

## THE PUZZLING OCCURRENCE OF TWO ELUSIVE CENTIPEDES *SCHENDYLA DENTATA* (BROLEMANN & RIBAUT, 1911) AND *HENIA BREVIS* SILVESTRI, 1896 IN OXFORDSHIRE

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### INTRODUCTION

*Schendyla dentata* and *Henia brevis* are two small soil dwelling centipedes, reaching 12mm and 19mm in length respectively. Both appear to be rare in Britain, but have a reputation of being elusive animals with an affinity for synanthropic sites, such as gardens, churchyards and waste ground. Despite their small size both are distinctive animals under a microscope making for relatively straightforward identification (Barber, 2009).

First collected in Britain in 1968 by Tony Barber (Barber & Eason, 1970), *Schendyla dentata* has been sporadically recorded across southern England from Cornwall to Norfolk (Barber & Keay, 1988; Gregory, 1995; Gregory & Campbell, 1996; Barber & Jones, 1999; Barber, 2000). There are also isolated occurrences from Edinburgh, Scotland (Barber & Jones, *loc. cit.*) and Mid Cork, Ireland (Cawley, 2001). *Henia brevis* has been more frequently recorded in Britain, but restricted to southern England (Barber and Keay, *loc. cit.*; Keay, 1993) and several sites in south-western Ireland (Jones, 1992; Cawley, *loc. cit.*).

Between 1991 and 1995 the author and John Campbell (Oxfordshire BRC, now TVERC) undertook a systematic tetrad survey of the myriapods occurring in Oxfordshire. In addition to semi-natural habitats this survey included about 150 churchyards and several domestic gardens. Subsequent records are also considered.

### OBSERVATIONS

The results of the survey indicated that both species were widespread across the county, typically being recorded from old well-established churchyards, occasionally in gardens (Gregory & Campbell, 1996). To date *S. dentata* has been recorded from 12 localities and *H. brevis* from 15. Details of these records are presented in Table 1. The distribution of the two species in Oxfordshire, is given in Figure 2.

Typically singletons of either species were found by carefully searching the underside of large stones (such broken gravestones abandoned in neglected corners) or by sorting the superficial soil layer beneath. As with other geophilomorphs, they often give away their presence by wriggling when disturbed. The preponderance of churchyards in the survey results simply reflects the ease of access to these sites, which are open to the public, unlike private domestic gardens. However, the strong association of both species with synanthropic habitats is very clear.

Barber (1987) reports that most *S. dentata* records are made during the winter months (Oct to April) and this fits precisely with the Oxfordshire data (20<sup>th</sup> Oct – 19<sup>th</sup> May, Table 1), which is plotted in Figure 1. In cold frosty weather this normally elusive species was sometimes encountered in superficial microsites, such as beneath a piece of brick resting on the soil surface at Littlemore Churchyard or, in Essex, beneath a seed tray on Christmas day in a domestic garden (Gregory, 1995). In contrast, records for *H. brevis* show a peak in late spring (April to June), with no records made during the depths of winter (Figure 1).

However, the most striking result is that the two species appear to have mutually exclusive distributions across the county (Figure 2), first noted by Gregory and Campbell (1996). *S. dentata* is apparently absent from the south and west of the county where the equally scarce *H. brevis* is widespread. The reason is not clear and would repay further study. Unfortunately, it is not possible to make a comparison with other parts of the British Isles, as there are very few records of the two species from other counties.

**TABLE 1:** Records for *Schendyla dentata* and *Henia brevis* in the administrative county of Oxfordshire (vc23 & part vc22). Steve Gregory & John Campbell *leg.*, Steve Gregory *det.*

