

Dor beetle *Anoplotrupes stercorosus* found within the flank of a live northern viper *Vipera berus*

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On 13 August 2021, during radio telemetry studies of northern vipers or adders *Vipera berus*, in the Forest of Dean (England), a male viper about 440 mm long was found with a large swelling half way down its flank (Fig. 1). On capture and closer inspection the swelling was found to be a dead and decomposing adult woodland dor beetle *Anoplotrupes stercorosus*. This species is a fairly large (12–19 mm), earth-boring, metallic blue-black dung beetle. Weithmann et al. (2020) have pointed out that this is an opportunistic, copro-necrophagous species that is the most common dung beetle found on vertebrate cadavers. It is attracted to the volatile organic compounds generated by decomposition.

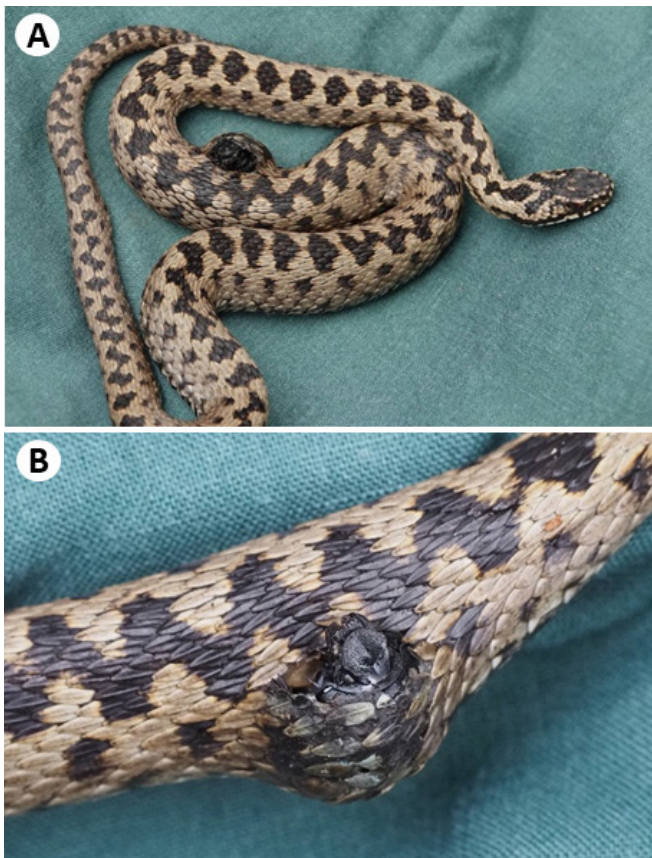


Figure 1. Male northern viper with a dor beetle embedded in its flank - **A.** The viper is alive, but appeared underweight, and **B.** Close up showing the head of the dead dor beetle protruding from the viper's flank



Figure 2. The dor beetle removed from the viper leaving a 'pocket'. The beetle had begun decomposing and the wound area contained blowfly eggs.

The snake was taken to the Vale Wildlife Hospital and Rehabilitation Centre (Tewkesbury, England) where they removed the decomposing beetle, along with blowfly eggs, and the wound was cleaned with saline solution (Fig. 2). The body of the beetle had formed a pocket just under the skin with the muscle covering the ribs, appearing undamaged, and with no damage to internal organs. After treatment, I released the snake at the capture location where it was seen basking in the same area on 14 September, but not seen in the following spring of 2022, or since.

I know of no other reported case of this kind of attack within the distribution of *V. berus*. It is intriguing to speculate how it may have happened. The snake was unlikely to have predated the beetle as there was no evidence of the beetle burrowing out of the snake's digestive tract and this scenario would surely have killed or seriously compromised the snake. Instead, it seems likely that the dung beetle burrowed down to where the snake was hidden, perhaps during a period when the snake was cool, less active and unable to move away. Indeed, the dor beetles were actively moving across the forest floor and footpaths, even in November (when the snake would be in hibernation). The snake may have had a wound on the flank possibly attracting the beetle which then became trapped between the skin and body wall.

This beetle is prolific throughout the Forest of Dean, when walking through the woodland and heath habitat areas these



Figure 3. Dor beetles on boar dung. Dor beetle are attracted to boar dung and they are frequently seen on the forest floor and pathways across the Forest of Dean.

beetles are regularly observed (Fig. 3). Possibly the growth in feral wild boar numbers may have had a positive impact on the beetle population. My observation raises two questions related to viper conservation in such habitats. The first question relates to the apparently long period that the snake survived in this condition, which is suggested, since the beetle would have taken a while to succumb and then decompose and also blowflies are less active during the winter months, so their eggs were likely laid during warmer periods. So, would the beetle attack have eventually led to a deterioration in the health and condition of the viper, compromising its ability to forage? The second question is whether dor beetle attack is confined to animals with wounds? If not then they may present a more significant hazard than we realise.

Predations of snakes by insects and specifically by Coleoptera is extremely rare in Britain. In August 2021, a dead neonate *V. berus* about 11 cm was photographed protruding from what was believed to be a green tiger beetle *Cicindela campestris* larval burrow; the viper's head and upper body appeared to have been consumed whilst either having been dragged down the hole or attacked whilst the snake investigated the burrow (T. Farrer, personal communication).

ACKNOWLEDGEMENT

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REFERENCE

- Weithmann, S., von Hoermann, C., Schmitt, T., Steiger, S. & Ayasse, M. (2020). The Attraction of the Dung Beetle *Anoplotrupes stercorosus* (Coleoptera: Geotrupidae) to volatiles from vertebrate cadavers. *Insects* 11(8): 476. <https://doi.org/10.3390/insects11080476>.

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