

Short Note

Post hibernation movements in an aspic viper, *Vipera aspis*

ROGER MEEK

7 rue Georges Clemenceau, Chasnais, France.

RogermEEK85@aol.com

INTRODUCTION

Animals typically use distinctive areas for daily activities, defined as the home range. Knowledge of home or activity ranges provides insight into behaviour, bioenergetics and is key information in conservation efforts. The movements of snakes are often difficult to study, primarily because of their highly secretive behaviour and frequent use of habitat that is difficult to access. Hedgerows are habitat for snakes and other reptiles particularly in fragmented landscapes where they form important movement corridors (Saint Girons, 1996). Hedgerows are also structurally simple, facilitating observations of snake behaviour especially when they move to the edges for basking. Defined as a sentinel predator the aspic viper (*Vipera aspis*) frequently occupies hedgerows both as a home territory and to access woodland patches. It has limited daily movement compared to wide ranging foragers and crosses roads less frequently (Meek, 2009) and hence details of movement whilst living alongside road corridors is of interest. This note gives details of post hibernation movements in a female aspic viper (*Vipera aspis*) in a hedgerow system adjacent to a low traffic volume road.

METHOD

Movement was monitored during a 2-month period using VES (visual encounter survey; McDiarmid et al., 2011). The snake was one of several reptiles found in the close vicinity of a hibernaculum in early spring, that included four additional *V. aspis*, the last of which were seen on April 24. The aspic viper varies to some

degree in both colour and pattern and photographs were used to enable identification. The viper described here had an approximate snout to vent length of 405 mm (later determined from its carcass) and estimated age of 3-5 years (Bonnet et al., 1998). The location was on the edge of the village of Chasnais, Western France (46°27'N; 1°53'W).

RESULTS AND DISCUSSION

The focal animal was first observed basking on 28 March 2013 alongside a dense hedgerow invaded by bramble in an area enclosed mostly by agricultural land (Fig 1). In total 27 visits were made to the site during appropriate weather conditions at varying times of day when the hedgerow and hedgerows to the west (opposite side of the road) and north were searched for snake presence. The viper was sighted on 20 occasions, all within the one hedgerow (Fig.1). The earliest sighting was made at 09:20 and latest at 18:40h (CET). Most observations were of basking but movement within the hedgerow was occasionally seen during afternoon visits. Morning basking was at the east facing side of the hedge but shifted to the west side in the afternoon. However, as spring vegetation increased in height, basking locations tended towards the southern end of the hedgerow where vegetation was less dense. Shaded air temperatures during morning at basking locations (30 cm above the basking location using an electronic thermometer) ranged from 16.2 – 20°C, *mean* = 18.2°C and substrate temperatures from 16.2 – 26.3°C, *mean* = 22.3°C. The final live observation was of

