A survey of the fen invertebrates of Corsydd Llangloffan SSSI, Pembrokeshire in 2025

NRW Evidence Report No. 1001

Author: James McGill

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Mae dwy rywogaeth yn newydd i Gymru – y chwilen grwydrol *Manda mandibularis* a'r gleren *Helina deleta*. Mae gan dri deg naw o rywogaethau statws cadwraeth cyhoeddedig neu statws cadwraeth dros dro. Gellir categoreiddio o leiaf 291 o rywogaethau fel rhai sy'n gysylltiedig â chynefinoedd gwlyptir, ac mae dau gasgliad Pantheon yn cyrraedd y trothwyon cenedlaethol a awgrymir ar gyfer nodweddion o ddiddordeb mewn SoDdGA – *Cors amrywiol heb unrhyw darfu arno* (W221) a *Ffen cyrs a phyllau* (W314). Mae'r asesiad diweddaraf o'r casgliad o infertebratau ffen yng Nghorsydd Llangloffan yn rhestru 148 o dacsonau a gofnodwyd hyd at y flwyddyn 2020, gan gynnwys 48 o rywogaethau allweddol. Cofnodwyd 56 o'r rhain yn yr arolwg cyfredol (38%), yn ogystal â 22 o'r 48 o rywogaethau allweddol (46%).

Mae hyn yn awgrymu, er bod maint ac ansawdd cynefin y ffen wedi dirywio ers yr asesiad diwethaf yn 2002, fod y casgliad o infertebratau yn parhau i fod o bwysigrwydd cenedlaethol. Er hynny, bydd colli rhagor o gynefinoedd ffen i brysgwydd a choetir yn cael effaith niweidiol ar gyflwr y casgliad. Mae'r dehongliad bras o gyflwr y casgliad yn cael ei gymhlethu gan y ffaith mai cofnodion newydd ar y safle oedd 236 o'r rhywogaethau gwlyptir a gofnodwyd yn yr arolwg cyfredol. Dylid ystyried cynnwys rhai o'r rhywogaethau hyn o fewn casgliad ffen diwygiedig, yn enwedig y rhai sydd wedi'u cynnwys mewn casgliadau mawndir ar SoDdGAoedd eraill yng Nghymru (65 o rywogaethau) a rhywogaethau fel *Manda mandibularis* a'r chwilen grwydrol *Stenus kiesenwetteri* sydd â dynodiad cadwraeth ac/neu sydd i'w cael mewn ardaloedd cyfyngedig yng Nghymru.

Mae ffen uchel lle mae rhywogaethau glaswelltaidd yn fwyaf cyffredin wedi'i ddatblygu'n dda iawn ar Langloffan, gan gynnwys clystyrau o befrwellt *Phalaris arundinacea*, cyrs cyffredin *Phragmites australis*, a'r hesgen rafunog fawr *Carex paniculata*. Mae'r diffyg rheolaeth ar y ffen o fudd i'r cynefin, er bod trwch o falurion yn lleihau amrywiaeth y planhigion. Roedd ffen uchel cymysg hefyd yn weddol helaeth ar hyd tarddlinau a sianeli draenio hanesyddol. O gymharu â'r llystyfiant lle mae planhigion glaswelltaidd yn fwyaf cyffredin, mae'r cymunedau hyn yn cynnig ystod ehangach o blanhigion sy'n cynnal larfae, gan gynnal chwilod sy'n bwyta planhigion, pryfed a gwyfynod sy'n dibynnu ar dacsonau neu deuluoedd penodol o blanhigion. Roedd llain lydan o ddanadl poethion *Urtica dioica* ar un o'r tarddlinau yn dystiolaeth o ewtroffeiddio.

Mae'r ffen agored bellach yn llai helaeth, wedi'i ddisodli'n bennaf gan ffen tal wedi i bori beidio ym mhob rhan o'r SoDdGA heblaw un. Mae ffen gwael hefyd yn gyfyngedig, gan fod coetir gwern wedi gorchuddio bron y cyfan o'r ardaloedd mawr o laswellt y gweunydd *Molinia caerulea* sydd heb ei bori a'r gors migwyn ar Ffen Llangloffan. Mae un llifolchdir asid agored yn bodoli o hyd ar y Gleddau Wen, er bod coed wedi'u plannu'n rhy agos at y

tir hwnnw. Dros amser mae'r coed yn debygol o gynyddu'r malurion a'r hadau sy'n mynd i mewn i'r gorlifdir, a gallai hynny effeithio ar yr hydroleg. Mae gwern yn cynnal ffawna arbennig o infertebratau ar Langloffan, ond ni ellir argymell caniatáu i goetir ifanc ehangu heb reolaeth yn y ffen er budd cadwraeth yr infertebratau.

Mae'r adnoddau sydd ar gael yn debygol o gyfyngu ar reolaeth yn y dyfodol. Gall clirio prysgwydd o ffeniau fod yn effeithiol, ond mae hyn yn fwy cost-effeithiol wrth reoli rhes o goed ifanc sy'n ymwthio iddynt. Bydd yn hynod fuddiol adfer pori mewn rhannau lle mae hynny'n bosibl. Yn draddodiadol, roedd y ffen yn cael ei reoli gan bori yn yr haf, ac mae hyn yn angenrheidiol mewn rhai ardaloedd i gynnal yr ystod ehangaf o rywogaethau o infertebratau a geir ar ffen. Fel arfer, argymhellir bod gwartheg yn pori'n ysgafn ac yn hwyr ar ffeniau, a dylid hefyd ystyried y posibilrwydd o ddefnyddio byfflo dŵr. Mae'r anifeiliaid hyn yn goddef tir dwrlawn a thir pori garw yn well, ac yn fwy tebygol o fynd i'r afael â phrysgwydd helyg. Yn y tymor hir, bydd diffyg rheolaeth barhaus yn arwain at golli rhagor o gynefinoedd agored. Bydd y diddordeb yn parhau yn y senario hon, ond bydd y casgliad o infertebratau tir ffen yn waelach ar y cyfan.

Gwneir argymhellion ynghylch rheoli i fynd i'r afael â chynefinoedd ffen a gollir i olyniaeth, chwiliadau targededig am *Manda mandibularis* a'r corryn bach *Glyphesis servulus* i ganfod beth yw eu statws presennol, ac ynghylch diwygio'r casgliad o infertebratau a geir yn y ffen.

Executive summary

This report describes an invertebrate survey at Corsydd Llangloffan Site of Special Scientific Interest (SSSI), Pembrokeshire in 2025. The site is a remnant of a floodplain complex near the headwaters of the Western Cleddau River, and contains a wide range of fen vegetation types, including wet woodland, topogenous fen, and swamp. The aim of the survey was to assess the fenland invertebrate assemblages in Tall Fen, Open Fen, *Molinia* Poor Fen & Mire, and Sallow Carr. Ten days of fieldwork were completed between June and October. 891 invertebrate species were recorded, comprising 92 spiders, 11 harvestmen, 275 beetles, 408 flies, 79 true bugs, 4 ants, 10 bees, 5 wasps, 5 woodlice, 1 moth, and 1 scorpion fly.

Two species are new to Wales – the rove beetle *Manda mandibularis* and the house fly *Helina deleta*. Thirty-nine species have a published conservation status or a provisional conservation status. At least 291 species can be categorised as associated with wetland habitats, and two Pantheon assemblages reach the national thresholds suggested for SSSI interest features – *Undisturbed fluctuating Marsh* (W221) and *Reed-fen and pools* (W314). The most recent assessment of the fen invertebrate assemblage at Corsydd Llangloffan lists 148 taxa recorded up to the year 2020, including 48 key species. 56 of these were recorded in the current survey (38%), as well as 22 of the 48 key species (46%).

This suggests that while fen habitat extent and quality have deteriorated since the last assessment in 2002, the invertebrate assemblage does remain of national importance. However, further losses of fen habitats to scrub and woodland will have a deleterious impact upon the condition of the assemblage. Broad interpretation of assemblage condition is confounded by the fact that 236 of the wetland species in the current survey were new records for the site. Consideration should be given to including some of these species within a revised fen assemblage, particularly those which are components of peatland assemblages on other Welsh SSSIs (65 species) and species such as *Manda mandibularis* and the rove beetle *Stenus kiesenwetteri* which have a conservation designation and/or a restricted Welsh distribution.

Graminoid-dominated tall fen is very well-developed on Llangloffan, including stands of Reed Canary-grass *Phalaris arundinacea*, Common Reed *Phragmites australis*, and Greater Tussock-sedge *Carex paniculata*. The habitat is favoured by a lack of management on the fen, though dense litter does reduce plant diversity. Mixed tall fen was also reasonably extensive along spring lines and historic drainage channels. Compared with graminoid-dominated vegetation, these communities provide a broader range of larval host plants, supporting phytophagous beetles, bugs, flies and moths that rely on specific plant taxa or families. A broad strip of Stinging Nettle *Urtica dioica* at one of the spring lines was evidence of localised eutrophication.

Open fen is now limited in extent, mostly having succeeded to tall fen due to the cessation of grazing in all but one compartment of the SSSI. Poor fen is also restricted, as large areas of ungrazed Purple Moor-grass *Molinia caerulea* and bog-moss mire on Llangloffan Fen have been almost completely overgrown by carr woodland. There is still one open acid flush on Western Cleddau, although trees have been planted too close to this. Over time the trees are likely to increase inputs of litter, seed into the flush, and may affect the hydrology. Carr does support a distinct invertebrate fauna on Llangloffan, although the

uncontrolled expansion of young woodland in the fen cannot be recommended for conservation of the invertebrate interest.

Future management is likely to be constrained by the resources available. Scrub can be cleared from fens to good effect, although this is more cost-effective when managing an advancing front of young trees. It will be most beneficial to reinstate grazing in compartments where this is possible. The fen was traditionally managed by summer grazing and this is necessary in some areas to support the widest range of fen invertebrate species. Light and late cattle grazing is usually recommended in fens, and the possibility of grazing with Water Buffalo should also be considered. These animals have greater tolerance for waterlogged ground, rough grazing, and are more likely to tackle willow scrub. In the long-term, continued lack of management will lead to further loss of open habitats. There will still be interest in this scenario, although the fenland invertebrate assemblage will be poorer overall.

Recommendations are made on management to address the loss of fen habitats to succession, targeted searches for *Manda mandibularis* and the money spider *Glyphesis servulus* to determine current status, and on revising the fen invertebrate assemblage.

1. Introduction

1.1. Site description and landscape context

Corsydd Llangloffan Site of Special Scientific Interest (SSSI) (SM904318) is a remnant of a floodplain complex near the headwaters of the Western Cleddau River in Pembrokeshire. It is located seven kilometres south-west of Fishguard and occupies 57 ha in a wide valley, 60 metres above sea level. The river once drained westwards to the sea at Aber Mawr, until this was blocked by glacial deposits and the flow reversed, leaving a small central watercourse meandering through flat, waterlogged ground. The Western Cleddau has since been partly straightened and deepened, although the barrier of Llangloffan bridge and numerous springs on the valley sides have ensured that the water table remains high.

Variation in the water table and the presence of mineral and peat soils has produced a wide range of fen vegetation types, including wet woodland, topogenous fen, and swamp. Reed Canary-grass *Phalaris arundinacea* dominates adjacent to the riverbank, whilst wetter, peaty areas alongside the springs have abundant Greater Tussock-sedge *Carex paniculata*. Tall fen vegetation is widespread and characterised by mixed stands of Common Reed *Phragmites australis*, Wild Angelica *Angelica sylvestris*, Meadowsweet *Filipendula ulmaria*, and Purple-loosestrife *Lythrum salicaria*. Greater Pond-sedge *Carex riparia* is dominant in some areas and there are patches of Bottle Sedge *Carex rostrata* and Marsh Cinquefoil *Potentilla palustris*. Wet woodland is largely dominated by Grey Willow *Salix cinerea*, with Downy Birch *Betula pubescens* and Alder *Alnus glutinosa* also present.

1.2. Background

Corsydd Llangloffan was surveyed as part of the Nature Conservancy Council's Welsh Peatland Invertebrate Survey (WPIS) from June to October 1987 as two separate sites – Llangloffan Fen and Western Cleddau. 579 invertebrate species were recorded at Llangloffan Fen and 471 species at Western Cleddau, using a combination of pitfall and water traps, searching plant litter, and casual recording (Holmes *et al*., 1995). Important discoveries included the leaf beetle *Mantura obtusata* and the money spiders *Agyneta mollis* and *Glyphesis servulus*. The peatland invertebrate fauna of Corsydd Llangloffan SSSI was assessed using a combination of WPIS data and additional species recorded in October 1999 (Wilson, 2001). A monitoring framework was developed in 2002 which identified 104 specialist species in four habitats - Tall Fen, Open Fen, *Molinia* Poor Fen & Mire, and Sallow Carr (Boyce, 2002).

Corsydd Llangloffan SSSI supports a nationally important fen invertebrate assemblage which comprises 148 specialist species including 48 key species (Howe, in prep.; see Table 1 and Appendix 4).

Table 1. Taxa comprising the fen invertebrate assemblage on Corsydd Llangloffan SSSI.

Taxonomic group	Vernacular name	Number of species	Number of key species
Hymenoptera	Bees, Wasps & Ants	4	0
Coleoptera	Beetles	40	6
Lepidoptera	Butterflies & Moths	16	3
Trichoptera	Caddisflies	2	1

Taxonomic group	Vernacular name	Number of species	Number of key species
Odonata	Dragonflies & Damselflies	2	1
Diptera	Flies	55	12
Araneae	Spiders	26	23
Hemiptera	True Bugs	3	2
Total	–	**148**	**48**

1.3. Objective

The brief for this project was to:

- Undertake a survey of the fen invertebrate assemblage at Corsydd Llangloffan SSSI in 2025, recording in Tall Fen, Open Fen, *Molinia* Poor Fen & Mire, and Sallow Carr;
- Visit monthly between June and October;
- Use standardised sampling methods, including ground searching, sweep netting, and vacuum sampling;
- Compare the species recorded with those already documented as forming part of the fen invertebrate assemblage, including potential additions to this;
- Analyse the survey outputs using the Pantheon database of invertebrate habitat associations;
- Document any threats to the invertebrate assemblage, particularly the loss of open fen conditions to encroaching scrub.

2. Methods

2.1. Sampling methods

The survey methods used were beating, flight interception trapping, ground searching, pitfall trapping, spot-sweeping, suction sampling, and sweep netting (Drake *et al*., 2007).

- **Beating** – Samples consist of 1 or 2-minute searches. Invertebrates living on foliage and branches of trees, bushes, and tall herbage are collected by jarring the branches with a stick, so the animals fall into a canvas net bag held beneath.
- **Flight interception trapping** – Traps combining four 2-litre plastic bottles with windows cut in the sides and suspended under a plastic base (Carrel, 2002; Alexander *et al*., 2016) were used to sample invertebrates active in the field layer. The inverted bottle necks are filled with non-toxic preservative (50% propylene glycol and 50% distilled water) and a drop of detergent to break the surface tension. These are drained through a muslin square in a flat sieve each time the trap is serviced.
- **Ground searching** – Stones, wood, and mats of vegetation are lifted, particularly looking for night-active or larger invertebrates poorly sampled by other techniques.
- **Pitfall trapping** – Traps are polypropylene cups (diameter 7.5 cm, depth 10 cm) deployed in a straight line at 2 m spacing. Using a bulb planter, each trap is sunk into the ground slightly below the soil surface. 50 ml non-toxic propylene glycol is poured into each trap as a preservative, with a few drops of detergent to break the surface tension. To prevent capture of small vertebrates, each trap is covered with a piece of 30 mm plastic mesh, pegged down with long wire staples. A lid propped up about 10

mm above the trap reduces dilution by rainwater. Traps are emptied by draining the contents through a muslin square in a flat sieve.

- **Spot-sweeping** – Specimens collected using a cotton organdy net bag, 40 cm in diameter, particularly targeted to areas of bare ground, flowers, and dead wood. This is well-suited to recording invertebrates that may be patchily distributed across a wide area, and sampling can last up to 30 minutes.
- **Suction sampling** – A petrol-powered garden vacuum with a net bag inside the inlet, run for 1 or 2 minutes, pushed onto the ground and into tussocks and clumps of vegetation.
- **Sweep netting** – Specimens collected using a cotton organdy net bag, 40 cm in diameter swept through vegetation and over patches of ground. This differs from spot-sweeping in that collecting is continuous and time is not spent waiting for individual insects to appear. Samples are usually for 1 or 2 minutes.

