



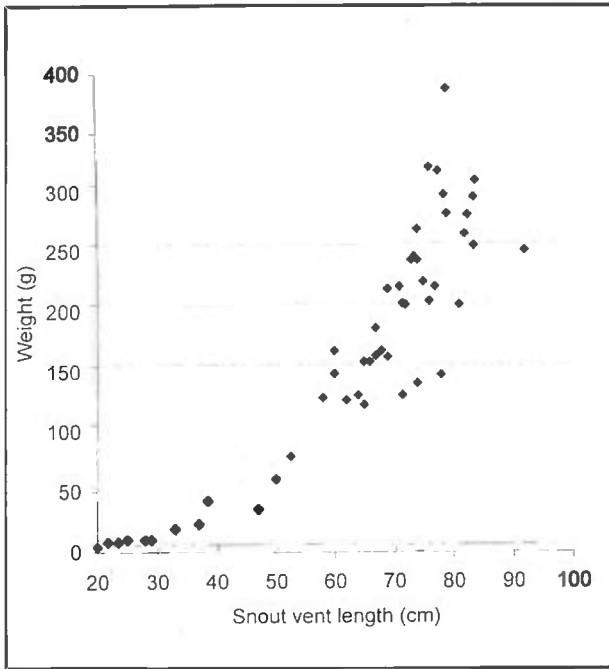
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## NATURAL HISTORY NOTES

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**NATRIX N. HELVETICA (Grass Snake): CLUTCH SIZE AND FEMALE REPRODUCTIVE BEHAVIOUR.** On July 13<sup>th</sup> 2004 during weekly reptile surveying a dead female Grass Snake was found in riverine woodland to the north of the New Forest village of Brockenhurst. The remains were complete, but the front half of the body was decomposed and reduced to skin and bone. The rear half of the body remained intact and it was obvious that the female was gravid. The remains were recovered. The snake was 76.5 cm long in total with an estimated snout-vent length (SVL) of 62 cm. Body weight could not be determined due to partial decomposition; however, records from a similarly sized gravid female at the same site indicate a probable weight of approximately 150 g. Five intact and fully developed eggs were removed from the oviduct. Each was approximately 32 mm in length and 17 mm in diameter. The combined weight of the eggs was 22 g. Two eggs were yellow and discoloured. The other three appeared in good condition, however it was apparent by the

following day that none were viable. Opening of each egg revealed part addled albumen and a disc of blood cells approximately 5mm in diameter, but no trace of embryos. The female was found in the middle of a grassy animal track. The track passes through a woodland glade that attracts many Grass Snakes each year to deposit their eggs. The site is centred on a substantial wind blown beech that has become heavily overgrown by bramble and bracken. Tracks create basking opportunities for the females, which typically mosaic bask, positioning themselves immediately behind the vegetation frontage. On favourable days half a dozen or so females can be encountered in as many metres. Females arrive in June and remain for much of the month. Whilst here they slough their skins and deposit their eggs before dispersing in late June or early to mid July. Repeat captures over the last three years demonstrate that not only do some females habitually use this location for egg deposition, but that they select this site in preference to other woodland glades in the area that



**Figure 1.** Relationship between body weight and SVL for female Grass Snakes.

are apparently equally suitable for egg-laying in terms of their vegetation structure and illumination. The female was amongst the smallest gravid individuals measured at this egg-laying site (mean total length of all females 87cm, range 76–99.5cm,  $n = 20$ , mean SVL 72cm, range 58–82.5cm; mean body weight 218 g, range 148–385 g,  $n = 12$ ) and provided the first direct evidence for reproductive output of grass snakes at this site. The clutch size is similar to that of Swedish (Madsen, 1983) and Italian (Luiselli et al., 1997) Grass Snakes of similar size. Plotting the relationship between SVL and body weight for 50 females recorded in this area suggests that they commence breeding when they attain a SVL of approximately 60cm because the variation in recorded weights of Grass Snakes for a given length increases markedly at SVL's in excess of 55–60cm (Figure 1). Using the growth-age relationships described by Madsen (1983) suggests that this corresponds to an age of approximately four years which also similar to that of Swedish Grass Snakes, but younger than that described for Grass Snakes from montane

populations in Italy (Luiselli et al., 1997). The cause of death could not be determined. Predation appears unlikely because the body was not consumed. Animal trampling is possible as is killing by humans, however even under the poor weather conditions that existed during the early part of July the Grass Snakes at this site remained extremely alert and proved very difficult to catch for recording purposes. The dimensions of the eggs at 32x17mm is slightly larger than the 25x15mm reported for newly deposited Grass Snake eggs in Beebee & Griffiths (2000); however, the membrane of the oviduct remained intact and there was no apparent damage to the surrounding tissues, thus egg binding does not appear to have been a problem. Regardless of the cause, this individual provided a small but important piece of information about the Grass Snake population at this site. Grass Snakes remain the Cinderella of the British snakes, attracting less attention than either the Adder or Smooth

Snake, despite the fact that they are probably the snake that is most familiar to the public. There is much scope for further study of this species, indeed the persistence of the Grass Snake as a common species may ultimately depend upon it.

### REFERENCES

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DAVID BULL

Flat 27, Westridge Court, 30 Westridge Road, Portswood, Southampton, SO17 2HQ, UK.