

**Biodiversity Duty:
Arachnida (spiders and harvestmen) Survey of
Big Pit, Blaenafon.**



Steatoda phalerata (female; body length approx. 4.5mm) is an uncommon spider found in dry grassland and heathland. The spider is an active ground-hunter and feeds on ants. Several were found during the Big Pit survey.

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Introduction

From 1 October 2006, all public authorities in England and Wales have a duty to have regard to the conservation of biodiversity in exercising their functions (Section 40 of the Natural Environment and Rural Communities Act 2006). As part of the Museum's response to this legislation, biodiversity audits are being carried out at all of its sites. In this report, a list of species of arachnid (spiders and harvestmen) is presented from a survey of the grounds of the Big Pit: National Coal Museum site during June and July 2009. However it must be remembered that most species of spider are seasonal and that they also have a wide range of lifestyles. Thus this brief survey can only provide an indication of the species present on the site.

Methods

The Big Pit site survey was carried out over two visits. The first was on 18/06/2009, with a follow up visit on the 9/07/2009. Areas for sample collecting were identified using the Phase 1 habitat survey (Rich 2009). Samples were collected using vacuum sampling (Stewart and Wright, 1995). Each sample was visually sorted and all arachnids removed and preserved for later identification. In addition two groups of pitfall traps were placed on the first visit and left in place for 3 weeks. Figure 1 shows the areas of main collecting activity and the approximate positions of the pitfall traps. Species were identified using the keys of Roberts (1985 and 1987) for the spiders and Hillyard (2005) for the harvestmen.

Results

This brief survey identified 69 species of arachnid on the site. Table 1 lists the species found with brief notes as to their status and their typical habitats. In total 21 of the species found could be considered local or uncommon with 3 listed as Vulnerable in a recent draft of a conservation review by Dawson *et al* (2008). Interesting records include;

- *Drassyllus pusillus*: this local spider is often found under stones and has a preference for open, dryish areas such as those found on the Coity tips.
- *Hypselistes jacksoni*: an uncommon linyphid spider found in wet or marshy areas. Listed as Vulnerable in a recent draft of a conservation review by Dawson *et al* (2008).
- *Silometopus elegans*: another uncommon linyphid spider found in grass, moss and undergrowth, usually in marshy places. Also found under stones in mountainous areas.
- *Scotina gracilipes*: an uncommon ground hunting spider found in dry and exposed heathland habitats. Listed as Vulnerable in a recent draft of a conservation review by Dawson *et al* (2008).
- *Steatoda phalerata*: Another species that favours dry grassland and heathland (see front-piece photo). Several individuals were found during the survey suggesting a good population is living on the Big Pit site.
- *Sabacon viscayanum*: Listed as Notable B in the Red Data Books (Bratton 1991) this curious harvestman is currently only found in South and West Wales.

