brown (Fig. 1A). The ventral and subcaudal scales were predominantly black with small amounts of red/orange colouration towards their edges. The second individual was an adult male (Fig. 2; SVL = 410 mm, tail = 123 mm, mass = 32 g) which was completely melanistic with the exception of a small amount of dark brown colouration towards the edges of its infralabial and chin shield scales. Both animals were in a healthy condition and were released at the point of capture, following examination.

This record constitutes only the second published account of melanism in *C. austriaca* from the United Kingdom, the previous being two specimens collected from a locality near Poole over 100 years ago (Cambridge, 1894). The only published records of melanistic individuals from other parts of *C. austriaca*'s distribution appear limited to Spain and Portugal (Boulenger, 1894; Hopkins, 1976; Meijide et al., 1994; Barbadillo et al., 1997). Whilst it is unknown whether the cases of melanism reported here have any functional significance, the infrequency with which melanistic specimens of *C. austriaca* have been recorded suggests it is an uncommon phenomenon.

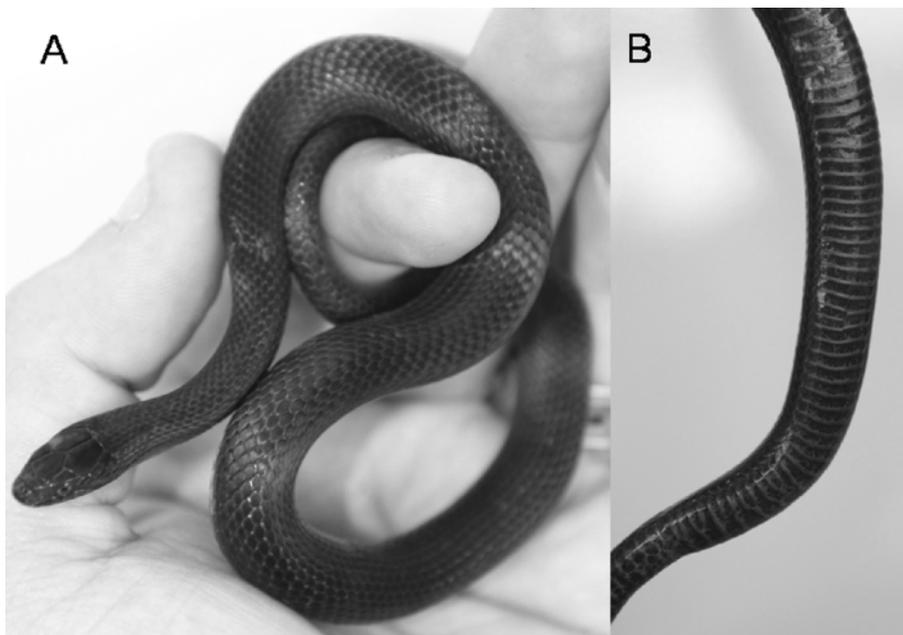


Fig. 1. Dorsal (A) and ventral (B) views of an immature male *Coronella austriaca* displaying melanistic colouration.

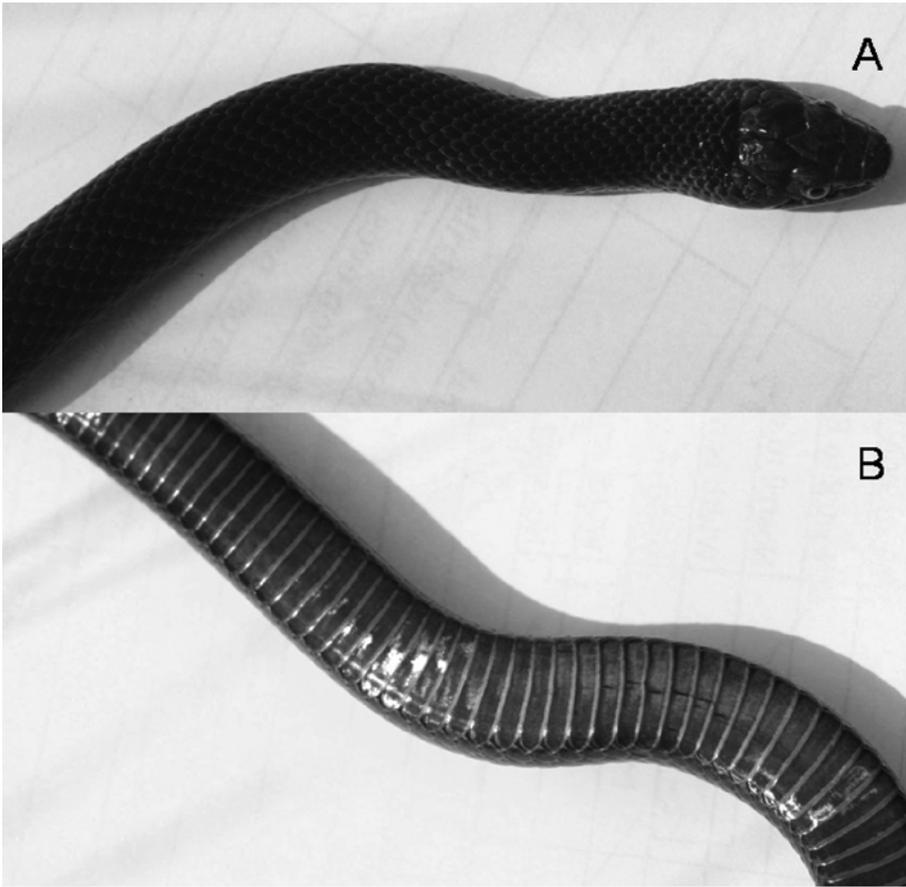


Fig. 2. Dorsal (A) and ventral (B) views of an adult male *Coronella austriaca* displaying melanistic colouration.

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