

A baseline survey of peatland invertebrates on the Hafod Elwy – Cors Goch Peatland Restoration Site, September to October 2024

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Hafod Elwy, Area B, September 2024

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Crynodeb gweithredol

Roedd yr arolwg sylfaen hwn o infertebratau yn canolbwytio ar gorynod cop yn Hafod Elwy. Fe'i cynhaliwyd rhwng 5 Medi a 24 Hydref 2024 gan ddefnyddio samplu ymsugnol a phydewau maglu. Astudwyd pedair ardal o Hafod Elwy, pob un ar wahanol gamau o adfer cynefinoedd (mawndir wedi'i ailwlychu o hen blanhigfa gonifferaidd). Mae Ardal A o fewn Gwarchodfa Natur Cenedlaethol (GNC) Hafod Elwy sydd yn ran o SoDDGA Mynydd Hiraethog. Mae ardaloedd B i D o fewn Coedwig yr Alwen.

Trafodir canlyniadau mewn perthynas â rhywogaethau sy'n brin yn genedlaethol (DU) a rhywogaethau sy'n gysylltiedig â mawnogydd. Defnyddiwyd PANTHEON i ddadansoddi ac adnabod rhywogaethau sy'n gysylltiedig â chorsydd mawn a mawn asid a hesg. Dangosodd yr arolwg rhagarweiniol hwn mai gorgors heb ei haddasu oedd â'r nifer uchaf o rywogaethau pry cop, ond bod yr ardal a oedd yn blanhigfa gonifferaidd gynt, sydd wedi'i hadfer a'i hailwlychu bellach yn cynnal ffawna sy'n gysylltiedig â chors mawn, gan gynnwys rhywogaethau sy'n brin yn genedlaethol. Rhan o'r gorgors heb ei hadfer ac wedi'i draenio gyda chonifferau wedi'u hunan hadu yn dal i dyfu yno oedd y cynefin tlotaf o ran corynod mawnog arbenigol a chorynod sy'n brin yn genedlaethol.

Cofnodwyd 40 rhywogaeth o gorynod, dwy rywogaeth o fedelwyr, dwy rywogaeth o filtroedaiad ac un rhywogaeth o ffug-scorpionau yn ystod yr arolwg. Darganfuwyd pum rhywogaeth o gorynod sy'n brin yn genedlaethol: *Gongylidiellum latebricola*, *Hypselistes jacksoni*, *Notioscopus sarcinatus*, *Oryphantes angulatus*, *Scotina gracilipes*.

Executive summary

This baseline invertebrate survey focused on spiders at Hafod Elwy. It was conducted between 5th September and 24th October 2024 using vacuum sampling and pitfall traps. The survey studied four areas of Hafod Elwy, each at different stages of habitat restoration (rewetted peatland from former conifer plantation). Area A lies within Hafod Elwy Moor NNR which is part of Mynydd Hiraethog SSSI. Areas B to D lie within Alwen Plantation.

Results are discussed in relation to Nationally Scarce and Peat Bog associated species. PANTHEON was used to analyse and identify species associated with Peat Bogs and Acid & Sedge Peats. This preliminary survey indicated that unmodified blanket bog held the highest number of spider species, but that restored, rewetted, former conifer plantation now supports a Peat Bog associated fauna, including Nationally Scarce species. An unrestored, drained area of Blanket Bog with self-seeded conifers was ranked the poorest habitat in terms of Peat Bog specialist and Nationally Scarce spiders.

40 species of spider, 2 harvestmen, 2 millipedes and 1 species of pseudoscorpion were recorded during the survey. Five Nationally Scarce spiders were found: *Gongylidiellum latebricola*, *Hypselistes jacksoni*, *Notioscopus sarcinatus*, *Oryphantes angulatus*, *Scotina gracilipes*.

1. Introduction

The Hafod Elwy - Cors Goch survey site sits adjacent to Hafod Elwy Moor NNR which is part of Mynydd Hiraethog SSSI, to the immediate west of Llyn Brenig. This area of upland (420m altitude) peatland covers 49ha and has peat depths of up to 5.8m. Most of the site was previously afforested (harvested pre-2000) and the land had been ditched to create drier conditions more suitable for conifer plantation. The site is divided into four management Areas (A–D), with each area at a different stage in the rewetting restoration process (Table 1). Peat dams, contour bunds and ground-smoothing are being employed to rewet the site.