Samples were preserved in 70% isopropyl alcohol, or as dry specimens.

2.2. Survey area

The survey area at Corsydd Llangloffan SSSI is shown in Appendix 1, including the locations of Western Cleddau and Llangloffan Fen from the WPIS survey which are referred to in data summaries.

2.2.1. Trapping locations

Flight interception traps and pitfall traps were used to sample in tall fen and carr woodland.

Flight interception traps

Four locations in tall fen and carr woodland were sampled with flight interception traps, and the total sample represented 447 trap-days. The trap locations are summarised in Table 2, and these are mapped in Appendix 1. The dates when traps were serviced are listed in Appendix 2, and photographs of the trapping locations are provided in Appendix 3 (Photos A3.1 – A3.4).

Table 2. Locations at Corsydd Llangloffan SSSI sampled for invertebrates with flight interception traps in 2025.

Trap number	Area	O.S. grid reference	Trap height	Broad habitat	Vegetation
F1	Western Cleddau	SM89693.31751	60	Carr	*Carex paniculata*, *Salix cinerea*
F2	Western Cleddau	SM89701.31749	20	Carr	*Salix cinerea*, *Dryopteris*
F3	Western Cleddau	SM89730.31736	40	Tall Fen	*Carex paniculata*, *Equisetum fluviatile*
F4	Llangloffan Fen	SM90829.31848	90	Carr	*Salix cinerea*, *Viburnum opulus*

Pitfall traps

Three locations were sampled with pitfall traps: two in tall fen, and one in sallow carr. Three traps were placed in each location, and the total sample represented 1,065 trap-

days. The trap locations are summarised in Table 3, and these are mapped in Appendix 1. The dates when traps were serviced are listed in Appendix 2, and photographs of the trapping locations are provided in Appendix 3 (Photos A3.5 – A3.7).

Table 3. Locations at Corsydd Llangloffan SSSI sampled for invertebrates with pitfall traps in 2025.

Trap number	Area	O.S. grid reference	Sward height (cm)	Litter (% cover)	Broad habitat	Vegetation
P1.1	Western Cleddau	SM89697.31748	0	80	Carr	*Equisetum fluviatile*
P1.2	Western Cleddau	SM89697.31750	0	100	Carr	*Equisetum fluviatile*
P1.3	Western Cleddau	SM89697.31752	0	90	Carr	*Equisetum fluviatile*
P2.1	Western Cleddau	SM89738.31726	60	100	Tall Fen	*Equisetum fluviatile*, *Sparganium erectum*
P2.2	Western Cleddau	SM89738.31724	60	100	Tall Fen	*Equisetum fluviatile*, *Filipendula ulmaria*
P2.3	Western Cleddau	SM89738.31722	70	100	Tall Fen	*Equisetum fluviatile*, *Filipendula ulmaria*
P3.1	Llangloffan Fen	SM90501.31927	70	100	Tall Fen	*Phalaris arundinacea*, *Phragmites australis*
P3.2	Llangloffan Fen	SM90501.31925	70	100	Tall Fen	*Phalaris arundinacea*, *Phragmites australis*
P3.3	Llangloffan Fen	SM90501.31923	70	100	Tall Fen	*Phalaris arundinacea*, *Phragmites australis*

2.3. Survey dates and weather conditions

The weather conditions during the ten invertebrate survey visits at Corsydd Llangloffan SSSI in 2025 are summarised in Table 4.

Table 4. Weather conditions during invertebrate survey visits at Corsydd Llangloffan SSSI in 2025.

Date (2025)	Site	Maximum temperature (°C)	Rainfall (mm)	Wind speed (mph)
16th June	Western Cleddau	16	0	WSW 15
17th June	Llangloffan Fen	18	0	SW 15

Date (2025)	Site	Maximum temperature (°C)	Rainfall (mm)	Wind speed (mph)
13th July	Western Cleddau	25	0	ESE 6
14th July	Llangloffan Fen	18	0	SW 21
12th August	Llangloffan Fen	27	0	SE 6
13th August	Western Cleddau	21	0	SW 6
15th September	Llangloffan Fen	16	0	W 31
16th September	Western Cleddau	15	0	WSW 15
12th October	Llangloffan Fen	14	0	E 3
13th October	Western Cleddau	13	0	E 3

GPS tracks for the survey are shown in Appendix 1.

2.4. Sample identification

Most specimens from the samples were identified by microscopy although some easily recognisable species were recorded in the field. Voucher specimens have been retained for some critical species.

2.5. Data interpretation

2.5.1. Pantheon analysis

Results are input into Pantheon, a database tool developed by Natural England and the Centre for Ecology & Hydrology to analyse invertebrate sample data (Heaver *et al*., 2017). This classifies invertebrates in association with broad habitats and as part of Specific Assemblage Types (SATs) for ecologically restricted species. SATs provide numerical scores that can be used to assess site quality in comparison with national thresholds and monitor changes in site condition.

2.5.2. The fen invertebrate assemblage at Corsydd Llangloffan

The most recent assessment of the fen invertebrate assemblage at Corsydd Llangloffan by Natural Resources Wales lists 148 taxa recorded up to year 2020, including 48 key species (Mike Howe, in prep.; see Appendix 4).

2.6. Species conservation status

Conservation status reviews have been produced for different taxonomic groups of invertebrates since 1987, with the result that two systems are now in operation.

2.6.1. British Red Data Books

Categories in the first Red Data Book for insects in Britain (Shirt, 1987) were based on criteria from the International Union for Conservation of Nature (IUCN). Some of the criteria were expanded in subsequent Red List publications (Hyman & Parsons, 1994), as follows:

- Red Data Book Categories: **RDB1** – Species in danger of extinction and whose survival is unlikely if the causal factors continue operating, occurring as one population in one 10 km square, or with five or fewer 10 km squares and in rapid or continuous decline; **RDB2** – Species declining throughout their range, or in vulnerable habitats; **RDB3** – Species occurring in fifteen or fewer 10 km squares;

Na – Species not classified in an RDB category but thought to occur in somewhere between 16 and 30 10-km squares; **Nb** – Species thought to occur in somewhere between 31 and 100 10-km squares; **N** – Species thought to occur in somewhere between 16 and 100 10-km squares, and no more specific classification has been attempted.

An important limitation of these older assessments is that for some species recording has now increased significantly, and there have also been changes in range and abundance in the decades since reviews were published.

2.6.2. IUCN Red-list assessments

Recent conservation evaluations are based on International Union for Conservation of Nature criteria (IUCN, 2013, 2022) summarised as follows:

- IUCN Red List Threat Categories: **RE** – Regionally Extinct; **CR** – Critically Endangered (taxa that meet CR criteria and are at high risk of extinction in the wild); **EN** – Endangered (taxa that meet EN criteria and are at high risk of extinction in the wild); **VU** – Vulnerable (taxa that meet VU criteria and are at high risk of extinction in the wild); **NT** – Near Threatened (when taxa do not qualify for CR, EN or VU status, but are close to qualifying least or is likely to qualify in the future); **DD** – Data Deficient (in most cases, species have recently been found in GB and there is insufficient data available for evaluation); **LC** – Least Concern; and, **NE** – Not Evaluated (conservation status of the taxa has not yet been evaluated).

Some recent red lists have provided additional information, as follows:

- **P** – provisional assessment, based on insufficient data for a formal IUCN assessment, and not equivalent to this; **NR** – Species recorded from 15 or fewer 10 km squares; **NS** – Species recorded from between 15 and 100 10-km squares.

These assessments are generally more accurate, although there have still been substantial changes in the distribution and abundance of some species since reviews were published.

2.7. Constraints

Walking around the site was difficult due to the limited number of access points, and large areas of dense young woodland. This meant that some areas were never visited, particularly the eastern half of Llangloffan Fen. The distributions of many invertebrates are patchy, so it is inevitable that some species will have been missed. Accepting this, sufficient data were gathered for site interpretation, so it does not affect the conclusions of this report.

3. Results

3.1. Summary

891 invertebrate species were recorded in the 2025 samples at Corsydd Llangloffan. This total is summarised by taxonomic grouping in Table 5, including the numbers of species with conservation status.

Table 5. Summary of the number of invertebrate species recorded at Corsydd Llangloffan SSSI in 2025, and conservation status.

Taxonomic group	Vernacular name	Number of species	Species with conservation status
Araneae	Spiders	92	7
Coleoptera	Beetles	275	16
Diptera	Flies	408	12
Hemiptera	Bugs	79	4
Hymenoptera	Ants, Bees & Wasps	19	0
Isopoda	Woodlice	5	0
Lepidoptera	Butterflies	1	0
Mecoptera	Scorpion flies	1	0
Opiliones	Harvestmen	11	0
–	–	**891**	**39**

Of the 148 fen assemblage species, a total of 56 was recorded (38%) including 22 of the 48 key species (46%). A further 65 species included in fen and bog assemblages on other Welsh SSSIs were recorded for the first time at Corsydd Llangloffan.

3.2. Species conservation status

39 invertebrate species with a published conservation status or a provisional conservation status were recorded at Corsydd Llangloffan in 2025, and these are listed in Table 6. Following this, the ecology and distribution of the Near Threatened and Red Data Book species is discussed, in addition to species not categorised but recorded for the first time in Wales.

Table 6. Invertebrate species with conservation status recorded at Corsydd Llangloffan SSSI in 2025 (species recorded marked Y).

Order	Family	Taxon	Threat status	Rarity status	Llangloffan Fen	Western Cleddau
Araneae	Linyphiidae	*Allomengea vidua*	LC	NS	Y	Y
Araneae	Linyphiidae	*Erigonella ignobilis*	LC	NS	Y	Y
Araneae	Linyphiidae	*Saaristoa firma*	LC	NS	Y	–
Araneae	Linyphiidae	*Taranucnus setosus*	LC	NS	Y	Y
Araneae	Theridiidae	*Robertus neglectus*	LC	NS	–	Y
Araneae	Theridiidae	*Rugathodes instabilis*	LC	NS	Y	Y
Araneae	Theridiosomatidae	*Theridiosoma gemmosum*	LC	NS	Y	Y
Coleoptera	Chrysomelidae	*Mantura obtusata*	LC	NS	–	Y
Coleoptera	Erirhinidae	*Notaris scirpi*	–	Nb	–	Y
Coleoptera	Hydrophilidae	*Chaetarthria simillima*	LC	NS	–	Y
Coleoptera	Nitidulidae	*Epuraea distincta*	–	Na	Y	Y
Coleoptera	Scirtidae	*Elodes elongatus*	LC	NS	–	Y
Coleoptera	Staphylinidae	*Aleochara brevipennis*	–	N	–	Y
Coleoptera	Staphylinidae	*Atheta strandiella*	–	N	–	Y
Coleoptera	Staphylinidae	*Bibloplectus spinosus*	–	N	Y	–
Coleoptera	Staphylinidae	*Ilyobates nigricollis*	–	RDBK	Y	–

Order	Family	Taxon	Threat status	Rarity status	Llangloffan Fen	Western Cleddau
Coleoptera	Staphylinidae	*Ischnosoma longicorne*	–	N	–	Y
Coleoptera	Staphylinidae	*Manda mandibularis*	NT	NR	–	Y
Coleoptera	Staphylinidae	*Ochthephilum fracticorne*	LC	NS	–	Y
Coleoptera	Staphylinidae	*Oxytelus fulvipes*	LC	NS	Y	Y
Coleoptera	Staphylinidae	*Schistoglossa gemina*	–	N	Y	Y
Coleoptera	Staphylinidae	*Stenus carbonarius*	–	Nb	–	Y
Coleoptera	Staphylinidae	*Stenus kiesenwetteri*	–	RDB2	–	Y
Diptera	Agromyzidae	*Phytomyza clematidis*	–	pRDB2	–	Y
Diptera	Chloropidae	*Pseudopachychaeta oscinina*	–	N	–	Y
Diptera	Dolichopodidae	*Achalcus britannicus*	LC	NS	Y	Y
Diptera	Limoniidae	*Dicranomyia lucida*	–	N	Y	Y
Diptera	Limoniidae	*Limonia trivittata*	–	N	Y	–
Diptera	Limoniidae	*Molophilus bihamatus*	–	N	Y	–
Diptera	Limoniidae	*Thaumastoptera calceata*	–	N	–	Y
Diptera	Muscidae	*Phaonia falleni*	–	pNS	–	Y
Diptera	Sciomyzidae	*Pherbellia dorsata*	–	N	–	Y
Diptera	Stenomicridae	*Podocera delicata*	–	pNS	Y	–
Diptera	Tephritidae	*Chetostoma curvinerve*	–	RDB2	Y	–
Diptera	Tephritidae	*Trupanea amoena*	–	RDB2	–	Y
Hemiptera	Ceratocombidae	*Ceratocombus coleoptratus*	LC	NS	Y	–
Hemiptera	Delphacidae	*Delphacodes capnodes*	–	Nb	Y	–
Hemiptera	Miridae	*Teratocoris caricis*	–	Nb	Y	Y
Hemiptera	Rhopalidae	*Liorhyssus hyalinus*	LC	NS	–	Y

Key: Threat Status – LC = Least Concern; NT = Near Threatened. **Conservation Status** – RDB2 = Red Data Book 2; pRDB2 = provisionally Red Data Book 2; NR = Nationally Rare; NS = Nationally Scarce; Na = Nationally Notable A; Nb = Nationally Notable B; N = Nationally Notable; pNS = provisionally Nationally Scarce.

3.2.1. Beetles

Ilyobates nigricollis [RDBK]

A rove beetle. Two males and two females were found in pitfall trap samples at Llangloffan Fen between 14th July and 12th August. These were in tall fen, amongst Reed Canary-grass litter. It is a poorly-known species with widely scattered records in Britain, including from leaf litter and in *Sphagnum* mixed with leaf litter (Hyman & Parsons, 1994).

Manda mandibularis [NT, NR]

A rove beetle. One female was found in a pitfall trap sample at Western Cleddau between 13th July and 13th August. This was in tall fen near a spring-line flush, amongst Meadowsweet, Sharp-flowered Rush *Juncus acutiflorus*, Branched Bur-reed *Sparganium erectum*, and Water Horsetail *Equisetum fluviatile*. This species was previously confined to southern England, with recent records only from West Gloucestershire, East Sussex, and West Kent. It inhabits the draw-down zone of ponds, lakes and reservoirs and fluctuating marsh on river floodplains (Boyce, 2022; McGill, 2025). As only one individual was found at Corsydd Llangloffan, it is difficult to interpret the record, particularly as the pitfall traps were in place from 16th June to 16th September, and suction samples were also collected

from the flush. It seems likely that it either dispersed from another location within the site or occurred as a vagrant. **This is the 1st record for Wales**.

Stenus kiesenwetteri [RDB2]

A rove beetle. One female was recorded in a suction sample at Western Cleddau on 13th October. This was in an acid flush, amongst *Sphagnum* moss, Purple Moor-grass *Molinia caerulea* and Tormentil *Potentilla erecta*. It is a characteristic species of lowland bogs and particularly associated with *Sphagnum*. Although it was never found in the WPIS surveys, another new location in Wales was discovered by suction sampling at Crymlyn Bog in 2022 (Gallon & McGill, 2023). It is probably poorly sampled by pitfall traps.

3.2.2. Flies

Chetostoma curvinerve [RDB2]

A fruit fly. One male was found at Llangloffan Fen on 12th August. It was swept from around flowering Wild Angelica. The larval biology of this species is unknown although it is thought likely to develop in berries. Following a long gap between the first and second British specimens in 1893 and 1973, recent years have seen a considerable increase in records (Clemons, 2010). The distribution is now scattered in England, Wales and Scotland, and it may not have conservation status in a future review.

Helina deleta

A house fly. A male and a female were recorded in a flight interception sample from herb-rich tall fen at Western Cleddau between 13th August and 16th September. Another female was caught in a flight interception trap amongst scrub-invaded wetland at Llangloffan Fen between 12th August and 15th September. Larvae of this species develop in dung, and it was added to the British list in 2012 from calcareous Breck grassland (Irwin & Pont, 2014). Subsequently there have been records in south-west England from Cornwall to Dorset, and it is a likely colonist, if not already established. **This is the 1st record for Wales.**

Phytomyza clematidis [pRDB2]

A leaf-mining fly. Two males were recorded in suction samples at Western Cleddau, on 16th June and 13th July. Both were found around a pond, one amongst Creeping Bent *Agrostis stolonifera* and Marsh Cinquefoil, and the other from Bog Pondweed *Potamogeton polygonifolius* and Common Spike-rush *Eleocharis palustris*. The host plants are various species in the buttercup family *Ranunculaceae*, and it is possibly associated with Lesser Spearwort *Ranunculus flammula* at Llangloffan, which was also growing around the pond margins.