Species	Locality	Date	OS Grid Reference	Habitat
<i>Schendyla dentata</i>	Cropredy Church	05 Feb 1992	SP469467	Churchyard
	Church Enstone Church	29 Apr 1992	SP379251	Churchyard
	Tadmarton Church	19 May 1992	SP392379	Churchyard
	Hornton Church	05 Feb 1993	SP393450	Churchyard
	Bucknell Church	12 Mar 1993	SP561257	Churchyard
	Littlemore Church	20 Oct 1993	SP538028	Churchyard
	Great Milton Church	22 Oct 1993	SP628025	Churchyard
	Beckley Church	27 Oct 1993	SP562112	Churchyard
	Charlbury Church	17 Nov 1993	SP354195	Churchyard
	Kiddington Park	02 Dec 1993	SP412229	Ornamental parkland
	Bicester (St. Egburges) Church	02 Nov 1995	SP583224	Churchyard
	Begbroke Church	02 Dec 2005	SP468139	Churchyard
<i>Henia brevis</i>	Linkside Lake	03 Jul 1991	SP498104	Domestic garden
	North Moreton Church	13 Mar 1992	SU564896	Churchyard
	Shellingford Fish Pond Copse	18 Mar 1992	SU319936	Secondary woodland
	Aston Rowant Church	21 Apr 1992	SU727990	Churchyard
	Shiplake Church	15 Jun 1992 17 Feb 1993	SU767783	Churchyard
	Kingham Church	17 Jun 1992	SP258238	Churchyard
	Ashbury Church	16 Feb 1993	SU265849	Churchyard
	Broadwell Church	24 Mar 1993	SP253042	Churchyard
	Sparsholt Church	24 Sep 1993	SU346875	Churchyard
	Salford Church	14 Oct 1993	SP286281	Churchyard
	Fyfield Church	14 Mar 1994	SU423989	Churchyard
	Brightwell Baldwin Church	22 Mar 1994	SU653950	Churchyard
	Great Coxwell Church	23 Mar 1994	SU270934	Churchyard
	Grey Eaves , Burford	10 Apr 1994	SP256113	Domestic garden
	Hill Farm, Little Wittenham	21 Apr 1994	SU563925	Domestic garden

## DISCUSSION

*H. brevis* is a predominantly Mediterranean species at the edge of its range in Britain (Barber & Keay, 1988). While this explains the southern distribution in Oxon, it does not explain the lack of records of *S. dentata* from this area, since this latter species is also well known in southern England. Perhaps there is some competition between the two species. Certainly, *H. brevis* is the larger of the two and perhaps it out-competes *S. dentata* in the southern parts of the county. Unfortunately, due to the paucity of records little is known of the biology of these two species. However, they seem to be mature (or at least, easier to find) at differing times of the year, suggesting that they have different life cycles and/or exhibit differing behavioural patterns. It may be that the Mediterranean *H. brevis* retreats deep into the soil during cold weather, whereas *S. dentata*, which is known from the high Pyrenees, is able to tolerate cold conditions.

In keeping with other soil dwelling fauna, it is likely that soil conditions are the most important factor in determining the distribution of the two species. The distribution map (Fig. 2) also indicates the underlying geology across Oxfordshire. This consists of three limestone ridges (oolites, corallian and chalk) running

roughly south-west to north-east across the county, separated by two low lying clay vales (Powell, 2005). This to appears to conflict with the apparent north-east and south-west distributions of these two centipedes.

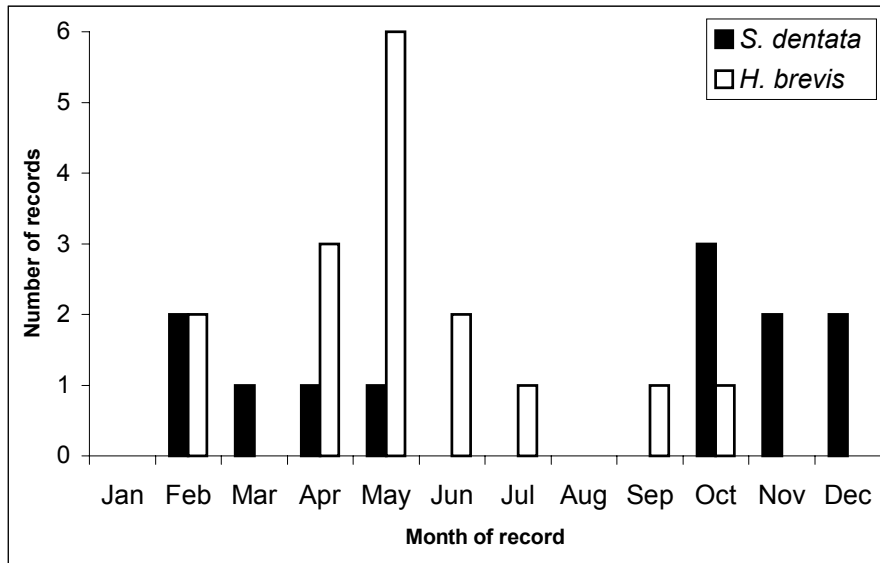


FIGURE 1: Number of Oxfordshire records of *S. dentata* and *H. brevis* made per month. Details of species records are given in Table 1.