Area A, which is within the NNR and SSSI, is historically the least modified part of the site, and appears to have largely avoided afforestation in the past. It was also the first Area to undergo restoration work (Jan–Mar 2023). Areas B and C represent the most modified parts, having both been completely drained and afforested, with restoration work undertaken in October to November 2023 and October 2024 respectively. Area D had been ditched and drained, but not deliberately afforested. It now supports self-seeded conifers and deciduous trees, but has not received any restoration work. Areas B to D lie within Alwen Plantation.

Table 1. Hafod Elwy Sample Areas and their history.

Area	Grid reference	Habitat	Restoration work
A	SH95225609	Blanket bog (not previously forested)	January to March 2023
B	SH95435630	Previously afforested (pre-2000), drained blanket bog	October to November 2023
C	SH95345590	Previously afforested (pre-2000), drained blanket bog	October 2024 onwards
D	SH95415574	Drained blanket bog with self-seeded conifers	None

There are few previous invertebrate records for the site, which was not included in the Nature Conservancy Council's 1980s Welsh Peatland Invertebrate Survey (WPIS) (Holmes *et al.*, 1995), and the NRW Welsh Invertebrate Database (WID) only holds records of ten widespread butterfly species dating from summer 1976.

The aim of the survey was to obtain a baseline assessment of the current invertebrate assemblages in the four areas A to D. Spiders were used to assess the assemblage because they are more easily recorded in late autumn than other, more seasonal, invertebrate groups. Many spider species are peatland specialists and can thus provide a useful insight into the condition of a peatland site (Scott *et al.*, 2006; Webb *et al.*, 2018).

2. Methods

This survey at Hafod Elwy was conducted between 5th September and 24th October 2024. On 5th September, two pitfall traps were deployed at each of four sample points (8 traps in total), and a 2-minute vacuum sample of spiders (Gallon, 2018a&b, 2022) was taken from the surrounding habitat (Figures 1 to 5). Pitfalls were covered with metal gauze to exclude

small mammals and herptiles, domed rain cover and metal cage to discourage interference by large mammals (Figure 6). Food-grade, 50% Propylene Glycol with a drop detergent was used as a trapping solution. The pitfall traps were emptied twice during the survey as indicated in Table 2, with the first trapping period being approximately three weeks and the second about four weeks long.