Trupanea amoena [RDB2]

A fruit fly. Three males were found at Western Cleddau on 16th June. Two were recorded in tall fen (Meadowsweet, Branched Bur-reed, and Water Horsetail) and the other was swept from around flowering Hemlock Water-dropwort *Oenanthe crocata*. It is associated with a wide range of composites of no particular group (Falk, 1991) and apparently remains rare. In Wales it has been recorded at Morfa Harlech in Merionethshire (2006), and Nicholaston Burrows in Glamorganshire (2009).

3.3. Pantheon analysis

Thirteen Specific Assemblage Types were reported by Pantheon for the invertebrate samples at Corsydd Llangloffan in 2025. These are summarised in Table 7, including

species thresholds set at a national level for Favourable condition of the assemblages. The categorisation of qualifying species is summarised in Appendix 5.

Table 7. The Specific Assemblage Types reported by Pantheon for invertebrate samples at Corsydd Llangloffan in 2025.

SAT code	SAT name	Number of species recorded	SAT species threshold	SAT condition
A212	Bark & sapwood decay	11	19	Unfavourable
A213	Fungal fruiting bodies	3	7	Unfavourable
A215	Epiphyte fauna	1	3	Unfavourable
F001	Scrub edge	10	11	Unfavourable
F002	Rich flower resource	10	15	Unfavourable
F003	Scrub-heath & moorland	8	9	Unfavourable
F111	Bare sand & chalk	1	19	Unfavourable
F112	Open short sward	1	13	Unfavourable
F113	Exposed sea-cliff	1	–	–
W216	Seepage	2	6	Unfavourable
W221	Undisturbed fluctuating marsh	4	4	Favourable
W312	Sphagnum bog	7	8	Unfavourable
W313	Moss & tussock fen	3	6	Unfavourable
W314	Reed-fen & pools	11	11	Favourable

4. Discussion

4.1. Pantheon analysis

The Pantheon scores for the Corsydd Llangloffan survey in 2025 reach the national thresholds suggested for two assemblages as SSSI designated features – W314 *Reed-fen & pools*, and W221 *Undisturbed fluctuating marsh*. The sampling effort to achieve this was considerably above the minimum of four samples suggested for assessment of individual assemblages (Drake *et al*., 2007). There is no guidance about whether there is an upper limit to the number of samples that should be collected. It is also possible to compare the results with Pantheon analysis of the WPIS data for 1987, as this used similar sampling methods, although in fewer locations. The Specific Assemblage Types for both surveys are listed in Table 8.

Table 8. The Specific Assemblage Types reported by Pantheon for invertebrate samples on Corsydd Llangloffan in 1987 and 2025.

SAT code	SAT name	Number of species 1987	Number of species 2025	SAT species threshold
A212	Bark & sapwood decay	–	11	19
A213	Fungal fruiting bodies	–	3	7
A215	Epiphyte fauna	–	1	3

SAT code	SAT name	Number of species 1987	Number of species 2025	SAT species threshold
F001	Scrub edge	6	10	11
F002	Rich flower resource	5	10	15
F003	Scrub-heath & moorland	12	8	9
F111	Bare sand & chalk	–	1	19
F112	Open short sward	2	1	13
F113	Exposed sea-cliff	–	1	–
W126	Seepage	2	2	6
W221	**Undisturbed fluctuating marsh**	**1**	**4**	**4**
W312	Sphagnum bog	3	7	8
W313	Moss & tussock fen	1	3	6
W314	**Reed-fen & pools**	**4**	**11**	**11**

The scores for *Reed-fen & pools* (W314) and *Undisturbed fluctuating marsh* (W221) increased in 2025 compared with 1987. The WPIS survey mostly involved pitfall and water trapping in a small number of fixed locations, and this probably explains most of the difference. Some of the newly recorded species were found by sweeping (the weevil *Nanophyes marmoratus*) or in suction samples (the stenomicrid fly *Podocera delicata*). Others were only represented by single individuals – including the rove beetles *Lathrobium impressum* and *Manda mandibularis*. These could easily have been overlooked if fewer locations were sampled. The *Scrub-heath & moorland* (F003) assemblage was above the national threshold in 1987 but slightly below this in 2025. It was not specifically targeted in the current survey, so no conclusions can be drawn about this.

4.2. The fen invertebrate assemblage

Analysis of invertebrate data in Pantheon has limitations. Some species are not coded to specific assemblages despite being habitat specialists – as an example for Llangloffan, the money-spider *Glyphesis servulus* should be associated with Moss & tussock fen (W313). For some assemblages the numbers of species are also small, making the values sensitive to recording individual taxa. This has affected the comparison of WPIS data with the current survey, as discussed previously. More detailed assemblage data are available for Corsydd Llangloffan, including the list of 148 species classified as part of the fen invertebrate community. 56 of these were recorded in the current survey (38%), as well as 22 of the 48 key species (46%). Broad habitat associations have also been suggested for 62 of the 148 species (Boyce, 2002). For the subset of taxonomic groups with equivalent coverage in the WPIS and the current survey (beetles, bugs, flies, spiders), this provides comparative data for 60 species.

- 38 species are associated with Tall Fen and 39% were not recorded in 2025.
- 36 species are associated with Open Fen and 42% were not recorded in 2025.
- 14 species are associated with Carr and 43% were not recorded in 2025.
- 19 species are associated with Poor Fen and 47% were not recorded in 2025.

Species which were not recorded in 2025 have not necessarily been lost from the site, as any survey is an exercise in sampling. The numbers of species associated with carr and poor fen are also smaller, which makes the percentages for these groups more sensitive to the presence or absence of individual species. Nevertheless, it broadly suggests that species associated with tall fen are more readily encountered than those in poor fen. As

the area of poor fen was always much smaller than tall fen, this is not surprising. In particular, a productive poor fen sample location from the WPIS (SM907.317) may have been lost to the expansion of carr woodland, although the actual sampling location is uncertain. It may have been on the southern boundary of the SSSI, and it was impossible to reach this through the carr woodland.

There is concern that some poor fen species which have not been recorded since the WPIS surveys may have been lost from the site. The money spider *Glyphesis servulus* is associated with tussocks and litter on peatland soils where the water table is high (including Black Bog-rush *Schoenus nigricans* at Crymlyn Bog and Purple Moor-grass at Trellech Common). Although Purple Moor-grass tussocks were sampled at Llangloffan Fen, these were in rather dry situations. The money spider *Hypselistes jacksoni* is usually found in *Sphagnum*. An acid flush with *Sphagnum* was sampled in September and October at Western Cleddau and this species was not recorded, although the presence of *Lamproplax picea* and *Stenus kiesenwetteri* suggests good quality habitat.

4.3. Analysis of fenland species by habitat

286 species were associated with the broad wetland habitat classification by Pantheon, with 20 additional species additionally categorised in the NRW fenland assemblage for Corsydd Llangloffan (see Appendix 4). These are summarised by occurrence in samples from different habitats in Appendix 6. 236 of the species were found for the first time at Corsydd Llangloffan in 2025. Relatively few are likely to be new colonists at the site, which demonstrates the difficulty of compiling a species inventory. This is because invertebrates are active in different habitat strata requiring a range of sampling methods, some species are patchily distributed within a site, and numbers can fluctuate from year to year. The numbers of species in each habitat are not directly comparable, as the habitats were subject to different sampling intensity determined by the availability and accessibility of sampling locations. Accepting this, the numbers of species only recorded in samples from a single habitat are outlined in Table 9.

Table 9. Species classified by Pantheon as broadly associated with wetlands from invertebrate samples at Corsydd Llangloffan in 2025.

Habitat	Total species	Unique species	Percentage of unique species
Carr	98	15	15
Open fen	137	28	20
Poor fen	92	13	14
Tall fen (graminoid)	122	19	16
Tall fen (herb)	190	47	25

Some of the species recorded singly are strays from other habitats – for example *Lipara rufitarsis* is associated with graminoid tall fen rather than mixed tall fen, as the larva develop in galls on Common Reed. An additional 32 species were strongly associated with one habitat (arbitrarily defined as more than 75% of the species total, with a minimum of 5 individuals).

4.3.1. Graminoid tall fen

This habitat is very well-developed at Llangloffan. Areas closest to the river are dominated by Reed Canary-grass (see Photo A3.8). Other locations have more Common Reed, which was described as having increased significantly in the 1990s (Boyce, 2002) although this spread may have now reversed. WPIS Sample location 1 at Llangloffan Fen

was an unmanaged reedbed with 90% cover of Common Reed (Holmes *et al*., 1995), whereas Reed Canary-grass was the dominant species in 2025 (see Photo A3.7). This may reflect reduced summer water levels, or increased nutrient input. Large stands of Greater Tussock-sedge are a conspicuous feature of the SSSI and provide further variation in habitat (see Photo A3.9).
Dense graminoid litter creates a humid and thermally buffered microhabitat. This is particularly valuable in fen environments where many specialist taxa are sensitive to desiccation. These conditions can be especially important in dry summers, when surrounding vegetation becomes inhospitable. Overlapping litter creates a three-dimensional internal structure resembling loose thatch. The spaces within provide protection from larger predators, and function as movement corridors, oviposition substrates, pupation and overwintering sites. The habitat is favoured by a lack of management, though dense litter does reduce plant diversity. Nineteen species were only recorded in graminoid tall fen samples:

- *Ilybius fuliginosus* (1), *Alianta incana* (1), *Atheta malleus* (1), *Bibloplectus spinosus* (2), *Gabrius trossulus* (2), *Ilyobates nigricollis* (4), *Platystethus nitens* (2), *Stiphrosoma cingulatum* (2), *Diastata adusta* (1), *Dolichopus popularis* (1), *Syntormon bicolorellum* (1), *Limonia trivittata* (1), *Cleigastra apicalis* (1), *Pherbellia schoenherri* (1), *Pteromicra angustipennis* (1), *Themira annulipes* (2), *Podocera delicata* (1), *Muellerianella extrusa* (3), *Asellus aquaticus* (1).

Six additional species were strongly associated with this habitat:

- *Hygronoma dimidiata* 51/53 (96%), *Hydraena britteni* 37/40 (93%), *Psammoecus bipunctatus* 24/27 (89%), *Cymus glandicolor* 72/82 (88%), *Schistoglossa gemina* 8/10 (80%), *Anotylus rugosus* 107/141 (76%).

4.3.2. Mixed tall fen

Mixed tall fen communities have formed along spring-lines and historic drainage channels and are better represented at Western Cleddau. Meadowsweet is a constant component, and other frequent plants include Common Sorrel *Rumex acetosa*, Hairy Willowherb *Epilobium hirsutum*, Hemlock Water-dropwort, Wild Angelica, Branched Bur-reed, Sharp-flowered Rush and Water Horsetail (see Photos A3.10 and A3.11). Compared with graminoid-dominated vegetation, these communities provide a broader range of larval host plants, supporting phytophagous beetles, bugs, flies and moths that rely on specific plant taxa or families. The greater availability of floral resources also benefits a wide range of flower-visiting species. Forty-seven species were only recorded in mixed tall fen samples:

- *Bembidion aeneum* (1), *Phaedon armoraciae* (2), *Phyllobrotica quadrimaculata* (1), *Plateumaris discolor* (4), *Notaris scirpi* (1), *Atheta elongatula* (4), *Atheta strandiella* (1), *Bryaxis puncticollis* (1), *Manda mandibularis* (1), *Philonthus micans* (1), *Stenus carbonarius* (1), *Zaphne caudata* (1), *Zaphne inuncta* (1), *Bellardia pandia* (2), *Lipara rufitarsis* (1), *Dixella autumnalis* (2), *Dixella martinii* (1), *Dolichopus claviger* (4), *Dolichopus griseipennis* (6), *Dolichopus latilimbatus* (2), *Dolichopus longitarsis* (1), *Dolichopus pennatus* (3), *Dolichopus urbanus* (2), *Gymnopternus metallicus* (1), *Poecilobothrus nobilitatus* (1), *Hilara chorica* (16), *Hilara litorea* (1), *Hilara longifurca* (2), *Scatella stagnalis* (1), *Euphylidorea aperta* (4), *Helius longirostris* (1), *Molophilus flavus* (4), *Graphomya maculata* (26), *Limnophora maculosa* (7), *Limnophora triangula* (16), *Norellisoma spinimanum* (1), *Scathophaga suilla* (1), *Tetanocera robusta* (1), *Beris geniculata* (1), *Eristalis pertinax* (4), *Orthonevra nobilis* (6), *Platycheirus granditarsus* (1), *Platycheirus occultus* (1), *Sphenella*

marginata (2), *Tipula lateralis* (2), *Eupteryx signatipennis* (1), *Stenocranus major* (6).

Thirteen additional species were strongly associated with this habitat:

- *Chlorops hypostigma* 27/28 (96%), *Helius flavus* 14/15 (93%), *Elachiptera megaspis* 21/24 (88%), *Pterostichus minor* 39/45 (87%), *Paradelphomyia senilis* 11/13 (85%), *Carabus granulatus* 10/12 (83%), *Dolichopus ungulatus* 14/17 (82%), *Neoascia tenur* 29/36 (81%), *Antistea elegans* 22/28 (79%), *Quedius maurorufus* 7/9 (78%), *Sympycnus pulicarius* 14/18 (78%), *Riponnensia splendens* 10/13 (77%), *Anacaena limbata* 21/28 (75%).

4.3.3. Open fen

The most recent appraisal of management for invertebrates at Corsydd Llangloffan listed seven compartments that were grazed by cattle (Boyce, 2002). This was described as providing a good range of vegetation structures, including heavily grazed open fen grassland, and lightly grazed mosaics of open fen and tall fen. The most obvious change observed in the current survey has been the cessation of grazing across almost the whole SSSI (see Photo A3.12). Only one privately-owned compartment west of Llangloffan Bridge is still grazed by cattle, although this was not sampled in the current survey. It would be interesting to compare the invertebrate fauna here with the ungrazed compartments, particularly to investigate whether any of the missing open fen species from the WPIS survey are still present.

Among the compartments where grazing has lapsed, only small areas on the north side of the Western Cleddau retain any open fen character. Part of one field (SM8999.3194) had Soft-rush *Juncus effusus* as tussocks, relatively less bulky grasses including Floating Sweet-grass *Glyceria fluitans*, and patches of smaller herbaceous plants, including Marsh Cinquefoil *Comarum palustre*, Marsh Bedstraw *Galium palustre*, Water Mint *Mentha aquatica* (see Photo A3.13). Most similar areas are now very limited in extent and in the process of conversion to tall fen. Shallow ponds and scrapes at Western Cleddau also provided open wet ground and were some of the few locations with Greater Bird's-foot-trefoil *Lotus pedunculatus*, Tufted Forget-me-not *Myosotis laxa* and Common Spike-rush (see Photo A3.14).

Twenty-eight species were only recorded in open fen samples:

- *Larinioides cornutus* (1), *Donacia versicolorea* (1), *Helophorus grandis* (1), *Cymbiodyta marginella* (1), *Enochrus ochropterus* (2), *Scirtes hemisphaericus* (1), *Euaesthetus laeviusculus* (3), *Euaesthetus ruficapillus* (2), *Philonthus nigrita* (1), *Pseudopachychaeta oscinina* (1), *Coquillettidia richiardii* (1), *Dolichopus vitripennis* (1), *Thrypticus bellus* (1), *Clinocera stagnalis* (2), *Hydrellia nigricans* (2), *Notiphila cinerea* (1), *Notiphila uliginosa* (1), *Parydra coarctata* (1), *Scatella lacustris* (62), *Meiosimyza decipiens* (1), *Pherbellia dorsata* (4), *Pherbina coryleti* (1), *Sepedon sphegea* (1), *Tetanocera ferruginea* (1), *Prionocera turcica* (3), *Tipula oleracea* (1), *Eupteryx thoulessi* (2), *Teratocoris caricis* (2).

Three additional species were strongly associated with this habitat:

- *Hydrellia albiceps* 11/12 (91.7%), *Piratula latitans* 7/8 (87.5%), *Pardosa amentata* 6/7 (85.7%).