Post hibernation movements in *Vipera aspis*

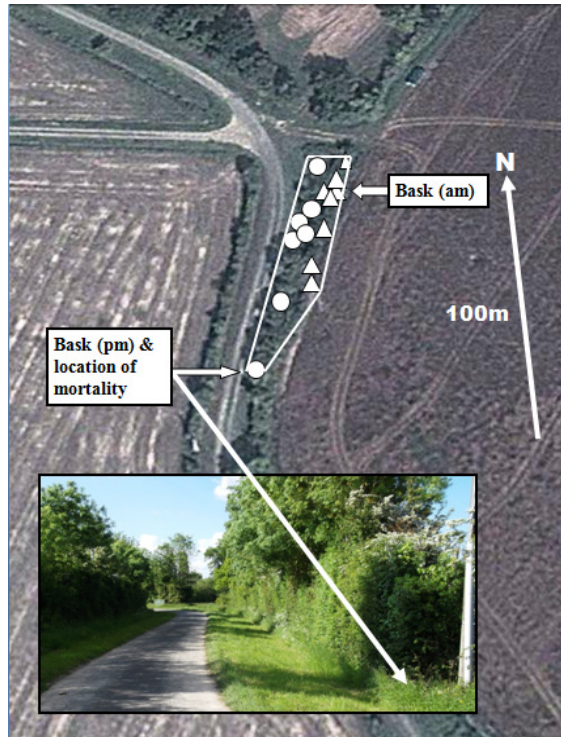


Figure 1. Map of study locality showing locations of female *V. aspis* during am (triangles) and pm (circles) visits. Arrows indicates main clusters of frequent am ($n = 6$) and pm ($n = 6$) basking locations and site of mortality (May). The minor road shown has a maximum of 25 or so vehicles per day.

basking at the north end on the morning of 28 May, but later on the same day (15:20 h) the snake was found deceased at a frequently used afternoon basking spot on the west side (Fig.1). To calculate the area that enclosed all the sightings the data were plotted on a *Google Earth* map then converted into the smallest convex polygon that enclosed all the locations. The results gave an estimated area of 0.094 ha with maximum distances between daily locations 70 – 80 m and minimum of 12 m.

The distances enclosed by the polygon are within home ranges recorded for gestating female *V. aspis* of 0.3 to 0.03 ha (Bonnet & Naulleau, 1996) and daily movements (5 - 30 m) in good agreement with a radio tracked *Vipera ursini* previous to entering a hibernaculum (Ujvari & Korsos, 1998). The cause of the mortality is not known but two other *V. aspis* (sex unknown) were found dead at frequently used basking spots at a woodland edge only a few weeks previously. The study locality is close to the northern limit of the range of *V. aspis* and the spring of 2013 was unusually cool and wet with frequent north to northwest winds.



Figure 2. Female *V. aspis* basking in a relatively exposed locality approximately 0.5 m from the cover of thorny bramble.

Vipers were repeatedly seen basking in relatively open areas at distances from dense cover (Fig. 2). Bonnet and Naulleau (1996) recorded increased basking and risk of mortality in gravid *V. aspis*, especially from avian predators (Naulleau et al., 1997). The carcass was partly consumed when found and hence it is not known if the viper was in a reproductive condition, but if so cooler weather and increased basking intensity probably increased risk of predation.

ACKNOWLEDGEMENTS

I thank Roger Avery and Todd Lewis for comments on an earlier version of the manuscript.

REFERENCES

- Bonnet, X., & Naulleau, G. (1996). Catchability in snakes: consequences on breeding frequency estimates. *Canadian Journal of Zoology* **74**: 233–239.
- Bonnet, X., Naulleau, G., Lourdais, O & Vacher, M. (1998). Growth in the asp viper (*Vipera aspis*): insights from a long term field study. In, Miaud, C & Guyant, R (Eds.), *Current Studies in Herpetology*. SEH, Le Bourget du Lac pp 63 – 60.
- McDiarmid, R.W., Mercedes S., Guyer, C., Whitfield Gibbons, J. & Chernoff, N. (2011). *Reptile Biodiversity: Standard Methods for Inventory and Monitoring*. University of California Press.
- Meek, R. (2009). Patterns of reptile road-kills in the Vendee region of western France. *The Herpetological Journal* **19**: 135 - 142.
- Naulleau, G., Verheyden, C. & Bonnet, X. (1997). Predation specialisees sur la Vipere aspic *Vipera aspis* par un couple de buses variables *Buteo buteo*. *Alauda* **65**: 155–160.
- Saint Girons, H. (1996). Structure et evolution d'une petite population de *Vipera aspis* (L) dans une region de bocage de l'ouest de la France. *Terre et La Vie-Revue DE colologie Appliquee* **51**: 223 – 241.
- Ujvari, B & Korsos, Z. (1998). First observation in situ on the hibernation of the Hungarian meadow viper (*Vipera ursinii rakosiensis*). In, Miaud, C & Guyant, R (Eds.) *Current Studies in Herpetology*. SEH, Le Bourget du Lac pp 435 - 438.