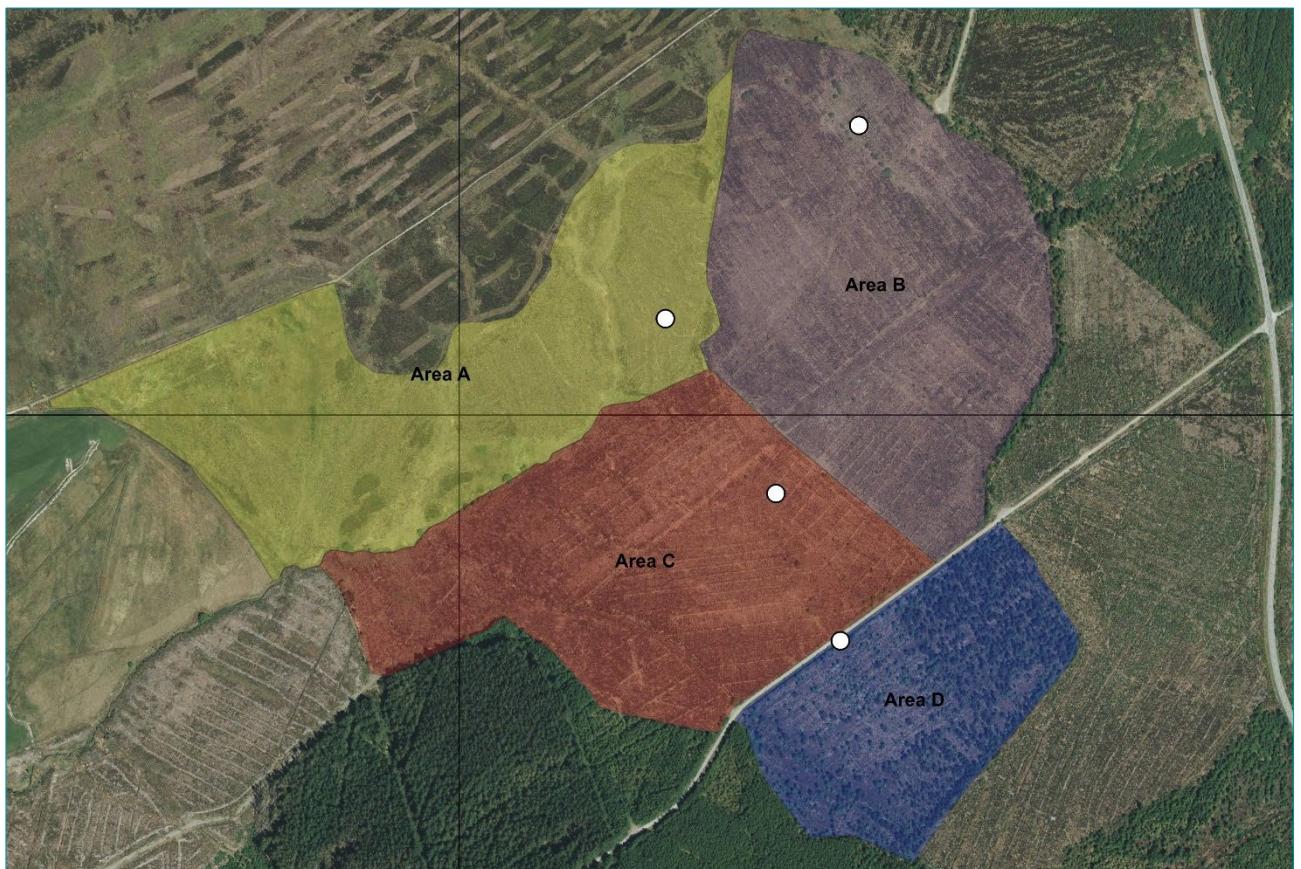


Figure 1. Hafod Elwy Areas with white circles indicating pitfall/vacuum sampling points.

Table 2. Trapping periods within the Hafod Elwy Sample Areas.

Area	Grid reference	First trapping period	Second trapping period
A	SH95225609	5–26 September 2024	26 September – 24 October 2024
B	SH95435630	5–26 September 2024	26 September – 24 October 2024
C	SH95345590	5–25 September 2024	25 September – 24 October 2024
D	SH95415574	5–25 September 2024	25 September – 24 October 2024



Figure 2. Area A, sampling point and pitfall site at Hafod Elwy (SH95225609).



Figure 3. Area B, sampling point and pitfall site at Hafod Elwy (SH95435630).



Figure 4. Area C, sampling point and pitfall site at Hafod Elwy (SH95345590).



Figure 5. Area D, sampling point and pitfall site at Hafod Elwy (SH95415574).



Figure 6. Pitfall trap *in situ* at Hafod Elwy.

The PANTHEON analytical tool (Webb *et al.*, 2018) was used to analyse the resulting Area spider lists to identify species associated with Peat Bogs and Acid & Sedge Peats.

3. Results

In total 40 species of spiders (Table 3), 2 harvestmen, 2 millipedes and 1 species of pseudoscorpion were recorded during the survey (see Appendix 1). Five Nationally Scarce spiders were found: *Gongylidiellum latebricola*, *Hypselistes jacksoni*, *Notioscopus sarginatus*, *Oryphantes angulatus*, *Scotina gracilipes* (Harvey *et al.*, 2017).

Area A

24 different spider species were recorded from Area A. Of these, 4 species were classified by PANTHEON as being associated with “acid & sedge peats” habitat: *Gongylidiellum latebricola*, *Hypselistes jacksoni*, *Notioscopus sarginatus*, *Piratula latitans*. The spider sample returned a SQI score of 325 for the “acid & sedge peats” habitat.

PANTHEON identified 5 “Peat Bog” and/or “Acid Mire” spiders from the Habitat Score: *Hypselistes jacksoni*, *Notioscopus sarginatus*, *Pelecopsis mengei*, *Piratula latitans*, *Piratula uliginosa*.

Table 3. Total spider species recorded at Hafod Elwy Areas A–D, highlighting peat bog/acid mire species. Black spots show where species was recorded. NS = nationally scarce.

