MYRIAPODS AS PREY OF THE CAVE SPIDER *META MENARDI*.

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Cloudsley-Thompson (1949) reported that spiders did not appear likely to prey upon myriapods as they were rejected or treated with great caution, an exception being the tropical cave spider *Troglohphantys cavernicola* which included myriapods as part of its diet. This is also true of spiders that build orb webs. These webs are designed to catch flying or jumping prey and myriapods are animals that walk and are therefore unlikely to fall into them. However the cave spider *Meta menardi* is another exception as it has ceased to use its web as an aerial filter and now feeds on invertebrates that crawl over the surface of the underground chambers that it inhabits. Previous work had shown that *M. menardi* consumed myriapods as part of its diet. Both Yoshida & Shinkai, (1993) working in Japan and Ekert & Moritz, (1992) working in Germany recovered diplopod remains from *M. menardi* webs. Initial observations by the author have confirmed that myriapods were also among the prey selected by *M. menardi* in the UK (Smithers 1996). This work forms part of a wider study of the prey of spiders living in the entrance and twilight zones of underground chambers.

In order to explore the relationship between *M. menardi* and its myriapod prey a population of *M. menardi* in an abandoned mine adit on the edge of Dartmoor was observed over a period of two years. The adit was visited every week and any spider found feeding was robbed of its meal. Prey items were taken back to the laboratory for identification and were taken to the lowest taxa possible. This was often limited by the advanced state of digestion exhibited by the prey items. The sex, life stage and position of the spider within the adit were also noted.

Myriapods formed 30% of the prey recovered. These were placed into four taxa, (see Table 1). With members of the family Julidae being the most abundant.

Table 1

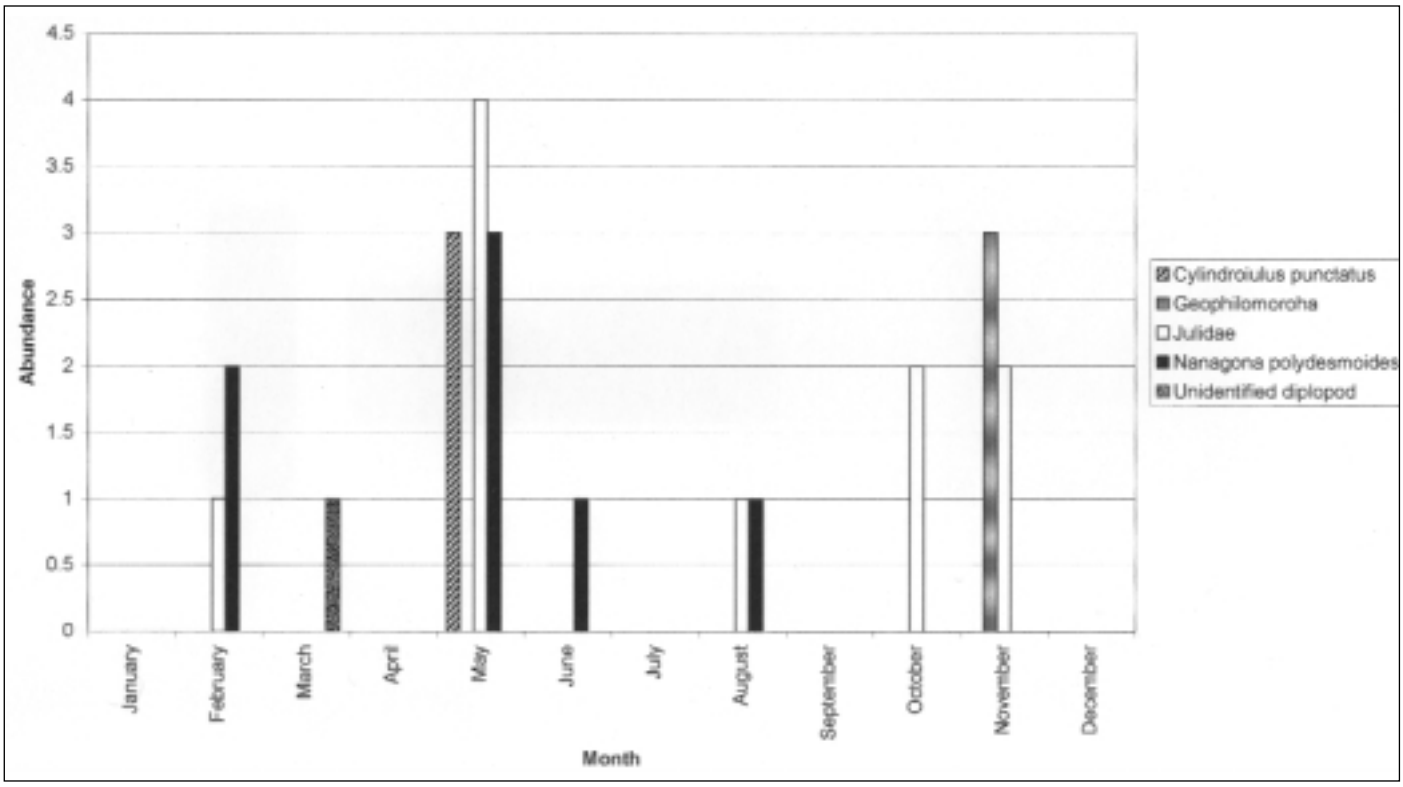
Numbers of myriapod prey items caught by *M menardi*

Geophilomoropha	3
Cylindroiulus punctatus	3
Julidae	10
Nanagona polydesmoides	7
Unidentified diplopod	1

Seasonal variation in myriopod prey displayed a dramatic peak in the spring which was composed mainly of Julids and to a lesser extent *Nanagona*. The latter being recorded over the spring and summer. The geophilomorphs occurred only in the autumn (Figure 1).

Figure 1

Numbers of myriapod prey items recovered at different times of the year



The julids were caught throughout the adit and displayed a peak in the spring, some in the autumn and winter but none in the summer. Geoffory (1981) has shown that Julids display a seasonal vertical migration in the soil in which they move down the soil profile in autumn and winter then return to the surface in the summer. Seasonal variation in the abundance of julid prey fits well with Geoffory's model. This vertical migration is likely to take them in to rock fissures that can lead them into subterranean chambers.

Nanagona polydesmoides is a well known cavernicole (Chapman 1993) so its recovery from spiders that were predominately farthest from the entrance is not surprising.

In total 10 females, 1 male and 13 immature spiders were recorded feeding on myriapods. In the wider study only 4 males were recorded feeding at all, which suggests that mature males may devote their energies to other activities such as reproduction.

The geophilomorphs were only recovered in the winter months, which indicates that at this time of year they may migrate down the soil profile to avoid adverse conditions at the surface. Like the julids these seasonal migrations are likely to lead them into subterranean chambers.

It appears that myriopods are a significant component of *M. menardi*'s diet which seems to come exclusively from the wall fauna of underground chambers (Smithers 1996). The myriopod prey are either seasonal migrants or permanent members of the subterranean wall community. The diet of *M. menardi* has evolved to take advantage of these seasonal migrations exploiting their accidental entrance into subterranean chambers.

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