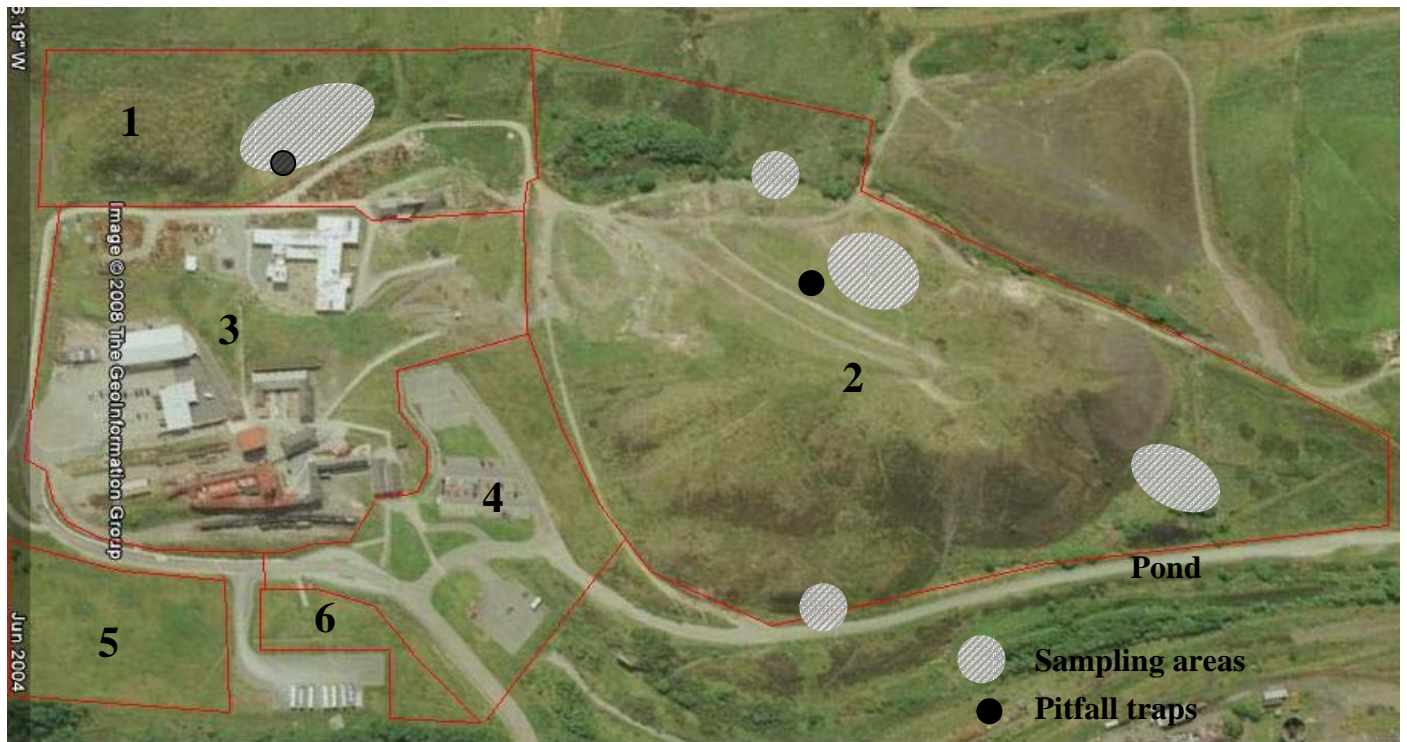


Figure 1. The Big Pit site showing the main sampling points and the main habitat areas divided into management areas by Rich and Walker (2008). 1: Coity old tips consisting of heath and semi natural grassland. 2: Coity tips and pond. An area of grassland and heath with patches of scrubby woodland and a permanent pond. 3: Main site with some amenity grassland. 4: Carpark with verges of mown grass. 5: Pony paddock consisting of improved grassland. 6: Coach park with grassland on landscaped tip.

Table 1: List of species found. (VU – Vulnerable after Dawson *et al.* 2008)

Class/Family	Species	Notes
Araneae		
Araneidae	<i>Araneus diadematus</i>	Common
Clubionidae	<i>Clubiona diversa</i>	Locally common
	<i>Clubiona reclusa</i>	Common
Gnaphosidae	<i>Drassodes cupreus</i>	Fairly common. Scattered stones in heaths and old grasslands.
	<i>Drassyllus pusillus</i>	Uncommon. Preference for open dry areas
	<i>Haplodrassus signifer</i>	Local. Similar in habitat to <i>D. cupreus</i>
	<i>Micaria pulicaria</i>	Common. Open areas of short vegetation with stones
Hahniidae	<i>Antistea elegans</i>	Common. Wetlands
	<i>Hahnina nava</i>	Local. Low vegetation and amongst stones.
Linyphiidae	<i>Agyneta subtilis</i>	Widespread but scattered distribution in variety of habitats. VU
	<i>Agyneta decora</i>	Widespread but scattered distribution in variety of habitats
	<i>Bathyphantes parvulus</i>	Widespread in grassland
	<i>Bathyphantes gracilis</i>	Common in grassland and undergrowth
	<i>Ceratinella brevipes</i>	Common. Variety of habitats.
	<i>Cnephalocotes obscurus</i>	Frequently local. Variety of habitats including old quarries / gravel pits
	<i>Diplocephalus permixtus</i>	Common. Marshy habitats.
	<i>Dismodicus bifrons</i>	Common in grassland fens and scrub.