Group	Family	Species	GB national rarity status	Area A	Area B	Area C	Area D
Araneae	Clubionidae	<i>Clubiona trivialis</i>	-	-	-	●	●
Araneae	Dictynidae	<i>Dictyna arundinacea</i>	-	●	-	-	-
Araneae	Gnaphosidae	<i>Haplodrassus signifer</i>	-	-	-	-	●
Araneae	Hahniidae	<i>Antistea elegans</i>	-	-	●	●	●
Araneae	Hahniidae	<i>Iberina montana</i>	-	●	-	-	-
Araneae	Linyphiidae	<i>Bathyphantes gracilis</i>	-	-	●	-	-
Araneae	Linyphiidae	<i>Centromerus arcanus</i>	-	-	●	●	●
Araneae	Linyphiidae	<i>Ceratinella brevipes</i>	-	-	●	-	●
Araneae	Linyphiidae	<i>Cnephalocotes obscurus</i>	-	●	-	●	-
Araneae	Linyphiidae	<i>Drepanotylus uncatus</i>	-	-	●	-	-
Araneae	Linyphiidae	<i>Gonatium rubens</i>	-	●	●	●	●
Araneae	Linyphiidae	<i>Gongylidiellum latebricola</i>	NS	●	-	-	-
Araneae	Linyphiidae	<i>Hilaira excisa</i>	-	-	●	-	-
Araneae	Linyphiidae	<i>Hypselistes jacksoni</i>	NS	●	●	-	-
Araneae	Linyphiidae	<i>Lophomma punctatum</i>	-	-	●	-	-
Araneae	Linyphiidae	<i>Micrargus herbigradus</i>	-	●	●	-	-
Araneae	Linyphiidae	<i>Minyriolus pusillus</i>	-	●	-	●	●
Araneae	Linyphiidae	<i>Notioscopus sarcinatus</i>	NS	●	-	●	-
Araneae	Linyphiidae	<i>Oedothorax gibbosus</i>	-	-	●	-	-
Araneae	Linyphiidae	<i>Oedothorax gibbosus form tuberosus</i>	-	-	●	-	-
Araneae	Linyphiidae	<i>Oryphantes angulatus</i>	NS	-	●	-	-
Araneae	Linyphiidae	<i>Palliduphantes ericaeus</i>	-	●	●	●	-
Araneae	Linyphiidae	<i>Pelecopsis mengei</i>	-	●	-	●	●
Araneae	Linyphiidae	<i>Pocadicnemis pumila</i>	-	●	-	●	●
Araneae	Linyphiidae	<i>Tenuiphantes mengei</i>	-	●	●	●	●
Araneae	Linyphiidae	<i>Tenuiphantes zimmermanni</i>	-	●	●	-	●
Araneae	Linyphiidae	<i>Walckenaeria acuminata</i>	-	-	-	-	●
Araneae	Linyphiidae	<i>Walckenaeria antica</i>	-	●	-	●	-
Araneae	Liocranidae	<i>Agroeca proxima</i>	-	●	-	●	●
Araneae	Liocranidae	<i>Scotina gracilipes</i>	NS	●	-	-	-
Araneae	Lycosidae	<i>Alopecosa pulverulenta</i>	-	●	-	●	-
Araneae	Lycosidae	<i>Pardosa nigriceps</i>	-	●	-	-	●
Araneae	Lycosidae	<i>Pardosa pullata</i>	-	-	-	●	-
Araneae	Lycosidae	<i>Piratula latitans</i>	-	●	-	-	-
Araneae	Lycosidae	<i>Piratula uliginosa</i>	-	●	-	●	-
Araneae	Lycosidae	<i>Trochosa terricola</i>	-	●	-	●	-
Araneae	Tetragnathidae	<i>Metellina segmentata</i>	-	-	-	-	●
Araneae	Tetragnathidae	<i>Pachygnatha clercki</i>	-	-	●	-	-
Araneae	Theridiidae	<i>Pholcomma gibbum</i>	-	●	-	●	●
Araneae	Theridiidae	<i>Robertus lividus</i>	-	●	-	-	-
Araneae	Theridiidae	<i>Theonoe minutissima</i>	-	-	-	●	-
Totals	-	-	-	24	16	19	16
Peat Bog/Acid Mire species (shaded grey)	-	-	-	5	8	6	4

Area B

16 different spider species were recorded from Area B. Of these, 7 species were classified by PANTHEON as being associated with “acid & sedge peats” habitat: *Antistea elegans*, *Drepanotylus uncatus*, *Hilaira excisa*, *Hypselistes jacksoni*, *Lophomma punctatum*, *Oedothorax gibbosus*, *Pachygnatha clercki*. The spider sample returned an SQI score of 143 for the “acid & sedge peats” habitat.