4.3.4. Poor fen

This has always been described as the most restricted fen habitat at Corsydd Llangloffan. Large areas of ungrazed Purple Moor-grass and bog-moss mire at Llangloffan Fen were becoming overgrown by trees more than 20 years ago (Boyce, 2002) and this area has almost entirely succeeded to carr (see Photos A3.15 and A3.16). There is still one spring-line flush in the open at Western Cleddau, although this was not discovered until September (see Photos A3.17 to A3.18). Poor fen supports distinctive invertebrate assemblages adapted to nutrient-poor, base-deficient and often permanently wet conditions. These habitats are typically characterised by slow-moving or seeping groundwater, saturated peat or mineral soils, and vegetation dominated by bog mosses or smaller herbaceous plants. The combination of low nutrient availability, acidic conditions and relatively open vegetation structure favours specialist taxa that are often absent from more productive fen or marsh habitats. Thirteen species were only recorded in poor fen samples:

- *Mantura obtusata* (1), *Chaetarthria simillima* (1), *Bibloplectus ambiguus* (2), *Lathrobium elongatum* (1), *Lathrobium impressum* (1), *Ochthephilum fracticorne* (1), *Stenus kiesenwetteri* (1), *Oscinella cariciphila* (1), *Rhopalopterum anthracinum* (1), *Axysta cesta* (1), *Dicranota pavida* (1), *Platycheirus fulviventris* (1), *Lamproplax picea* (1).

Three additional species were strongly associated with this habitat:

- *Reichenbachia juncorum* 37/40 (92.5%), *Pachybrachius fracticollis* 8/9 (88.9%), *Fagniezia impressa* 6/7 (85.7%), *Cryptonevra flavitarsis* 6/7 (85.7%).

4.3.5. Carr

The loss of open fen and mire habitats at Llangloffan has been caused by the increasing area of carr woodland, primarily sallow and Downy Birch (see Photo A3.19). This is part of a long-term trend following the cessation of pastoral use of the fen, and more recently conservation grazing. It has been suggested from a botanical perspective that “wider development of this habitat may well not be detrimental to the species resource, and may even be beneficial” (Wheeler *et al*., 2001). Carr does support a distinct invertebrate fauna, although the uncontrolled expansion of young woodland in the fen cannot be recommended for conservation of the invertebrate interest.

Features of carr woodland include decaying timber, saproxylic fungi, and continuity of humid microclimatic conditions. Sallow and birch host a wide range of phytophagous insects, including leaf beetles, moths, and sawflies. Sallow is additionally valuable as an early spring nectar and pollen source, supporting emerging bees, hoverflies and other flower-visiting insects at a time when alternative forage is limited. The only bare ground in the current survey, apart from along paths, was in pits created by the root-plates of fallen trees (see Photo A3.20). This was the only location where the cranefly *Molophilus bihamatus* was found, as it requires exposed black organic substrate in shaded conditions (either from carr or reedbeds).

Fifteen species were only recorded in carr woodland samples:

- *Saaristoa firma* (1), *Xysticus ulmi* (1), *Elaphrus cupreus* (1), *Epuraea distincta* (4), *Elodes elongatus* (2), *Carpelimus corticinus* (1), *Tachyporus transversalis* (1), *Paranthomyza nitida* (1), *Dixa nebulosa* (1), *Syntormon sulcipes* (2), *Chelifera precatoria* (1), *Limonia macrostigma* (1), *Molophilus bihamatus* (9), *Thaumastoptera calceata* (11), *Phaonia falleni* (2).

Two additional species were strongly associated with this habitat:

- *Campsicnemus loripes* 14/15 (93.3%), *Hydraena testacea* 7/8 (87.5%).

4.4. Site management

The lack of recent grazing has considerably influenced the vegetation structure at Llangloffan. Light grazing helps to keep vegetation open and without this smaller herbs must have become more localised. At present, one of the most flower-rich areas is beside the boardwalk at Llangloffan Fen, as this is strimmed for accessibility (see Photo A3.21). Small Pearl-bordered Fritillary *Boloria selene* is part of the fen assemblage and was not recorded during the current survey. In wetlands the larvae develop on Marsh Violet *Viola palustris*. Violets require some disturbance and in the absence of grazing these will be swamped by tall grass, and no suitable habitat was seen. Another consequence of the lack of grazing is that very little bare ground is available. The ground beetle *Chlaenius nigricornis* is characteristic of grazed fen sites, usually in floodplains with fluctuating water levels (Boyce, 2002). This species was only found in one location at Llangloffan Fen during the WPIS survey (Holmes *et al.*, 1995) and has also possibly been lost from the site.

Carr habitat has continued to expand. There are large areas of young woodland, particularly at the western end of Llangloffan Fen. The open fen vegetation here has been almost entirely covered by Downy Birch, Guelder-rose *Viburnum opulus* and Grey Willow (see Photo A3.22). Sycamore has colonised the carr which indicates that conditions are becoming drier, and bramble is increasing. In the absence of grazing, bramble has also formed thickets on banks around the fen, where flowering plants including Common Knapweed *Centaurea nigra* and Tormentil are becoming rarer (see Photo A3.23). Stands of Reed Canary-grass produce a very dense litter layer and are proving relatively resistant to tree colonisation (see Photo A3.24). Woody species are likely to colonise disturbed ground after grazing has lapsed, and this has probably accelerated the expansion of woodland at Llangloffan.

Trees in a newly established plantation woodland have been planted too close to the only open acid flush at Western Cleddau (SM8946.3175). Part of the flush was dug out to create a pond which is not good practice, although a channel at the back of the pond has now filled with a raft of *Sphagnum* and Marsh Cinquefoil (see Photo A3.25). As the trees mature this will increase the amount of leaf litter entering the flush, tree colonisation, and possibly also affect the hydrology. The planted trees should be removed to a sufficient distance that upon maturity none of these will cast shade on the flush. Young sallow which has colonised the flush to the south of the pond should also be removed.

Some of the issues affecting Corsydd Llangloffan originate outside the SSSI. Himalayan Balsam *Impatiens glandulifera* is being dispersed by the Western Cleddau and is established locally in carr woodland closest to the river. At present the plant is removed by hand-pulling and this should continue. There was evidence of nutrient enrichment in one of the flushes on the south side of Western Cleddau, where herb-rich tall fen has been replaced by a strip of Stinging Nettle *Urtica dioica* (see Photo A3.26). The source of this pollution should be identified and if possible action should be taken to prevent it. It is

possible that the SSSI is also being affected by phosphate pollution from the river. Volunteers were collecting water samples at Llangloffan Fen for testing during one of the survey visits in 2025, although the results of this are not currently available (The Cleddau Project, 2026).

Future management at Corsydd Llangloffan is likely to be constrained by the resources available. Scrub can be cleared from fens to good effect, although this is more cost-effective when managing an advancing front of young trees. It will be most beneficial in compartments where it is possible to reinstate grazing. The fen was traditionally managed by summer grazing and this is necessary in some areas to support the widest range of fen invertebrate species. Light and late cattle grazing is usually recommended in fens, between July and October at a low density with no more than two cows per hectare (Burgess *et al*., 1995). Water Buffalo have also been used successfully to graze Teifi Marshes, a Pembrokeshire nature reserve owned and managed by the Wildlife Trust of South and West Wales (PONT, 2019). These animals have greater tolerance for waterlogged ground, rough grazing, and are more likely to tackle willow scrub.

Fens are prone to poaching and while some disturbance is beneficial to open up the sward, grazing animals can cause severe damage if conditions are very wet. It is easier to start with low grazing intensity and increase this if necessary. Mowing is also an option to manage fen vegetation, although it is unclear if Llangloffan was ever treated in this way. While it is important not to manage the whole site in one go using the same regime, Llangloffan is too large and difficult to access for this to be a risk. In the long-term, continued lack of management will lead to further loss of open habitats. There will still be interest in this scenario, although the fenland invertebrate assemblage will be poorer overall.

5. Conclusions

The results of the 2025 survey suggest that the fen invertebrate assemblage on Corsydd Llangloffan SSSI is still of national importance. For example, the Pantheon scores for W314 *Reed-fen & pools*, and W221 *Undisturbed fluctuating marsh* reach national thresholds. Of the 148 species comprising the assemblage, 56 were recorded in the current survey (38%), including 22 of the 48 key species (46%). These percentages are high given that fieldwork was restricted to ten days between June and October, and that not all of the site could be accessed.

However, continuing declines in the extent and quality of fen habitats to encroaching scrub and woodland will have an adverse impact upon fen fauna with the assemblage becoming unfavourable without management interventions. It is possible that key species such as the ground beetle *Chlaenius nigricornis*, and the money spiders *Glyphesis servulus* and *Hypselistes jacksoni* have already been lost to vegetation succession.

The current survey recorded an additional 65 species which contribute to fen and bog invertebrate assemblages on other Welsh SSSIs. These should be added to a revised Corsydd Llangloffan fen invertebrate assemblage. Other species such as *Manda mandibularis*, *Stenus kiesenwetteri*, *Molophilus bihamatus* and *Phytomyza clematidis* should also be considered for inclusion as they are not currently represented in any Welsh SSSI peatland assemblage.

6. Recommendations

There are seven recommendations following this survey:

1. Undertake a revision of the fen assemblage to incorporate peatland species which were found new to Corsydd Llangloffan SSSI in 2025;

2. Assess whether it is possible to restore grazing to any of the management compartments at Corsydd Llangloffan SSSI;

3. Remove trees which have been planted too close to the open acid flush at Western Cleddau;

4. Survey the grazed fen west of Llangloffan Bridge with pitfall traps for two weeks in spring;

5. Arrange access via farmland to reach the Llangloffan Pencnwch compartment on the south side of Llangoffan Fen. This has retained an open vegetation structure despite the adjacent carr woodland, and if it is the location of WPIS sample 2, further survey would be worthwhile if the acid wetland is intact;

6. Undertake targeted searches for the money spider *Glyphesis servulus* to determine its current status on Corsydd Llangloffan;

7. Survey at Western Cleddau for one day in May to try and establish whether there is a resident population of *Manda mandibularis* at Corsydd Llangloffan.

7. Acknowledgements

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Appendix 1. Survey plans

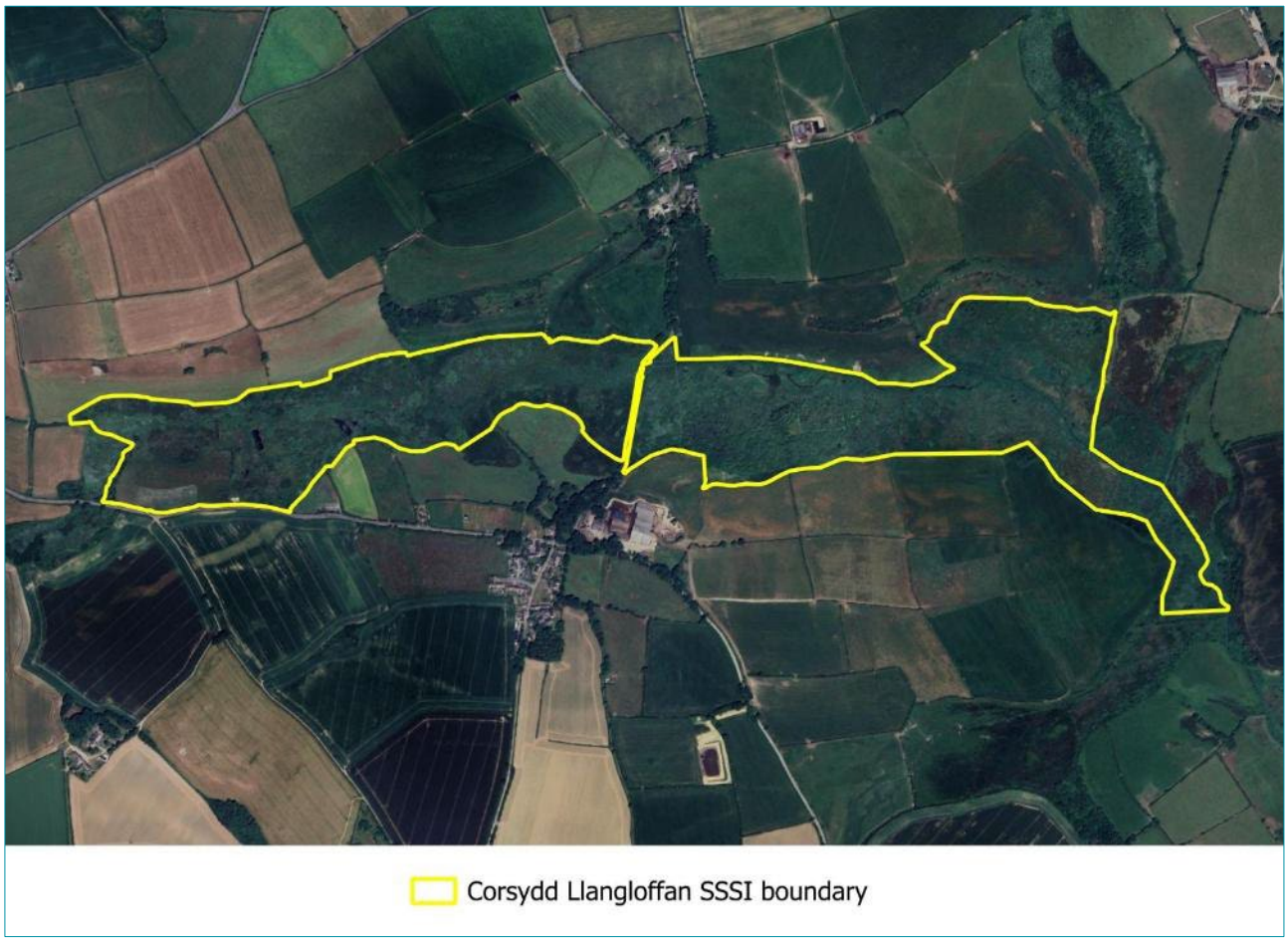

Figure A1.1. The survey area at Corsydd Llangloffan SSSI. Imagery © 2026 Google, Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies.

Figure A1.2. The areas of Llangloffan Fen and Western Cleddau. Imagery © 2026 Google, Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies.

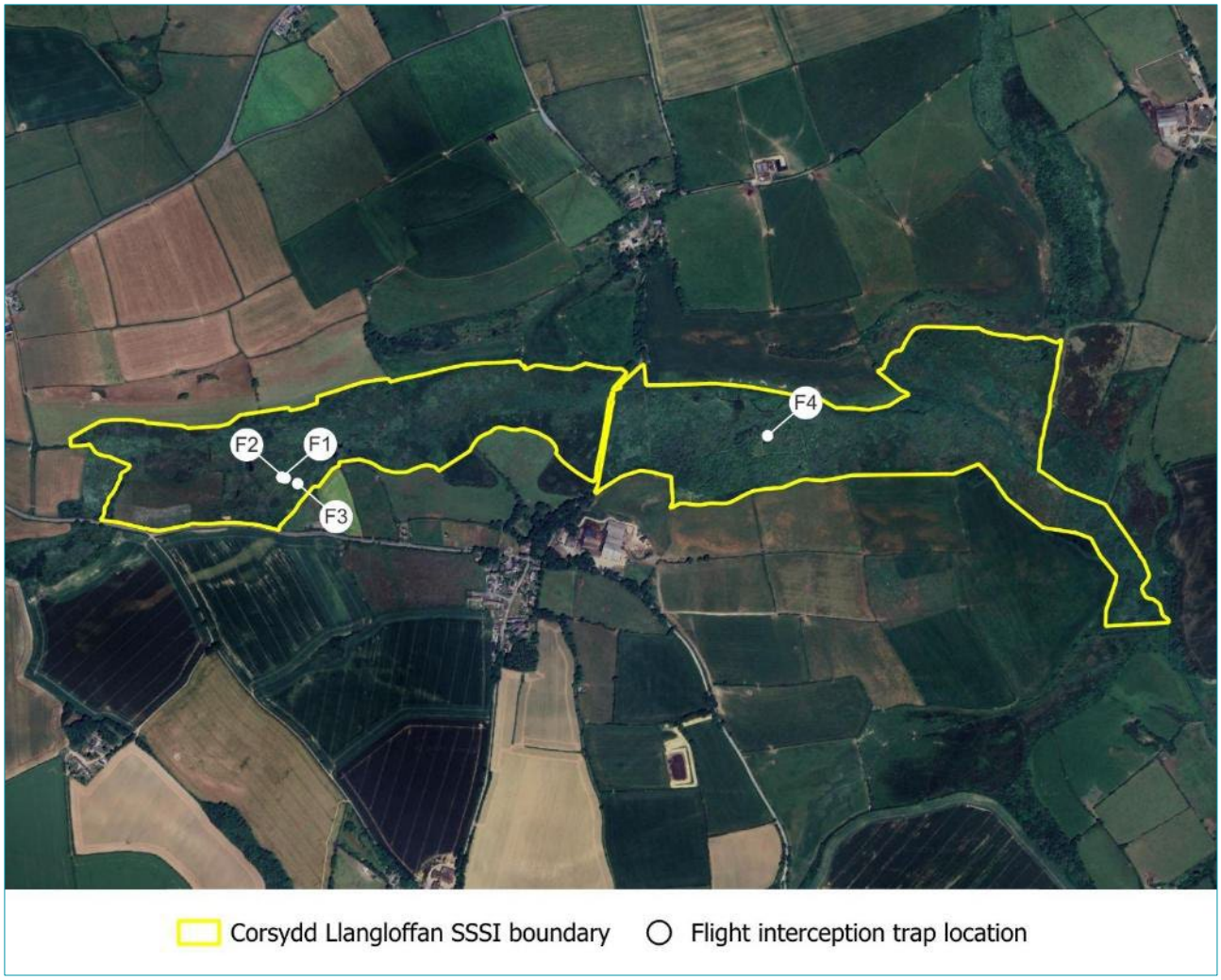

Figure A1.3. The locations of flight interception traps at Corsydd Llangloffan SSSI in 2025. Imagery © 2026 Google, Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies.

