

VIPERA BERUS (adder): **GRAVID OVERWINTERING.** Atkins (2011) reported a gravid smooth snake *Coronella austriaca* from Dorset, southern England, in April 2011. The timing of this observation indicated that the snake had remained gravid over the winter months rather than giving birth at the more normal time of three to five months following mating. Overwintering gravid, and giving birth the following spring, has also been observed in the adder *Vipera berus* in captivity and reported by Street (1979) to occur in the extreme north of this species' range and following unusually cold summers. Nevertheless, it seems sufficiently unusual to merit note of a specific instance of gravid overwintering in the wild.

The current observations were made during ongoing monitoring of adders in the Malvern Hills, Worcestershire, central England. In 2013 the first snake observed on emergence from hibernation (14 February) was a female. This was unusual in several ways. Normally males are first to appear. Further, the female appeared to be gravid and was seen repeatedly, basking in the same spot throughout the month and into March, even on surprisingly cool days when no other snakes were observed. Adders normally mate in April and May and give birth at the end of August/September of the same year. In this case the female presumably mated in the spring of the previous year (2012) during which the poor weather conditions in summer and autumn

delayed clutch development.

At the end of March 2013 the weather changed with heavy snow on the hills and temperatures dropping to -3°C (22 March). On a subsequent visit to the site (7 April), the snow remained and the snake was found dead under a layer of bracken litter. Post mortem examination confirmed that she was gravid, containing ten fully developed young (Fig. 1). One side of the snake was green, indicating decomposition in the area of the young suggesting that one or all of them died within the female causing septicaemia.

This confirms that adders can carry developing embryos over winter in the wild in England and is consistent with Street's observation in that it followed a cool summer. The deaths of the female and offspring in this case may well have been caused by the unusually protracted winter conditions during the following spring (2013).

REFERENCES

- Atkins, W. (2011). *Coronella austriaca* Laurenti (smooth snake): Gravid overwintering. *The Herpetological Bulletin* 118: 35-36.
 Street, D. (1979). *The Reptiles of Northern and Central Europe*. London: B.T. Batsford Ltd.

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Figure 1. Female adder, post mortem, and overwintered clutch.