PANTHEON identified 8 “Peat Bog” and/or “Acid Mire” spiders from the Habitat Score: *Antistea elegans*, *Centromerus arcanus*, *Ceratinella brevipes*, *Drepanotylus uncatus*, *Hilaira excisa*, *Hypselistes jacksoni*, *Lophomma punctatum*, *Oryphantes angulatus*.

Area C

19 different spider species were recorded from Area C. Of these, 2 species were classified by PANTHEON as being associated with “acid & sedge peats” habitat: *Antistea elegans*, *Notioscopus sarcinatus*. The spider sample returned an SQI score of 250 for the “acid & sedge peats” habitat.

PANTHEON identified 6 “Peat Bog” and/or “Acid Mire” spiders from the Habitat Score: *Antistea elegans*, *Centromerus arcanus*, *Notioscopus sarcinatus*, *Pelecopsis mengei*, *Piratula uliginosa*, *Theonoe minutissima*.

Area D

16 different spider species were recorded from Area D. Of these, 1 species was classified by PANTHEON as being associated with “acid & sedge peats” habitat: *Antistea elegans*. The spider sample returned an SQI score of 100 for the “acid & sedge peats” habitat.

PANTHEON identified 4 “Peat Bog” and/or “Acid Mire” spiders from the Habitat Score: *Antistea elegans*, *Centromerus arcanus*, *Ceratinella brevipes*, *Pelecopsis mengei*.

4. Discussion

The four management Areas (A–D), each at different stages of peatland restoration, make for an interesting comparative study. It would be expected that the best peatland spider faunas would be associated with the least modified and/or longest restored areas. Thus, in order of assumed habitat quality: A, D, B, C, but this was not necessarily the case.

Area A (least modified area) returned the highest number of spider species (24), but only ranked third in terms of Peat Bog species. Restored Area B had 16 species of spiders and the highest number of Peat Bog species (8). Area C had 19 species and the second highest number of Peat Bog species (6). Area D ranked the lowest in terms of numbers of spider species (16) and Peat Bog species (4). This low ranking is unsurprising, since this

area is structurally more akin to woodland with its now extensive self-seeded tree cover and drained peat soil.

It is likely that the higher numbers of Peat Bog species found in Areas B and C is a result of the wetter ground conditions created by restoration work. Area A, despite being the least modified part, was also one of the drier areas surveyed.

PANTHEON SQI scores for the “acid & sedge peats habitat” spiders rated the Areas thus: A:325, C:250, B:143, D:100, suggesting that the least modified Area A holds the best fauna. However, given the small samples involved here, some degree of caution should be applied.

On Blanket Bogs, it is generally the case that the rarest habitat specialist spiders are associated with *Sphagnum* lawns, flushes and gulleys rather than the more extensive, drier heathland elements between these features. This could well explain why Areas B and C returned higher numbers of Peat Bog associate spiders than Area A.

The number of Nationally Scarce spider species at each Area was also informative (Area A:4, B:2, C:1, D:0). The least modified Area A held twice the number of Nationally Scarce spiders than Area B, and four times as many as Area C. Area D ranked last returning no Nationally Scarce spider species.

Nationally Scarce species of particular note include *Oryphantes angulatus* (Area B), which is largely restricted to upland bogs, *Notioscopus sarcinatus* (Areas A and C), which is associated with tussocky bogs, and *Gongylidiellum latebricola* (Area A) which is new to Mynydd Hiraethog.

It is encouraging to see that restored Areas B and C now support Peat Bog associate spiders, and this is as a direct result of the removal of conifers and the rewetting of these areas. This fauna is likely to have repopulated this restored habitat from the adjacent Hafod Elwy Moor NNR.

It would be beneficial to undertake a follow-up survey in late spring to encounter other peat bog spiders which mature at this time of the year.

5. Acknowledgements

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Appendix 1. Invertebrates recorded from Hafod Elwy, Areas A to D, in 2024. The abundance qualifiers within tables are M (male), F (female) and i (immature). NS = nationally scarce.

Table 1. Area A, 05/09/2024, SH95225609, Hafod Elwy, E-vac (2 minutes) records.