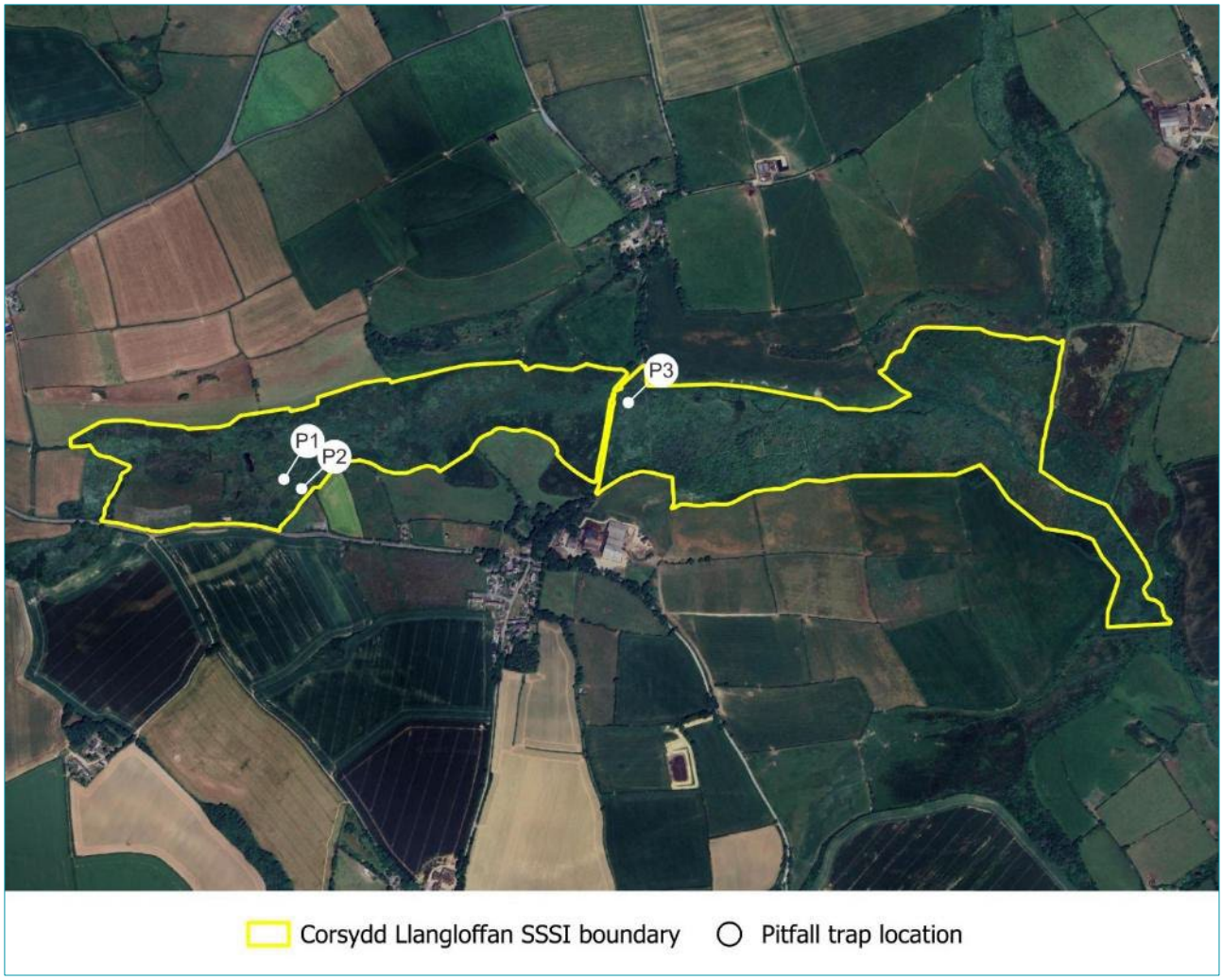

Figure A1.4. The locations of pitfall traps at Corsydd Llangloffan SSSI in 2025. Imagery © 2026 Google, Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies.

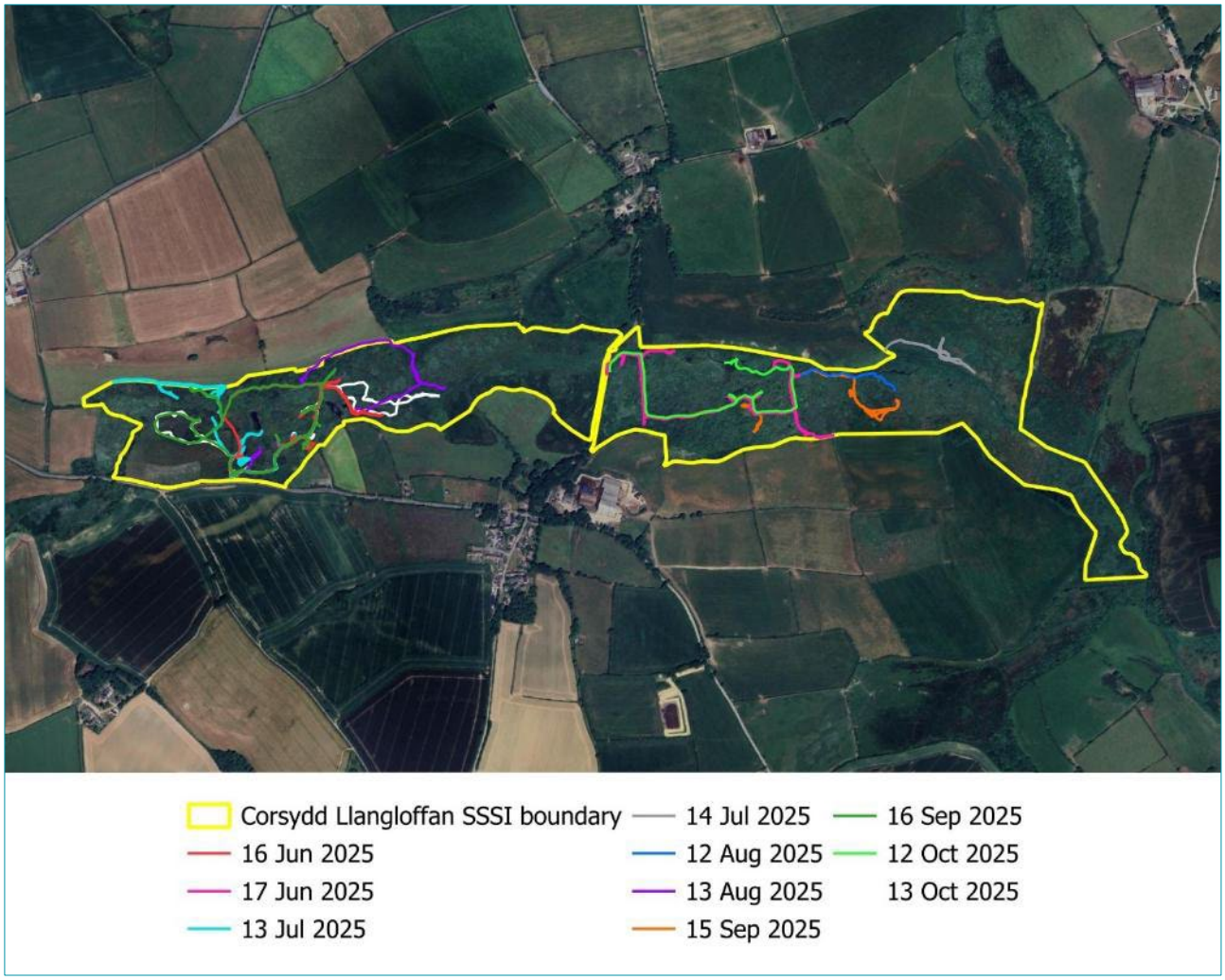

Figure A1.5. GPS tracks for the invertebrate survey at Corsydd Llangloffan in 2025. Imagery © 2026 Google, Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies.

Appendix 2. Trapping schedule

Table A2.1. Trap deployment and servicing dates for the invertebrate survey at Corsydd Llangloffan in 2025.

Trap	Jun	Jul	Aug	Sep	Oct	Total days
P1.1	16	13	13	16	13	119
P1.2	16	13	13	16	13	119
P1.3	16	13	13	16	13	119
P2.1	16	13	13	16	13	119
P2.2	16	13	13	16	13	119
P2.3	16	13	13	16	13	119
P3.1	17	14	12	15	12	117
P3.2	17	14	12	15	12	117
P3.3	17	14	12	15	12	117
F1	16	13	13	16	13	119
F2	16	13	13	16	13	119
F3	16	13	13	16	13	119
F4	–	14	12	15	12	90

Appendix 3. Site photographs

Photo A3.1. The location of flight interception trap F1 at SM89693.31751.

Photo A3.2. The location of flight interception trap F2 at SM89701.31749.

Photo A3.3. The location of flight interception trap F3 at SM89730.31736.

Photo A3.4. The location of flight interception trap F4 at SM90829.31848.

Photo A3.5. The location of pitfall traps P1.1, P1.2 and P1.3 at SM8969.3175.

Photo A3.6. The location of pitfall traps P2.1, P2.2 and P2.3 at SM8973.3172.

Photo A3.7. The location of pitfall traps P3.1, P3.2 and P3.3 at SM9050.3192.

Photo A3.8. Reed Canary-grass in Llangloffan Fen at SM9001.3185. This species forms dense stands on both sides of the River Cleddau.

Photo A3.9. Greater Tussock-sedge pedestals are a striking feature of the SSSI, occurring in open habitat and on the edges of carr woodland.

Photo A3.10. Mixed tall fen in Western Cleddau along a spring-line at SM8974.3172. Frequent species here include Branched Bur-reed, Hairy Willowherb, Meadowsweet, and Sharp-flowered Rush.

Photo A3.11. Mixed tall fen in Western Cleddau at SM8987.3181. This stand is slightly drier, and Meadowsweet and Common Sorrel are the most frequent plant species.

Photo A3.12. Disused field gate in Llangloffan Fen at SM9105.3189. The gates and fences within the SSSI are mostly modern and in good condition.

Photo A3.13. Ungrazed compartment in Western Cleddau at SM8999.3194 still retaining some characteristics of open fen, although Meadowsweet is now forming large stands in this area.

Photo A3.14. Shallow pond in Western Cleddau at SM8957.3170. Recently created ponds are some of the only areas which have not reverted to tall fen in the absence of grazing.

Photo A3.15. Young Downy Birch, Grey Willow and Guelder-rose colonising formerly open fen habitat in Llangloffan Fen at SM9082.3185.

Photo A3.16. *Sphagnum* in Llangloffan Fen at SM9083.3185. Most of the bog-moss seems to have been lost due to the expansion of carr in this area.

Photo A3.17. Acid flush in Western Cleddau at SM8946.3175, not easy to discern amongst the tall Purple Moor-grass.

Photo A3.18. *Sphagnum* and Tormentil in the acid flush in Western Cleddau at SM8946.3175.

Photo A3.19. Sallow carr in Llangloffan Fen at SM9075.3184. Dense young woodland now covers large areas in the western part of this site.

Photo A3.20. Root plate pit with saturated peat in carr woodland at Llangloffan Fen at SM9075.3184. This location was the only site for the cranefly *Molophilus bihamatus* in the current survey.

Photo A3.21. The boardwalk through Llangloffan Fen at SM9081.3181. The vegetation is lightly strimmed to keep the boardwalk open, and so it is one of the few locations with a good variety of flowering plants, including Devil's-bit Scabious, Ragged Robin and Greater Bird's-foot-trefoil.

Photo A3.22. Great Saw-sedge *Cladium mariscus* in Llangloffan Fen at SM9080.3181, extensively colonised by willow and Guelder-rose.

Photo A3.23. Dry bank in Western Cleddau at SM8955.3177. In the absence of grazing most similar areas have become dominated by bramble, which has swamped smaller flowering plants.

Photo A3.24. Monotypic stand of Reed Canary-grass in Western Cleddau at SM9001.3185. This grass produces a very dense litter layer, and undisturbed stands are fairly resistant to colonisation by trees.

Photo A3.25. The same flush at SM8947.3178 was partly excavated to create a pond. At the back of this is a channel where *Sphagnum* and Marsh Cinquefoil have formed a floating mat.

Photo A3.26. Stinging Nettle along flush at SM8988.3181. The presence of this plant indicates that nutrient-enriched water is entering the SSSI.

Appendix 4. The fen invertebrate assemblage of Corsydd Llangloffan up to year 2020

Table A4.1. Species classified as components of the fen invertebrate assemblage by Natural Resources Wales at Corsydd Llangloffan SSSI and recorded up to year 2020 (148 taxa including 48 key species).

Order	Family	Species	Status	Key species?
Araneae	Clubionidae	*Clubiona stagnatilis*	–	Y
Araneae	Hahniidae	*Antistea elegans*	–	Y
Araneae	Linyphiidae	*Agyneta cauta*	NS	Y
Araneae	Linyphiidae	*Agyneta mollis*	NT	Y
Araneae	Linyphiidae	*Allomengea vidua*	NS	Y
Araneae	Linyphiidae	*Aphileta misera*	–	Y
Araneae	Linyphiidae	*Bathyphantes approximatus*	–	Y
Araneae	Linyphiidae	*Diplocephalus permixtus*	–	Y
Araneae	Linyphiidae	*Glyphesis servulus*	–	Y
Araneae	Linyphiidae	*Gnathonarium dentatum*	–	Y
Araneae	Linyphiidae	*Hilaira excisa*	–	–
Araneae	Linyphiidae	*Hypomma bituberculatum*	–	Y
Araneae	Linyphiidae	*Hypselistes jacksoni*	NS	Y
Araneae	Linyphiidae	*Kaestneria pullata*	–	Y
Araneae	Linyphiidae	*Lophomma punctatum*	–	Y
Araneae	Linyphiidae	*Porrhomma convexum*	–	–
Araneae	Linyphiidae	*Saaristoa firma*	NS	Y
Araneae	Linyphiidae	*Tallusia experta*	–	Y
Araneae	Linyphiidae	*Taranucnus setosus*	NS	Y
Araneae	Linyphiidae	*Walckenaeria vigilax*	NS	–
Araneae	Lycosidae	*Arctosa leopardus*	–	Y
Araneae	Lycosidae	*Pirata piraticus*	–	Y
Araneae	Lycosidae	*Piratula latitans*	–	Y
Araneae	Theridiidae	*Rugathodes instabilis*	NS	Y
Araneae	Theridiidae	*Theonoe minutissima*	–	Y
Araneae	Theridiosomatidae	*Theridiosoma gemmosum*	NS	Y
Coleoptera	Aphodiidae	*Esymus merdarius*	–	–
Coleoptera	Cantharidae	*Cantharis nigra*	–	–
Coleoptera	Carabidae	*Agonum emarginatum*	–	–
Coleoptera	Carabidae	*Agonum gracile*	–	–
Coleoptera	Carabidae	*Agonum marginatum*	–	–
Coleoptera	Carabidae	*Agonum piceum*	–	–
Coleoptera	Carabidae	*Bembidion bruxellense*	–	–
Coleoptera	Carabidae	*Blemus discus*	NS	Y
Coleoptera	Carabidae	*Carabus granulatus*	–	–
Coleoptera	Carabidae	*Chlaenius nigricornis*	–	–
Coleoptera	Carabidae	*Pterostichus diligens*	–	–
Coleoptera	Carabidae	*Pterostichus minor*	–	–
Coleoptera	Chrysomelidae	*Cassida flaveola*	–	–
Coleoptera	Chrysomelidae	*Mantura obtusata*	NS	–
Coleoptera	Chrysomelidae	*Phyllobrotica quadrimaculata*	–	–
Coleoptera	Chrysomelidae	*Phyllotreta flexuosa*	–	–
Coleoptera	Curculionidae	*Hypera conmaculata*	–	–
Coleoptera	Curculionidae	*Thamiocolus viduatus*	NS	–
Coleoptera	Dytiscidae	*Agabus paludosus*	–	–