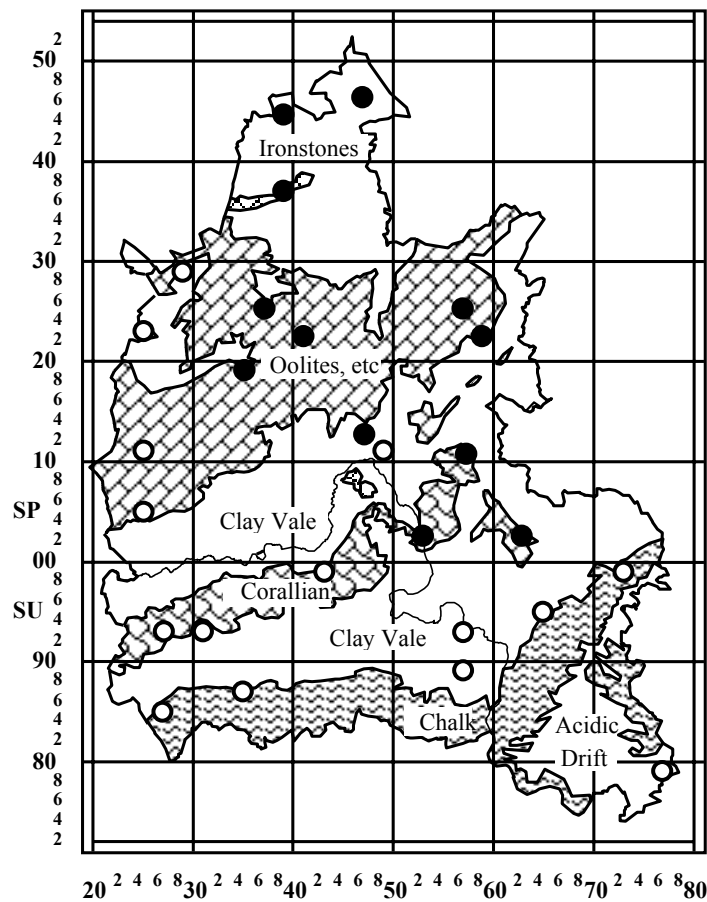


FIGURE 2: Distribution of *Schendyla dentata* (●) and *Henia brevis* (○) in the administrative county of Oxfordshire (vc 23 and part 22) in relation to the underlying geology. Species records are plotted at tetrad (2km) resolution.

Observations in Oxfordshire suggest that *S. dentata* favours sandy or friable calcareous soils (Gregory & Campbell, 1996). Barber & Eason (1970) also report that friable substrates (mixed loam with grit, stones, broken glass and chalk particles) may be important for *S. dentata*. Many of the Oxfordshire localities for *S. dentata* are on the corallian, oolitic or ironstone limestone beds in the northern parts of the county, which locally contain sandy partings or weather to produce light soils. In contrast many of the *H. brevis* records in the south are from lower chalk or the band of upper greensand that lies at the base of the chalk escarpment (i.e. the southern edge of the adjacent clay vale). These typically weather to produce heavier silt-clay soils. It is apparent that neither species shows an affinity for the heavy, poorly drained, soils of the clay vales.

To conclude, there has been sufficient field-work in Oxfordshire to suggest that *S. dentata* and *H. brevis* are likely to be very under-recorded elsewhere for the following reasons:

- Both are very elusive and easily overlooked because of their small size.
- Few recorders routinely survey churchyards (instead favouring semi-natural habitats).
- Records of *S. dentata* are predominantly made in mid-winter when many recorders stay indoors.

The mutually exclusive distribution between these two centipedes in Oxfordshire appears to be real:

- *S. dentata* seems to favour lighter, more sandy, soils in the northern parts of the county.
- *H. brevis* is tolerant of the heavier silt-clays of the south.
- Both species avoid the heavy soils of the clay vales.

If searched for both species will probably prove widespread in urban areas, within their respective ranges across Britain, if not Ireland too, wherever soil conditions are suitable.

#### ACKNOWLEDGEMENTS

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