Group	Family	Species	GB national rarity status	Abundance
Araneae	Dictynidae	<i>Dictyna arundinacea</i>	-	1i
Araneae	Hahniidae	<i>Iberina montana</i>	-	3F
Araneae	Linyphiidae	<i>Cnephalocotes obscurus</i>	-	1F
Araneae	Linyphiidae	<i>Gonatium rubens</i>	-	2M
Araneae	Linyphiidae	<i>Gongylidiellum latebricola</i>	NS	1M 1F
Araneae	Linyphiidae	<i>Hypselistes jacksoni</i>	NS	1M 1F
Araneae	Linyphiidae	<i>Micrargus herbigradus</i>	-	1M
Araneae	Linyphiidae	<i>Minyriolus pusillus</i>	-	3F
Araneae	Linyphiidae	<i>Notioscopus sarcinatus</i>	NS	2M 1F
Araneae	Linyphiidae	<i>Palliduphantes ericaeus</i>	-	2F
Araneae	Linyphiidae	<i>Pelecopsis mengei</i>	-	2F
Araneae	Linyphiidae	<i>Pocadicnemis pumila</i>	-	1F
Araneae	Linyphiidae	<i>Tenuiphantes mengei</i>	-	4F
Araneae	Linyphiidae	<i>Tenuiphantes zimmermanni</i>	-	2F
Araneae	Linyphiidae	<i>Walckenaeria antica</i>	-	1F
Araneae	Liocranidae	<i>Scotina gracilipes</i>	NS	1i
Araneae	Lycosidae	<i>Pardosa nigriceps</i>	-	2iF
Araneae	Theridiidae	<i>Pholcomma gibbum</i>	-	1F
Araneae	Theridiidae	<i>Robertus lividus</i>	-	1F

Table 2. Area A, 05–26/09/2024, SH95225609, Hafod Elwy, pitfall trap records.

Group	Family	Species	GB national rarity status	Abundance
Araneae	Araneae	<i>Spider</i>	-	4i
Araneae	Hahniidae	<i>Iberina montana</i>	-	1M
Araneae	Linyphiidae	<i>Cnephalocotes obscurus</i>	-	1F
Araneae	Linyphiidae	<i>Tenuiphantes mengei</i>	-	1F
Araneae	Lycosidae	<i>Alopecosa pulverulenta</i>	-	1F
Araneae	Lycosidae	<i>Piratula uliginosa</i>	-	1F
Araneae	Lycosidae	<i>Trochosa terricola</i>	-	1M

Table 3. Area A, 26/09/2024–24/10/2024, SH95225609, Hafod Elwy, pitfall trap records.

Group	Family	Species	GB national rarity status	Abundance
Araneae	Araneae	<i>Spider</i>	-	5i
Araneae	Linyphiidae	<i>Gonatium rubens</i>	-	1M
Araneae	Liocranidae	<i>Agroeca proxima</i>	-	1F
Araneae	Lycosidae	<i>Piratula latitans</i>	-	1F
Araneae	Lycosidae	<i>Piratula uliginosa</i>	-	1F
Coleoptera	Carabidae	<i>Pterostichus diligens</i>	-	2 ad
Coleoptera	Chrysomelidae	<i>Lochmaea suturalis</i>	-	1 ad

Table 4. Area B, 05/09/2024, SH95435630, Hafod Elwy, E-vac (2 minutes) records.

Group	Family	Species	GB national rarity status	Abundance
Araneae	Linyphiidae	<i>Bathyphantes gracilis</i>	-	1M
Araneae	Linyphiidae	<i>Centromerus arcanus</i>	-	1M 1F
Araneae	Linyphiidae	<i>Ceratinella brevipes</i>	-	1M
Araneae	Linyphiidae	<i>Gonatium rubens</i>	-	1F
Araneae	Linyphiidae	<i>Hilaira excise</i>	-	1M
Araneae	Linyphiidae	<i>Hypselistes jacksoni</i>	NS	1iM 1iF
Araneae	Linyphiidae	<i>Lophomma punctatum</i>	-	1F
Araneae	Linyphiidae	<i>Micrargus herbigradus</i>	-	1F
Araneae	Linyphiidae	<i>Oedothorax gibbosus</i>	-	2M 2F
Araneae	Linyphiidae	<i>Oedothorax gibbosus form tuberosus</i>	-	2M
Araneae	Linyphiidae	<i>Oryphantes angulatus</i>	NS	1F
Araneae	Linyphiidae	<i>Palliduphantes ericaeus</i>	-	1F
Araneae	Linyphiidae	<i>Tenuiphantes mengei</i>	-	1M 1F
Araneae	Linyphiidae	<i>Tenuiphantes zimmermanni</i>	-	2M 2F
Araneae	Tetragnathidae	<i>Pachygnatha clercki</i>	-	1F

Table 5. Area B, 05–26/09/2024, SH95435630, Hafod Elwy, pitfall trap records.