Order	Family	Species	Status	Key species?
Coleoptera	Dytiscidae	*Hydroporus incognitus*	–	–
Coleoptera	Dytiscidae	*Hydroporus striola*	–	–
Coleoptera	Dytiscidae	*Hydroporus tristis*	–	–
Coleoptera	Dytiscidae	*Ilybius montanus*	–	Y
Coleoptera	Hydrophilidae	*Anacaena lutescens*	–	–
Coleoptera	Hydrophilidae	*Enochrus affinis*	–	Y
Coleoptera	Hydrophilidae	*Helophorus granularis*	–	–
Coleoptera	Hydrophilidae	*Helophorus obscurus*	–	–
Coleoptera	Hydrophilidae	*Laccobius atratus*	NS	Y
Coleoptera	Leiodidae	*Choleva cisteloides*	–	–
Coleoptera	Nitidulidae	*Epuraea distincta*	–	–
Coleoptera	Scirtidae	*Contacyphon hilaris*	–	–
Coleoptera	Staphylinidae	*Bibloplectus spinosus*	NS	Y
Coleoptera	Staphylinidae	*Deleaster dichrous*	NS	Y
Coleoptera	Staphylinidae	*Othius laeviusculus*	–	–
Coleoptera	Staphylinidae	*Paederus riparius*	–	–
Coleoptera	Staphylinidae	*Stenus canaliculatus*	–	–
Coleoptera	Staphylinidae	*Stenus cicindeloides*	–	–
Coleoptera	Staphylinidae	*Stenus lustrator*	–	–
Coleoptera	Staphylinidae	*Stenus pallitarsis*	–	–
Coleoptera	Staphylinidae	*Tachyporus pallidus*	–	–
Diptera	Chloropidae	*Elachiptera scrobiculata*	–	–
Diptera	Culicidae	*Anopheles claviger*	–	–
Diptera	Dixidae	*Dixella serotina*	–	–
Diptera	Dolichopodidae	*Achalcus britannicus*	NS	–
Diptera	Dolichopodidae	*Achalcus cinereus*	–	–
Diptera	Dolichopodidae	*Achalcus flavicollis*	–	–
Diptera	Dolichopodidae	*Dolichopus atratus*	–	Y
Diptera	Dolichopodidae	*Gymnopternus aerosus*	–	–
Diptera	Dolichopodidae	*Gymnopternus cupreus*	–	–
Diptera	Dolichopodidae	*Medetera saxatilis*	NR	Y
Diptera	Dolichopodidae	*Syntormon bicolorellum*	–	–
Diptera	Empididae	*Clinocera fontinalis*	–	–
Diptera	Empididae	*Clinocera nigra*	–	–
Diptera	Empididae	*Dolichocephala oblongoguttata*	–	–
Diptera	Lauxaniidae	*Trigonometopus frontalis*	–	–
Diptera	Limoniidae	*Dicranomyia lucida*	NS	Y
Diptera	Limoniidae	*Helius flavus*	–	–
Diptera	Limoniidae	*Limonia dilutior*	–	Y
Diptera	Limoniidae	*Molophilus occultus*	–	–
Diptera	Limoniidae	*Neolimnomyia batava*	–	–
Diptera	Limoniidae	*Ormosia pseudosimilis*	–	Y
Diptera	Limoniidae	*Paradelphomyia nielseni*	NS	Y
Diptera	Lonchopteridae	*Lonchoptera nitidifrons*	–	–
Diptera	Muscidae	*Phaonia atriceps*	–	–
Diptera	Muscidae	*Phaonia falleni*	NS	–
Diptera	Mycetophilidae	*Brachycampta angulata*	NS	–
Diptera	Mycetophilidae	*Exechia dizona*	NR	Y
Diptera	Mycetophilidae	*Exechia exigua*	–	–
Diptera	Mycetophilidae	*Exechiopsis ligulata*	–	–
Diptera	Mycetophilidae	*Exechiopsis pollicata*	–	–
Diptera	Mycetophilidae	*Mycetophila stolida*	–	–
Diptera	Mycetophilidae	*Mycomya britteni*	NS	–

Order	Family	Species	Status	Key species?
Diptera	Mycetophilidae	*Pseudexechia aurivernica*	–	–
Diptera	Opomyzidae	*Geomyza majuscula*	NS	–
Diptera	Pediciidae	*Tricyphona immaculata*	–	–
Diptera	Scathophagidae	*Cleigastra apicalis*	–	–
Diptera	Scathophagidae	*Scathophaga scybalaria*	NS	Y
Diptera	Sciomyzidae	*Elgiva cucularia*	–	–
Diptera	Sciomyzidae	*Ilione lineata*	–	–
Diptera	Sciomyzidae	*Pherbellia schoenherri*	–	–
Diptera	Sciomyzidae	*Pteromicra angustipennis*	–	–
Diptera	Sciomyzidae	*Tetanocera arrogans*	–	–
Diptera	Stratiomyidae	*Beris clavipes*	–	–
Diptera	Syrphidae	*Anasimyia lunulata*	NS	Y
Diptera	Syrphidae	*Chrysogaster cemiteriorum*	–	–
Diptera	Syrphidae	*Melanogaster hirtella*	–	–
Diptera	Syrphidae	*Orthonevra nobilis*	–	Y
Diptera	Syrphidae	*Platycheirus immarginatus*	NS	–
Diptera	Syrphidae	*Tropidia scita*	–	–
Diptera	Tabanidae	*Tabanus sudeticus*	–	–
Diptera	Tipulidae	*Prionocera turcica*	–	–
Diptera	Tipulidae	*Tipula lateralis*	–	–
Diptera	Tipulidae	*Tipula luteipennis*	–	–
Diptera	Tipulidae	*Tipula marginella*	NR	Y
Diptera	Tipulidae	*Tipula melanoceros*	–	Y
Hemiptera	Cicadellidae	*Cicadula intermedia*	–	–
Hemiptera	Delphacidae	*Stenocranus fuscovittatus*	NS	Y
Hemiptera	Miridae	*Adelphocoris seticornis*	–	Y
Hymenoptera	Dryinidae	*Anteon ephippiger*	–	–
Hymenoptera	Dryinidae	*Anteon pubicorne*	–	–
Hymenoptera	Ichneumonidae	*Cremnodes rufipes*	–	–
Hymenoptera	Ichneumonidae	*Gelis balteatus*	–	–
Lepidoptera	Crambidae	*Cataclysta lemnata*	–	–
Lepidoptera	Crambidae	*Parapoynx stratiotata*	–	–
Lepidoptera	Elachistidae	*Elachista utonella*	–	–
Lepidoptera	Geometridae	*Hydriomena ruberata*	–	–
Lepidoptera	Geometridae	*Lampropteryx otregiata*	–	–
Lepidoptera	Gracillariidae	*Phyllonorycter viminetorum*	–	–
Lepidoptera	Noctuidae	*Archanara dissoluta*	–	–
Lepidoptera	Noctuidae	*Archanara geminipuncta*	–	–
Lepidoptera	Noctuidae	*Celaena haworthii*	–	Y
Lepidoptera	Noctuidae	*Deltote uncula*	–	–
Lepidoptera	Noctuidae	*Diachrysia chryson*	–	–
Lepidoptera	Noctuidae	*Globia sparganii*	–	–
Lepidoptera	Nymphalidae	*Boloria selene*	NT	Y
Lepidoptera	Sesiidae	*Sesia bembeciformis*	–	–
Lepidoptera	Sesiidae	*Synanthedon formicaeformis*	–	Y
Lepidoptera	Tortricidae	*Apotomis semifasciana*	–	–
Odonata	Aeshnidae	*Brachytron pratense*	–	–
Odonata	Libellulidae	*Orthetrum coerulescens*	–	Y
Trichoptera	Limnephilidae	*Limnephilus incisus*	–	–
Trichoptera	Limnephilidae	*Limnephilus politus*	NS	Y

Appendix 5. Classification of species within specific assemblage types by Pantheon

Table A5.1. The classification of species within specific assemblage types by Pantheon.

Order	Family	Taxon	Specific assemblage type
Araneae	Lycosidae	*Pardosa nigriceps*	F001
Coleoptera	Apionidae	*Apion haematodes*	F003
Coleoptera	Apionidae	*Exapion ulicis*	F001, F003
Coleoptera	Carabidae	*Pterostichus rhaeticus*	F003
Coleoptera	Cerambycidae	*Leptura quadrifasciata*	A212
Coleoptera	Ciidae	*Cis bilamellatus*	A213
Coleoptera	Curculionidae	*Hylesinus crenatus*	A212
Coleoptera	Curculionidae	*Micrelus ericae*	F003
Coleoptera	Curculionidae	*Sitona striatellus*	F001, F003
Coleoptera	Nanophyidae	*Nanophyes marmoratus*	W314
Coleoptera	Nitidulidae	*Epuraea distincta*	A213
Coleoptera	Nitidulidae	*Soronia grisea*	A212
Coleoptera	Scraptiidae	*Anaspis frontalis*	A212
Coleoptera	Scraptiidae	*Anaspis pulicaria*	A212
Coleoptera	Sphindidae	*Aspidiphorus orbiculatus*	A212
Coleoptera	Staphylinidae	*Agaricochara latissima*	A213
Coleoptera	Staphylinidae	*Atheta strandiella*	W312
Coleoptera	Staphylinidae	*Euaesthetus laeviusculus*	W312
Coleoptera	Staphylinidae	*Euaesthetus ruficapillus*	W313
Coleoptera	Staphylinidae	*Fagniezia impressa*	W313
Coleoptera	Staphylinidae	*Lathrobium impressum*	W221
Coleoptera	Staphylinidae	*Manda mandibularis*	W221
Coleoptera	Staphylinidae	*Ocyusa picina*	W314
Coleoptera	Staphylinidae	*Oxytelus fulvipes*	W221
Coleoptera	Staphylinidae	*Paederus riparius*	W314
Coleoptera	Staphylinidae	*Philonthus nigrita*	W312
Coleoptera	Staphylinidae	*Platystethus nitens*	W221
Coleoptera	Staphylinidae	*Schistoglossa gemina*	W314
Coleoptera	Staphylinidae	*Stenus carbonarius*	W314
Coleoptera	Staphylinidae	*Stenus kiesenwetteri*	W312
Coleoptera	Staphylinidae	*Stenus solutus*	W314
Diptera	Chloropidae	*Lipara rufitarsis*	W314
Diptera	Dolichopodidae	*Dolichopus atratus*	W312
Diptera	Empididae	*Empis caudatula*	F001
Diptera	Limoniidae	*Molophilus bihamatus*	W126
Diptera	Limoniidae	*Thaumastoptera calceata*	W126
Diptera	Lonchopteridae	*Lonchoptera nitidifrons*	W314
Diptera	Sciomyzidae	*Ilione lineata*	W313
Diptera	Sciomyzidae	*Pherbellia dorsata*	W314
Diptera	Sciomyzidae	*Sepedon spinipes*	W314
Diptera	Stenomicridae	*Podocera delicata*	W314
Diptera	Syrphidae	*Xylota sylvarum*	A212
Hemiptera	Delphacidae	*Muellerianella extrusa*	W312

Order	Family	Taxon	Specific assemblage type
Hemiptera	Lygaeidae	*Lamproplax picea*	W312
Hemiptera	Microphysidae	*Myrmedobia exilis*	F113
Hemiptera	Miridae	*Asciodema obsoleta*	F001, F003
Hemiptera	Miridae	*Charagochilus gyllenhalii*	F112
Hemiptera	Miridae	*Monalocoris filicis*	F003
Hemiptera	Pentatomidae	*Piezodorus lituratus*	F001, F003
Hemiptera	Tingidae	*Acalypta carinata*	A215
Hymenoptera	Andrenidae	*Andrena fucata*	F001, F002
Hymenoptera	Andrenidae	*Andrena haemorrhoa*	F002
Hymenoptera	Andrenidae	*Andrena minutula*	F002
Hymenoptera	Andrenidae	*Andrena scotica*	F002
Hymenoptera	Apidae	*Apis mellifera*	F002
Hymenoptera	Apidae	*Bombus pascuorum*	F002
Hymenoptera	Apidae	*Bombus vestalis*	F002
Hymenoptera	Crabronidae	*Crossocerus nigritus*	A212, F001
Hymenoptera	Crabronidae	*Ectemnius continuus*	A212, F001
Hymenoptera	Crabronidae	*Ectemnius lapidarius*	A212, F001
Hymenoptera	Formicidae	*Leptothorax acervorum*	F111
Hymenoptera	Halictidae	*Lasioglossum albipes*	F002
Hymenoptera	Halictidae	*Lasioglossum calceatum*	F002
Hymenoptera	Halictidae	*Lasioglossum morio*	F002
Hymenoptera	Vespidae	*Symmorphus bifasciatus*	A212

Key: Specific Assemblage Type – A212 = Bark & sapwood decay; A213 = Fungal fruiting bodies; A215 = Epiphyte fauna; F001 = Scrub edge; F002 = Rich flower resource; F003 = Scrub-heath & moorland; F111 = Bare sand & chalk; F112 = Open short sward; F113 = Exposed sea-cliff; W216 = Seepage; W221 = Undisturbed fluctuating marsh; W312 = Sphagnum bog; W313 = Moss & tussock fen; W314 = Reed-fen & pools.

Appendix 6. Species recorded on Corsydd Llangloffan in 2025 classified by habitats sampled

Table A6.1. Invertebrate species abundance in samples from Corsydd Llangloffan SSSI in 2025. Species which are part of the named assemblages are marked Y.