	<i>Erigone promiscua</i>	Local. Found in the ground layer
	<i>Gnathonarium dentatum</i>	Common in wet habitats
	<i>Gonatum rubens</i>	Common. Variety of open habitats
	<i>Gongyliidiellum vivum</i>	Common. Grassland sites
	<i>Hypselistes jacksoni</i>	Uncommon. Wet or Marshy areas. VU
	<i>Kaestneria pullata</i>	Common. Wetland habitats.
	<i>Latithorax faustus</i>	Local. Open upland habitats.
	<i>Lepthyphantes ericaeus</i>	Common. Ground level in heather and grasses
	<i>Lepthyphantes tenuis</i>	Common. Variety of habitats
	<i>Lepthyphantes zimmermanni</i>	Common. Variety of habitats
	<i>Lepthyphantes mengei</i>	Common. Variety of habitats
	<i>Lepthyphantes alacris</i>	Common. Primarily woodlands
	<i>Lepthyphantes flavipes</i>	Common. Variety of habitats
	<i>Maso sundevalli</i>	Common. Variety of habitats
	<i>Meioneta saxatilis</i>	Common. Variety of habitats
	<i>Metopobactus prominulus</i>	Local. Variety of habitats
	<i>Micrargus herbigradus</i>	Common. Variety of habitats
	<i>Microlinyphia pusilla</i>	Common. Wet habitats
	<i>Oedothorax gibbosus</i>	Common. Wet habitats
	<i>Oedothorax fuscus</i>	Common. Variety of grassland habitats.
	<i>Peponocranium ludicrum</i>	Local. Unimproved grassland
	<i>Pocadicnemis pumila</i>	Common. Variety of habitats
	<i>Pocadicnemis juncea</i>	Common in south. Variety open habitats
	<i>Silometopus elegans</i>	Uncommon. Mainly on high ground
	<i>Tallusia experta</i>	Common in damp marshy habitats
	<i>Trichopterna thorelli</i>	Very local. Moss and grass in damp areas
	<i>Walckenaeria vigilax</i>	Local and infrequent. Wet areas and grassland
	<i>Walckenaeria antica</i>	Common. Open habitats
	<i>Oedothorax retusus</i>	Common. Grassland
Liocranidae	<i>Scotina gracilipes</i>	Uncommon and local. Dry and exposed heathland. VU
Lycosidae	<i>Pardosa pullata</i>	Common. Open habitats
	<i>Pardosa amentata</i>	Common. Damp open habitats
	<i>Pardosa nigriceps</i>	Common. Variety of habitats
	<i>Pardosa agricola</i>	Local. Bare substrate with little vegetation
	<i>Pardosa monticola</i>	Local. Open short vegetation
	<i>Pirata piraticus</i>	Local. Wetland habitats
Mimetidae	<i>Ero cambridgei</i>	Common. Variety of habitats
Salticidae	<i>Euophrys frontalis</i>	Common. Grasslands and heaths
	<i>Heliophanus flavipes</i>	Local. Field and shrub layers
Tetragnathidae	<i>Metellina mengei</i>	Common. Variety of habitats
	<i>Pachygnatha degeeri</i>	Very Common. Variety of habitats
Theridiidae	<i>Enoplognatha ovata</i>	Extremely abundant
	<i>Steatoda phalerata</i>	Uncommon. Dry grass and heathland
	<i>Theridion sisyphium</i>	Common. Typically on gorse and heather
	<i>Pholcomma gibbum</i>	Common. Moss and detritus
Thomisidae	<i>Xysticus erraticus</i>	Local. Grass and heathlands, as well as disturbed sites.
Opiliones		
Nemastomatidae	<i>Nemastoma bimaculatum</i>	Very common in upland sites
Phalangiiidae	<i>Mitopus morio</i>	Common. Variety of habitats
	<i>Oligolophus tridens</i>	Common. Variety of habitats
	<i>Platybunus triangularis</i>	Common. Groundlayer of woodlands
	<i>Megabunus diadema</i>	Common. Variety of habitats
Sabaconidae	<i>Sabacon viscayanum</i>	Currently only found in South and West Wales. Variety of habitats. Notable B in the Red Data Book (Bratton 1991)

Discussion

Collecting focused on the main habitat areas on the site consisting of the heath and semi-natural grassland of the Coity old tip on the west of the site, and the larger, more recent, Coity tip on the north of the site. The latter area also has a permanent pond with an associated small wetland area. The area is also an exposed upland site and sits on the 400 m contour.

Considering that collecting activity was limited to two site visits a good number of spiders were recorded, with a significant number being local or uncommon in distribution. The species found also represented the mix of habitats on the site, with species typical of grasslands and heathlands; other species that prefer drier and more open habitats; through to species found in damp and marshy areas. The proposed management proposals in Rich and Walker (2008) aim to both preserve these habitats on the site whilst retaining its industrial identity. These measures would conserve and enhance the existing spider diversity on the site through maintaining the range of habitats. As many of the species found on the site were also wetland associated species additional consideration could be given to developing the wetland area around the pond. Currently the pond supports a poor invertebrate fauna which may be due to the chemistry of the water draining off the tips although this would require proper investigation. The stream feeding the pond runs straight down the slope for approximately 100m causing a steep cut erosion channel. Slowing the water in this section of stream would reduce erosion and could be used to enhance both overall water quality and the wetland habitat.

In summary the results of the survey suggest the Big Pits hosts a good diversity of spider species, and as spiders are a carnivorous species this suggests that the overall invertebrate diversity is also potentially good.

References

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