Group	Family	Species	GB national rarity status	Abundance
Araneae	Araneae	<i>Spider</i>	-	1i
Araneae	Hahniidae	<i>Antistea elegans</i>	-	1M 1F
Araneae	Linyphiidae	<i>Hilaira excisa</i>	-	2M
Coleoptera	Carabidae	<i>Pterostichus diligens</i>	-	1 ad
Coleoptera	Carabidae	<i>Pterostichus rhaeticus</i>	-	7 ad
Coleoptera	Silphidae	<i>Nicrophorus vespilloides</i>	-	4 ad

Table 6. Area B, 26/09/2024–24/10/2024, SH95435630, Hafod Elwy, pitfall trap records.

Group	Family	Species	GB national rarity status	Abundance
Araneae	Linyphiidae	<i>Bathyphantes gracilis</i>	-	1F
Araneae	Linyphiidae	<i>Drepanotylus uncatus</i>	-	2M 1F
Opiliones	Phalangiidae	<i>Paroligolophus agrestis</i>	-	1F
Coleoptera	Carabidae	<i>Agonum fuliginosum</i>	-	1 ad
Coleoptera	Carabidae	<i>Pterostichus rhaeticus</i>	-	7 ad
Hemiptera	Saldidae	<i>Saldula saltatoria</i>	-	1 ad

Table 7. Area C, 05/09/2024, SH95345590, Hafod Elwy, E-vac (2 minutes) records.

Group	Family	Species	GB national rarity status	Abundance
Araneae	Clubionidae	<i>Clubiona trivialis</i>	-	1M
Araneae	Linyphiidae	<i>Centromerus arcanus</i>	-	1F
Araneae	Linyphiidae	<i>Gonatium rubens</i>	-	1M
Araneae	Linyphiidae	<i>Minyriolus pusillus</i>	-	2F
Araneae	Linyphiidae	<i>Notioscopus sarcinatus</i>	NS	1F
Araneae	Linyphiidae	<i>Pelecopsis mengei</i>	-	1M
Araneae	Linyphiidae	<i>Pocadicnemis pumila</i>	-	3F
Araneae	Linyphiidae	<i>Tenuiphantes mengei</i>	-	1F
Araneae	Linyphiidae	<i>Walckenaeria antica</i>	-	1M
Araneae	Theridiidae	<i>Pholcomma gibbum</i>	-	3M 1F

Group	Family	Species	GB national rarity status	Abundance
Araneae	Theridiidae	<i>Theonoe minutissima</i>	-	1F
Pseudoscorpiones	Neobisiidae	<i>Neobisium carcinoides</i>	-	1

Table 8. Area C, 05–26/09/2024, SH95345590, Hafod Elwy, pitfall trap records.

Group	Family	Species	GB national rarity status	Abundance
Araneae	Araneae	<i>Spider</i>	-	6i
Araneae	Hahniidae	<i>Antistea elegans</i>	-	3M
Araneae	Linyphiidae	<i>Cnephalocotes obscurus</i>	-	1M
Araneae	Linyphiidae	<i>Gonatium rubens</i>	-	2F
Araneae	Liocranidae	<i>Agroeca proxima</i>	-	1M 1F
Araneae	Lycosidae	<i>Alopecosa pulverulenta</i>	-	1iM
Araneae	Lycosidae	<i>Pardosa pullata</i>	-	1F
Araneae	Lycosidae	<i>Piratula uliginosa</i>	-	2F
Araneae	Lycosidae	<i>Trochosa terricola</i>	-	1M 1F 1i
Coleoptera	Carabidae	<i>Pterostichus diligens</i>	-	2 ad
Coleoptera	Carabidae	<i>Trechus obtusus</i>	-	1 ad

Table 9. Area C, 26/09/2024–24/10/2024, SH95345590, Hafod Elwy, pitfall trap records.