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Araneae	–	–	–	–	–	–	–	–	–
Agelenidae	*Tegenaria silvestris*	–	–	1	–	–	1	–	–
Araneidae	*Araniella cucurbitina*	–	–	–	–	1	–	–	–
Araneidae	*Larinioides cornutus*	Y	–	–	1	–	–	–	–
Clubionidae	*Clubiona comta*	–	–	1	–	–	1	–	–
Clubionidae	*Clubiona reclusa*	Y	–	1	2	–	1	1	–
Clubionidae	*Clubiona stagnatilis*	Y	Y	–	2	6	1	8	–
Hahniidae	*Antistea elegans*	Y	Y	–	2	–	4	22	–
Linyphiidae	*Agyneta conigera*	–	–	–	–	–	2	–	–
Linyphiidae	*Agyneta decora*	–	–	–	–	–	–	1	–
Linyphiidae	*Agyneta ramosa*	–	–	2	–	–	–	–	–
Linyphiidae	*Agyneta subtilis*	–	–	–	1	–	–	–	–
Linyphiidae	*Allomengea vidua*	Y	Y	–	4	–	5	2	–
Linyphiidae	*Aphileta misera*	Y	Y	–	4	–	–	9	–
Linyphiidae	*Bathyphantes approximatus*	Y	Y	1	33	–	70	92	–
Linyphiidae	*Bathyphantes gracilis*	–	–	15	35	4	31	102	–
Linyphiidae	*Bathyphantes parvulus*	–	–	–	1	–	–	–	–
Linyphiidae	*Centromerus dilutus*	–	Y	–	–	–	–	2	–
Linyphiidae	*Ceratinella brevipes*	–	Y	–	–	–	1	–	–
Linyphiidae	*Ceratinella brevis*	–	–	–	–	1	1	3	–
Linyphiidae	*Ceratinella scabrosa*	–	–	5	–	–	1	1	–
Linyphiidae	*Cnephalocotes obscurus*	–	–	–	1	1	–	–	–
Linyphiidae	*Dicymbium nigrum*	–	–	–	–	–	–	1	–
Linyphiidae	*Dicymbium tibiale*	–	–	1	–	–	–	–	–
Linyphiidae	*Diplocephalus permixtus*	Y	Y	41	4	–	15	13	–
Linyphiidae	*Entelecara erythropus*	–	–	–	–	–	2	–	–
Linyphiidae	*Erigone atra*	–	–	2	11	4	7	11	–
Linyphiidae	*Erigone dentipalpis*	–	–	–	1	–	2	2	–
Linyphiidae	*Erigonella ignobilis*	Y	Y	–	2	5	2	1	–
Linyphiidae	*Floronia bucculenta*	–	–	–	1	–	–	–	–
Linyphiidae	*Gnathonarium dentatum*	Y	Y	23	76	47	138	202	–
Linyphiidae	*Gonatium rubens*	–	–	–	7	1	2	–	–
Linyphiidae	*Gongylidiellum vivum*	–	–	6	1	6	16	4	–
Linyphiidae	*Hilaira excisa*	Y	Y	12	1	–	4	15	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Linyphiidae	*Hylyphantes graminicola*	–	–	3	–	–	–	1	–
Linyphiidae	*Hypomma bituberculatum*	Y	Y	–	1	–	5	13	–
Linyphiidae	*Kaestneria pullata*	Y	Y	–	9	2	3	9	–
Linyphiidae	*Linyphia triangularis*	–	–	2	–	–	–	–	–
Linyphiidae	*Lophomma punctatum*	Y	Y	15	1	9	13	22	–
Linyphiidae	*Maso sundevalli*	–	–	–	2	–	2	–	–
Linyphiidae	*Micrargus herbigradus*	–	–	1	–	4	3	3	–
Linyphiidae	*Microlinyphia pusilla*	–	–	–	–	2	–	–	–
Linyphiidae	*Monocephalus fuscipes*	–	–	2	–	–	–	–	–
Linyphiidae	*Neriene clathrata*	–	–	5	1	1	4	1	–
Linyphiidae	*Oedothorax fuscus*	–	–	1	–	–	–	–	–
Linyphiidae	*Oedothorax gibbosus*	Y	–	–	1	4	5	14	–
Linyphiidae	*Oedothorax retusus*	–	–	–	1	1	–	–	–
Linyphiidae	*Palliduphantes ericaeus*	–	–	–	2	8	8	6	–
Linyphiidae	*Palliduphantes pallidus*	–	–	1	–	2	8	1	–
Linyphiidae	*Parapelecopsis nemoralis*	–	–	1	–	1	–	–	–
Linyphiidae	*Pocadicnemis pumila*	–	–	1	13	18	–	25	–
Linyphiidae	*Porrhomma pygmaeum*	–	–	19	4	–	12	2	–
Linyphiidae	*Saaristoa abnormis*	–	–	2	–	1	3	1	–
Linyphiidae	*Saaristoa firma*	Y	Y	1	–	–	–	–	–
Linyphiidae	*Savignia frontata*	–	–	–	–	–	1	1	–
Linyphiidae	*Tallusia experta*	Y	Y	–	2	15	3	2	–
Linyphiidae	*Taranucnus setosus*	Y	Y	–	–	5	5	7	–
Linyphiidae	*Tenuiphantes alacris*	–	–	5	–	–	–	–	–
Linyphiidae	*Tenuiphantes tenuis*	–	–	1	4	28	13	23	–
Linyphiidae	*Tenuiphantes zimmermanni*	–	–	14	5	13	5	27	–
Linyphiidae	*Walckenaeria acuminata*	–	–	4	–	1	–	1	–
Linyphiidae	*Walckenaeria nudipalpis*	–	–	3	–	–	1	1	–
Linyphiidae	*Walckenaeria unicornis*	–	–	1	2	1	4	11	–
Lycosidae	*Pardosa amentata*	Y	–	–	6	–	–	1	–
Lycosidae	*Pardosa nigriceps*	–	–	–	1	–	–	–	–
Lycosidae	*Pardosa pullata*	–	–	–	4	–	–	–	–
Lycosidae	*Pirata piraticus*	Y	Y	–	4	–	–	2	–
Lycosidae	*Piratula latitans*	Y	Y	–	7	–	–	1	–
Mimetidae	*Ero cambridgei*	–	–	–	–	–	2	3	–
Oonopidae	*Oonops pulcher*	–	–	–	–	–	1	–	–
Pisauridae	*Pisaura mirabilis*	–	–	1	–	–	–	1	1
Salticidae	*Neon reticulatus*	–	–	–	–	4	–	–	–
Tetragnathidae	*Metellina mengei*	–	–	–	1	2	–	–	–
Tetragnathidae	*Metellina merianae*	–	–	3	–	1	1	–	–
Tetragnathidae	*Metellina segmentata*	–	–	–	–	5	–	1	–
Tetragnathidae	*Pachygnatha clercki*	Y	–	1	4	1	5	4	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Tetragnathidae	*Pachygnatha degeeri*	–	–	–	1	–	–	–	–
Tetragnathidae	*Tetragnatha extensa*	Y	–	–	2	–	–	1	–
Theridiidae	*Enoplognatha ovata*	–	–	–	–	1	–	–	3
Theridiidae	*Episinus angulatus*	–	–	–	–	1	–	–	–
Theridiidae	*Pholcomma gibbum*	–	–	1	–	–	7	–	–
Theridiidae	*Phylloneta impressa*	–	–	–	–	–	–	1	–
Theridiidae	*Phylloneta sisyphia*	–	–	–	–	–	–	–	1
Theridiidae	*Robertus arundineti*	–	Y	–	–	–	1	–	–
Theridiidae	*Robertus neglectus*	–	Y	1	–	–	–	–	–
Theridiidae	*Rugathodes instabilis*	Y	Y	–	1	–	4	2	–
Theridiidae	*Theonoe minutissima*	–	Y	1	–	17	5	–	–
Theridiosomatidae	*Theridiosoma gemmosum*	Y	Y	21	25	10	14	49	–
Thomisidae	*Misumena vatia*	–	–	–	1	1	–	12	–
Thomisidae	*Ozyptila trux*	–	–	–	2	10	–	–	–
Thomisidae	*Xysticus cristatus*	–	–	–	–	2	–	–	–
Thomisidae	*Xysticus ulmi*	Y	Y	1	–	–	–	–	–
Zoridae	*Zora spinimana*	–	–	–	1	–	–	–	–
Coleoptera	–	–	–	–	–	–	–	–	–
Apionidae	*Apion cruentatum*	–	–	–	–	2	–	–	–
Apionidae	*Apion haematodes*	–	–	–	–	–	–	1	–
Apionidae	*Exapion ulicis*	–	–	1	–	–	–	–	20
Apionidae	*Ischnopterapion modestum*	–	–	–	–	1	–	1	–
Apionidae	*Perapion curtirostre*	–	–	–	1	–	1	5	–
Apionidae	*Perapion hydrolapathi*	–	–	–	–	1	4	1	–
Apionidae	*Perapion violaceum*	–	–	–	1	5	3	6	–
Apionidae	*Protapion apricans*	–	–	–	–	–	–	1	–
Apionidae	*Protapion fulvipes*	–	–	–	–	–	–	1	–
Cantharidae	*Cantharis cryptica*	–	–	1	–	–	–	–	–
Cantharidae	*Cantharis nigra* [1]	–	Y	1	1	–	1	13	–
Cantharidae	*Cantharis pallida*	–	–	–	1	–	–	9	–
Cantharidae	*Rhagonycha fulva*	–	–	–	1	1	4	–	–
Cantharidae	*Rhagonycha testacea*	–	–	1	–	3	–	1	–
Carabidae	*Acupalpus dubius*	Y	Y	2	1	1	11	28	–
Carabidae	*Agonum emarginatum*	Y	Y	–	–	–	1	1	–
Carabidae	*Agonum fuliginosum*	Y	–	1	3	–	38	84	–
Carabidae	*Agonum gracile*	Y	Y	–	1	–	1	–	–
Carabidae	*Agonum muelleri*	–	–	–	–	1	–	–	–
Carabidae	*Agonum thoreyi*	Y	Y	–	–	–	6	16	–
Carabidae	*Bembidion aeneum*	Y	–	–	–	–	–	1	–
Carabidae	*Bembidion biguttatum*	Y	–	2	6	–	14	2	–
Carabidae	*Bembidion guttula*	Y	–	1	–	3	7	5	–
Carabidae	*Bembidion lunulatum*	Y	–	–	3	–	3	1	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Carabidae	*Bembidion quadrimaculatum*	–	–	–	–	–	1	–	–
Carabidae	*Bradycellus sharpi*	–	–	–	–	1	2	–	–
Carabidae	*Carabus granulatus*	Y	Y	1	–	–	1	10	–
Carabidae	*Cychrus caraboides*	–	–	–	–	–	–	1	–
Carabidae	*Demetrias atricapillus*	–	–	2	4	2	27	4	–
Carabidae	*Elaphrus cupreus*	Y	–	1	–	–	–	–	–
Carabidae	*Leistus fulvibarbis*	–	–	1	–	–	–	1	–
Carabidae	*Loricera pilicornis*	–	–	4	–	–	–	–	–
Carabidae	*Notiophilus biguttatus*	–	–	1	–	–	–	–	–
Carabidae	*Paradromius linearis*	–	–	1	4	4	6	8	–
Carabidae	*Philorhizus melanocephalus*	–	–	1	2	–	2	–	–
Carabidae	*Poecilus cupreus*	–	–	–	–	1	–	1	–
Carabidae	*Poecilus versicolor*	–	–	–	–	1	–	–	–
Carabidae	*Pterostichus diligens*	Y	Y	–	1	11	3	8	–
Carabidae	*Pterostichus melanarius*	–	–	–	–	–	–	4	–
Carabidae	*Pterostichus minor*	Y	Y	2	–	–	4	39	–
Carabidae	*Pterostichus niger*	–	–	–	–	–	–	1	–
Carabidae	*Pterostichus nigrita*	Y	–	2	–	–	–	3	–
Carabidae	*Pterostichus rhaeticus*	–	Y	–	–	–	–	3	–
Carabidae	*Pterostichus strenuus*	–	–	1	–	2	2	–	–
Cerambycidae	*Leptura quadrifasciata*	–	–	–	–	1	–	–	–
Chrysomelidae	*Altica lythri*	–	–	–	–	1	–	6	–
Chrysomelidae	*Altica palustris*	–	–	–	–	–	1	–	–
Chrysomelidae	*Aphthona lutescens*	–	–	–	61	15	25	52	–
Chrysomelidae	*Aphthona nonstriata*	Y	–	–	5	–	4	3	–
Chrysomelidae	*Cassida flaveola*	–	Y	–	–	–	3	1	–
Chrysomelidae	*Cassida viridis*	–	–	–	22	–	–	–	–
Chrysomelidae	*Chaetocnema concinna*	–	–	–	–	–	1	–	–
Chrysomelidae	*Chrysolina herbacea*	–	–	–	1	–	–	–	–
Chrysomelidae	*Chrysolina polita*	–	–	–	–	1	–	–	–
Chrysomelidae	*Crepidodera fulvicornis*	–	–	6	–	–	1	–	–
Chrysomelidae	*Donacia versicolorea*	Y	Y	–	1	–	–	–	–
Chrysomelidae	*Galerucella lineola*	Y	–	7	–	1	–	2	–
Chrysomelidae	*Galerucella sagittariae*	Y	Y	–	15	4	1	1	–
Chrysomelidae	*Galerucella tenella*	–	–	–	4	1	1	10	–
Chrysomelidae	*Gastrophysa viridula*	–	–	–	1	–	1	–	–
Chrysomelidae	*Lochmaea caprea*	–	–	–	–	1	–	–	–
Chrysomelidae	*Longitarsus luridus*	–	–	–	–	–	6	–	–
Chrysomelidae	*Longitarsus rubiginosus*	–	–	–	–	–	–	1	–
Chrysomelidae	*Mantura obtusata*	–	Y	–	–	1	–	–	–
Chrysomelidae	*Oulema duftschmidi*	–	–	1	2	1	7	1	–
Chrysomelidae	*Oulema obscura*	–	–	–	2	–	1	–	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Chrysomelidae	*Phaedon armoraciae*	Y	–	–	–	–	–	2	–
Chrysomelidae	*Phaedon tumidulus*	–	–	3	–	–	5	1	–
Chrysomelidae	*Phratora vulgatissima*	–	–	47	–	11	3	2	–
Chrysomelidae	*Phyllobrotica quadrimaculata*	–	Y	–	–	–	–	1	–
Chrysomelidae	*Phyllotreta exclamationis*	–	–	–	1	–	–	–	–
Chrysomelidae	*Phyllotreta tetrastigma*	–	Y	1	–	–	–	–	–
Chrysomelidae	*Plateumaris discolor*	Y	Y	–	–	–	–	4	–
Chrysomelidae	*Prasocuris junci*	Y	Y	1	–	–	–	2	–
Chrysomelidae	*Prasocuris marginella*	–	–	–	2	1	3	–	–
Chrysomelidae	*Prasocuris phellandrii*	Y	Y	–	3	–	4	–	–
Chrysomelidae	*Psylliodes chrysocephala*	–	–	–	–	2	–	–	–
Chrysomelidae	*Psylliodes picina*	–	–	–	–	–	1	–	–
Ciidae	*Cis bilamellatus*	–	–	–	–	1	–	–	–
Coccinellidae	*Coccidula rufa*	Y	–	–	10	2	12	2	–
Coccinellidae	*Coccinella septempunctata*	–	–	–	–	1	–	1	–
Coccinellidae	*Propylea quattuordecimpunctata*	–	–	–	2	1	–	1	–
Coccinellidae	*Rhyzobius litura*	–	–	–	1	–	–	–	–
Coccinellidae	*Scymnus haemorrhoidalis*	–	–	–	1	–	–	–	–
Coccinellidae	*Subcoccinella vigintiquattuorpunctata*	–	–	–	1	1	–	–	1
Corylophidae	*Corylophus cassidoides*	–	–	–	–	1	3	4	–
Cryptophagidae	*Atomaria rubella*	–	–	–	–	1	–	1	–
Curculionidae	*Ceutorhynchus erysimi*	–	–	1	–	–	–	–	–
Curculionidae	*Coelositona cambricus*	–	–	–	2	3	1	–	–
Curculionidae	*Hylesinus crenatus*	–	–	–	–	1	–	–	–
Curculionidae	*Hypera arator*	–	–	–	–	1	–	–	–
Curculionidae	*Hypera conmaculata*	Y	Y	–	2	2	8	7	–
Curculionidae	*Leiosoma deflexum*	–	–	–	–	–	–	2	–
Curculionidae	*Micrelus ericae*	–	–	–	1	–	–	–	–
Curculionidae	*Nedyus quadrimaculatus*	–	–	–	1	–	–	–	–
Curculionidae	*Pelenomus quadrituberculatus*	–	–	–	1	–	1	–	–
Curculionidae	*Rhinoncus pericarpius* [2]	–	–	–	–	1	1	–	–
Curculionidae	*Sitona lineatus*	–	–	–	9	13	12	4	1
Curculionidae	*Sitona obsoletus*	–	–	–	2	1	–	2	–
Curculionidae	*Sitona striatellus*	–	–	–	–	–	–	–	3
Curculionidae	*Tachyerges salicis*	–	–	5	1	–	–	–	–
Dytiscidae	*Hydroporus tessellatus*	Y	–	1	1	–	–	–	–
Dytiscidae	*Ilybius fuliginosus*	Y	–	–	–	–	1	–	–
Elateridae	*Adrastus pallens*	–	–	–	1	–	–	1	–
Elateridae	*Athous bicolor*	–	–	–	–	–	1	–	–
Elateridae	*Athous haemorrhoidalis*	–	–	–	–	–	–	–	1
Erirhinidae	*Notaris acridulus*	Y	–	–	1	–	2	1	–
Erirhinidae	*Notaris scirpi*	Y	Y	–	–	–	–	1	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Helophoridae	*Helophorus brevipalpis*	Y	–	14	17	1	10	16	–
Helophoridae	*Helophorus grandis*	Y	–	–	1	–	–	–	–
Histeridae	*Hister unicolor*	–	–	–	–	–	1	–	–
Histeridae	*Margarinotus ventralis*	–	–	–	–	–	1	–	–
Hydraenidae	*Hydraena britteni*	Y	–	1	–	1	37	1	–
Hydraenidae	*Hydraena riparia*	Y	–	–	1	–	4	–	–
Hydraenidae	*Hydraena testacea*	Y	–	7	1	–	–	–	–
Hydraenidae	*Limnebius truncatellus*	Y	–	1	–	–	–	1	–
Hydrophilidae	*Anacaena globulus*	Y	–	14	5	10	21	33	–
Hydrophilidae	*Anacaena limbata*	Y	–	–	3	–	4	21	–
Hydrophilidae	*Cercyon melanocephalus*	–	–	–	–	–	1	–	–
Hydrophilidae	*Cercyon obsoletus*	–	–	1	–	–	–	–	–
Hydrophilidae	*Chaetarthria simillima*	Y	Y	–	–	1	–	–	–
Hydrophilidae	*Cryptopleurum minutum*	–	–	–	–	–	1	–	–
Hydrophilidae	*Cymbiodyta marginella*	Y	–	–	1	–	–	–	–
Hydrophilidae	*Enochrus ochropterus*	Y	Y	–	2	–	–	–	–
Hydrophilidae	*Hydrobius fuscipes*	–	–	–	1	–	1	1	–
Hydrophilidae	*Megasternum concinnum*	–	–	–	–	–	6	1	–
Hydrophilidae	*Megasternum immaculatum*	–	–	–	–	–	1	–	–
Hydrophilidae	*Sphaeridium lunatum*	–	–	–	–	–	2	1	–
Kateretidae	*Brachypterus urticae*	–	–	2	–	1	–	–	–
Kateretidae	*Kateretes pedicularius*	–	–	1	–	–	–	–	–
Kateretidae	*Kateretes rufilabris*	–	–	1	20	–	–	5	–
Latridiidae	*Cartodere bifasciata*	–	–	–	–	1	–	3	–
Latridiidae	*Cartodere nodifer*	–	–	–	1	–	–	–	–
Latridiidae	*Corticarina minuta*	–	–	2	–	1	1	1	–
Latridiidae	*Cortinicara gibbosa*	–	–	2	–	1	–	1	–
Latridiidae	*Enicmus transversus*	–	–	1	–	–	–	–	–
Leiodidae	*Agathidium laevigatum*	–	–	–	–	2	–	1	–
Leiodidae	*Catops morio*	–	–	1	–	–	3	3	–
Leiodidae	*Choleva agilis*	–	–	–	–	–	6	–	–
Leiodidae	*Sciodrepoides watsoni*	–	–	1	–	–	15	4	–
Nanophyidae	*Nanophyes marmoratus*	Y	–	1	1	–	3	6	–
Nitidulidae	*Epuraea aestiva*	–	–	–	–	–	1	–	–
Nitidulidae	*Epuraea distincta*	–	Y	4	–	–	–	–	–
Nitidulidae	*Glischrochilus hortensis*	–	–	–	–	6	–	–	–
Nitidulidae	*Meligethes aeneus*	–	–	3	5	1	–	16	–
Nitidulidae	*Meligethes carinulatus*	–	–	–	–	1	–	–	–
Nitidulidae	*Soronia grisea*	–	–	–	–	4	–	–	–
Oedemeridae	*Oedemera nobilis*	–	–	–	–	2	–	2	–
Scirtidae	*Contacyphon coarctatus*	Y	–	12	1	1	3	11	–
Scirtidae	*Contacyphon hilaris*	Y	Y	24	6	1	–	13	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Scirtidae	*Contacyphon ochraceus*	Y	–	2	1	–	8	7	–
Scirtidae	*Contacyphon padi*	Y	Y	7	1	2	–	3	–
Scirtidae	*Elodes elongatus*	Y	Y	2	–	–	–	–	–
Scirtidae	*Scirtes hemisphaericus*	Y	Y	–	1	–	–	–	–
Scraptiidae	*Anaspis frontalis*	–	–	–	–	–	–	1	–
Scraptiidae	*Anaspis pulicaria*	–	–	–	–	–	–	1	–
Silphidae	*Nicrophorus investigator*	–	–	–	–	–	–	1	–
Silphidae	*Nicrophorus vespillo*	–	–	2	–	–	9	19	–
Silphidae	*Nicrophorus vespilloides*	–	–	8	–	–	26	75	–
Silvanidae	*Psammoecus bipunctatus*	Y	Y	–	1	1	24	1	–
Sphindidae	*Aspidiphorus orbiculatus*	–	–	6	–	–	–	3	–
Staphylinidae	*Agaricochara latissima*	–	–	1	–	–	–	–	–
Staphylinidae	*Aleochara brevipennis*	Y	Y	–	1	–	–	1	–
Staphylinidae	*Aleochara lanuginosa*	–	–	–	–	–	1	–	–
Staphylinidae	*Alianta incana*	Y	Y	–	–	–	1	–	–
Staphylinidae	*Aloconota gregaria*	–	–	2	–	–	–	2	–
Staphylinidae	*Amischa analis*	–	–	10	–	26	20	6	–
Staphylinidae	*Amischa decipiens*	–	–	3	1	1	2	1	–
Staphylinidae	*Amischa nigrofusca*	–	–	1	–	–	–	–	–
Staphylinidae	*Anotylus rugosus*	Y	–	–	3	–	107	31	–
Staphylinidae	*Anotylus tetracarinatus*	–	–	11	–	–	1	–	–
Staphylinidae	*Atheta atramentaria*	–	–	–	–	–	1	–	–
Staphylinidae	*Atheta crassicornis*	–	–	8	–	–	15	1	–
Staphylinidae	*Atheta elongatula*	Y	–	–	–	–	–	4	–
Staphylinidae	*Atheta fungi*	–	–	22	45	31	92	80	–
Staphylinidae	*Atheta graminicola*	Y	–	–	13	–	7	–	–
Staphylinidae	*Atheta laticollis*	–	–	1	–	–	–	–	–
Staphylinidae	*Atheta malleus*	Y	–	–	–	–	1	–	–
Staphylinidae	*Atheta palustris*	Y	–	–	1	–	2	–	–
Staphylinidae	*Atheta strandiella*	Y	Y	–	–	–	–	1	–
Staphylinidae	*Atheta vaga*	–	–	–	–	4	–	–	–
Staphylinidae	*Atrecus affinis*	–	–	1	–	–	–	–	–
Staphylinidae	*Bibloplectus ambiguus*	Y	–	–	–	2	–	–	–
Staphylinidae	*Bibloplectus spinosus*	Y	Y	–	–	–	2	–	–
Staphylinidae	*Bisnius fimetarius*	–	–	–	–	–	2	–	–
Staphylinidae	*Bisnius sordidus*	–	–	–	–	–	1	–	–
Staphylinidae	*Brachygluta fossulata*	–	–	21	30	25	17	4	–
Staphylinidae	*Bryaxis bulbifer*	Y	–	8	2	8	26	24	–
Staphylinidae	*Bryaxis puncticollis*	Y	–	–	–	–	–	1	–
Staphylinidae	*Carpelimus corticinus*	Y	–	1	–	–	–	–	–
Staphylinidae	*Carpelimus elongatulus*	Y	–	1	–	–	1	1	–
Staphylinidae	*Cypha longicornis*	–	–	–	–	–	1	–	–