Group	Family	Species	GB national rarity status	Abundance
Araneae	Araneae	<i>Spider</i>	-	1i
Araneae	Linyphiidae	<i>Palliduphantes ericaeus</i>	-	1F
Araneae	Liocranidae	<i>Agroeca proxima</i>	-	1M 2F
Araneae	Lycosidae	<i>Trochosa terricola</i>	-	1F
Myriapoda	Julidae	<i>Julus scandinavius</i>	-	2
Opiliones	Phalangiidae	<i>Paroligolophus agrestis</i>	-	1F
Coleoptera	Carabidae	<i>Pterostichus diligens</i>	-	1 ad

Table 10. Area D, 05/09/2024, SH95415574, Hafod Elwy, E-vac (2 minutes) records.

Group	Family	Species	GB national rarity status	Abundance
Araneae	Clubionidae	<i>Clubiona trivialis</i>	-	1M
Araneae	Hahniidae	<i>Antistea elegans</i>	-	1M
Araneae	Linyphiidae	<i>Centromerus arcanus</i>	-	1F
Araneae	Linyphiidae	<i>Ceratinella brevipes</i>	-	3F
Araneae	Linyphiidae	<i>Gonatium rubens</i>	-	3M
Araneae	Linyphiidae	<i>Minyriolus pusillus</i>	-	1F
Araneae	Linyphiidae	<i>Pelecopsis mengei</i>	-	1M 1F
Araneae	Linyphiidae	<i>Pocadicnemis pumila</i>	-	3F
Araneae	Linyphiidae	<i>Tenuiphantes mengei</i>	-	1F
Araneae	Linyphiidae	<i>Tenuiphantes zimmermanni</i>	-	5M
Araneae	Lycosidae	<i>Pardosa nigriceps</i>	-	1iM 1iF
Araneae	Tetragnathidae	<i>Metellina segmentata</i>	-	1F
Araneae	Theridiidae	<i>Pholcomma gibbum</i>	-	1M
Opiliones	Nemastomatidae	<i>Nemastoma bimaculatum</i>	-	1M 1F
Pseudoscorpiones	Neobisiidae	<i>Neobisium carcinoides</i>	-	1

Table 11. Area D, 05–26/09/2024, SH95415574, Hafod Elwy, pitfall trap records.

Group	Family	Species	GB national rarity status	Abundance
Araneae	Araneae	<i>Spider</i>	-	8i
Araneae	Linyphiidae	<i>Gonatium rubens</i>	-	2F
Araneae	Linyphiidae	<i>Walckenaeria acuminata</i>	-	1F
Araneae	Liocranidae	<i>Agroeca proxima</i>	-	2F

Table 12. Area D, 26/09/2024–24/10/2024, SH95415574, Hafod Elwy, pitfall trap records.

Group	Family	Species	GB national rarity status	Abundance
Araneae	Araneae	<i>Spider</i>	-	2i
Araneae	Gnaphosidae	<i>Haplodrassus signifier</i>	-	1iM
Araneae	Linyphiidae	<i>Gonatium rubens</i>	-	1F
Araneae	Linyphiidae	<i>Tenuiphantes zimmermanni</i>	-	1M 3F
Myriapoda	Polydesmidae	<i>Polydesmus angustus</i>	-	1M
Opiliones	Nemastomatidae	<i>Nemastoma bimaculatum</i>	-	1M 1F
Coleoptera	Carabidae	<i>Pterostichus madidus</i>	-	2 ad
Hemiptera	Lygaeidae	<i>Stygnocoris sabulosus</i>	-	2 ad

Data Archive Appendix

The data archive contains:

- [A] The final report in Microsoft Word and Adobe PDF formats.
- [B] ~~A full set of maps produced in JPEG format.~~
- [C] ~~A series of GIS layers on which the maps in the report are based with a series of word documents detailing the data processing and structure of the GIS layers.~~
- [D] ~~A set of raster files in ESRI and ASCII grid formats.~~
- [E] ~~A database named [name] in Microsoft Access 2000 format with metadata described in a Microsoft Word document [name.doc].~~
- [F] ~~A full set of images produced in [jpg/tiff] format.~~
- [G] Species records held in Welsh Invertebrate Database (WID).

Metadata for this project is publicly accessible through Natural Resources Wales' Data Discovery Service <https://metadata.naturalresources.wales/geonetwork/srv> (English version) and <https://metadata.cyfoethnaturiol.cymru/geonetwork/cym/> (Welsh Version). The metadata is held as record no. **NRW_DS161333**.

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