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Staphylinidae	*Encephalus complicans*	–	–	–	–	1	1	1	–
Staphylinidae	*Erichsonius cinerascens*	Y	–	1	–	–	–	1	–
Staphylinidae	*Euaesthetus laeviusculus*	Y	–	–	3	–	–	–	–
Staphylinidae	*Euaesthetus ruficapillus*	Y	Y	–	2	–	–	–	–
Staphylinidae	*Euconnus hirticollis*	–	–	3	1	–	3	4	–
Staphylinidae	*Fagniezia impressa*	Y	Y	–	1	6	–	–	–
Staphylinidae	*Gabrius breviventer*	Y	–	–	–	1	–	2	–
Staphylinidae	*Gabrius trossulus*	Y	Y	–	–	–	2	–	–
Staphylinidae	*Habrocerus capillaricornis*	–	Y	12	–	2	17	1	–
Staphylinidae	*Hygronoma dimidiata*	Y	–	2	–	–	51	–	–
Staphylinidae	*Ilyobates nigricollis*	Y	–	–	–	–	4	–	–
Staphylinidae	*Ischnosoma longicorne*	–	–	1	–	–	–	–	–
Staphylinidae	*Lathrobium brunnipes*	Y	–	1	–	–	4	–	–
Staphylinidae	*Lathrobium elongatum*	Y	Y	–	–	1	–	–	–
Staphylinidae	*Lathrobium geminum*	–	–	–	–	–	–	2	–
Staphylinidae	*Lathrobium impressum*	Y	–	–	–	1	–	–	–
Staphylinidae	*Lesteva punctata*	Y	–	2	–	5	9	9	–
Staphylinidae	*Lesteva sicula*	Y	–	–	1	1	4	7	–
Staphylinidae	*Manda mandibularis*	Y	–	–	–	–	–	1	–
Staphylinidae	*Metopsia clypeata*	–	–	–	–	1	–	1	–
Staphylinidae	*Myllaena brevicornis*	Y	–	2	1	1	3	6	–
Staphylinidae	*Myllaena intermedia*	Y	–	2	–	–	–	1	–
Staphylinidae	*Myllaena minuta*	Y	–	1	–	–	–	3	–
Staphylinidae	*Neuraphes elongatulus*	–	–	–	–	–	–	1	–
Staphylinidae	*Ochthephilum fracticorne*	Y	Y	–	–	1	–	–	–
Staphylinidae	*Ocyusa picina*	Y	Y	1	19	1	19	17	–
Staphylinidae	*Oligota pusillima*	–	–	–	1	–	–	–	–
Staphylinidae	*Omalium septentrionis*	–	–	3	–	–	–	–	–
Staphylinidae	*Othius punctulatus*	–	–	1	–	–	–	–	–
Staphylinidae	*Oxypoda elongatula*	Y	–	2	1	1	13	8	–
Staphylinidae	*Oxypoda tarda*	–	–	–	–	–	1	–	–
Staphylinidae	*Oxytelus fulvipes*	Y	Y	1	–	–	1	3	–
Staphylinidae	*Paederus riparius*	Y	Y	2	12	14	16	35	–
Staphylinidae	*Parabolitobius inclinans*	–	–	–	–	–	1	2	–
Staphylinidae	*Philonthus carbonarius*	–	–	–	–	–	1	–	–
Staphylinidae	*Philonthus cognatus*	–	–	–	–	–	1	–	–
Staphylinidae	*Philonthus laminatus*	–	–	–	–	1	–	–	–
Staphylinidae	*Philonthus marginatus*	–	–	–	–	–	6	1	–
Staphylinidae	*Philonthus micans*	Y	–	–	–	–	–	1	–
Staphylinidae	*Philonthus nigrita*	Y	Y	–	1	–	–	–	–
Staphylinidae	*Philonthus splendens*	–	–	–	–	–	1	–	–
Staphylinidae	*Philonthus tenuicornis*	–	–	–	–	–	1	–	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Staphylinidae	*Platystethus nitens*	Y	–	–	–	–	2	–	–
Staphylinidae	*Quedius fuliginosus*	Y	–	1	–	3	–	3	–
Staphylinidae	*Quedius maurorufus*	Y	–	–	–	1	1	7	–
Staphylinidae	*Reichenbachia juncorum*	Y	–	–	3	37	–	–	–
Staphylinidae	*Rugilus rufipes*	–	–	1	–	–	1	2	–
Staphylinidae	*Rybaxis longicornis*	Y	–	34	78	36	36	20	–
Staphylinidae	*Schistoglossa gemina*	Y	–	1	1	–	8	–	–
Staphylinidae	*Sepedophilus marshami*	–	–	1	–	1	8	–	–
Staphylinidae	*Sepedophilus nigripennis*	–	–	13	17	49	81	6	–
Staphylinidae	*Stenichnus subseriatus*	–	–	3	–	–	1	1	–
Staphylinidae	*Stenus bifoveolatus*	Y	Y	2	–	1	–	–	–
Staphylinidae	*Stenus bimaculatus*	Y	–	7	6	2	67	45	–
Staphylinidae	*Stenus boops*	Y	–	1	–	–	–	1	–
Staphylinidae	*Stenus brunnipes*	–	–	1	–	–	–	–	–
Staphylinidae	*Stenus carbonarius*	Y	Y	–	–	–	–	1	–
Staphylinidae	*Stenus cicindeloides*	Y	Y	3	5	3	2	3	–
Staphylinidae	*Stenus flavipes*	Y	–	–	1	45	36	12	–
Staphylinidae	*Stenus fulvicornis*	–	–	–	4	3	1	6	–
Staphylinidae	*Stenus impressus*	–	–	2	–	13	9	7	–
Staphylinidae	*Stenus juno*	Y	–	–	11	–	10	8	–
Staphylinidae	*Stenus kiesenwetteri*	Y	–	–	–	1	–	–	–
Staphylinidae	*Stenus latifrons*	Y	–	1	25	4	34	12	–
Staphylinidae	*Stenus nitidiusculus*	Y	–	18	3	5	8	44	–
Staphylinidae	*Stenus ossium*	–	–	–	–	9	–	–	–
Staphylinidae	*Stenus pallitarsis*	Y	Y	4	4	2	17	6	–
Staphylinidae	*Stenus providus*	Y	–	2	–	1	–	2	–
Staphylinidae	*Stenus similis*	–	–	–	2	1	2	4	–
Staphylinidae	*Stenus solutus*	Y	Y	–	2	–	4	–	–
Staphylinidae	*Sunius propinquus*	–	–	–	–	–	1	–	–
Staphylinidae	*Tachinus rufipes*	–	–	2	–	–	41	4	–
Staphylinidae	*Tachyporus atriceps*	–	–	1	–	–	–	–	–
Staphylinidae	*Tachyporus chrysomelinus*	–	–	2	–	6	2	4	–
Staphylinidae	*Tachyporus dispar*	–	–	–	–	6	1	2	–
Staphylinidae	*Tachyporus hypnorum*	–	–	–	–	–	1	–	–
Staphylinidae	*Tachyporus nitidulus*	–	–	1	–	4	4	2	–
Staphylinidae	*Tachyporus obtusus*	–	–	4	1	1	–	5	–
Staphylinidae	*Tachyporus pallidus*	Y	Y	3	3	4	9	5	–
Staphylinidae	*Tachyporus transversalis*	Y	Y	1	–	–	–	–	–
Staphylinidae	*Tinotus morion*	–	–	–	–	–	1	–	–
Staphylinidae	*Xantholinus longiventris*	–	–	–	–	–	3	2	–
Tenebrionidae	*Lagria hirta*	–	–	–	–	3	–	–	–
Diptera	–	–	–	–	–	–	–	–	–

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Agromyzidae	*Agromyza nigripes*	–	–	–	–	–	–	1	–
Agromyzidae	*Cerodontha capitata*	–	–	–	–	–	–	1	–
Agromyzidae	*Cerodontha denticornis*	–	–	–	–	–	–	3	–
Agromyzidae	*Cerodontha luctuosa*	–	–	–	1	–	–	3	–
Agromyzidae	*Chromatomyia milii*	–	–	–	–	–	–	1	–
Agromyzidae	*Chromatomyia nigra*	–	–	–	1	–	–	1	–
Agromyzidae	*Phytomyza clematidis*	–	–	–	2	–	–	–	–
Anisopodidae	*Sylvicola cinctus*	–	–	3	–	–	–	–	–
Anisopodidae	*Sylvicola punctatus*	–	–	3	2	3	–	–	–
Anthomyiidae	*Anthomyia liturata*	–	–	–	–	1	–	2	–
Anthomyiidae	*Anthomyia procellaris*	–	–	–	–	–	–	1	–
Anthomyiidae	*Botanophila fugax*	–	–	–	–	1	–	1	–
Anthomyiidae	*Chirosia flavipennis*	–	–	1	–	–	–	–	–
Anthomyiidae	*Delia lamelliseta*	–	–	–	–	–	3	–	–
Anthomyiidae	*Delia platura*	–	–	–	1	6	–	12	–
Anthomyiidae	*Delia radicum*	–	–	–	–	3	–	2	–
Anthomyiidae	*Eustalomyia festiva*	–	–	–	–	1	–	–	–
Anthomyiidae	*Hydrophoria lancifer*	–	–	–	–	1	1	–	–
Anthomyiidae	*Hydrophoria ruralis*	–	–	–	–	–	–	2	–
Anthomyiidae	*Hylemya vagans*	–	–	–	–	4	–	1	–
Anthomyiidae	*Hylemya variata*	–	–	–	–	–	–	1	–
Anthomyiidae	*Hylemyza partita*	–	–	–	1	1	–	1	–
Anthomyiidae	*Lasiomma seminitidum*	–	–	–	–	1	–	–	–
Anthomyiidae	*Paradelia intersecta*	–	–	1	–	–	–	–	–
Anthomyiidae	*Pegomya solennis*	–	–	–	–	–	–	1	–
Anthomyiidae	*Pegoplata aestiva*	–	–	–	6	2	–	10	–
Anthomyiidae	*Pegoplata infirma*	–	–	–	7	16	–	15	–
Anthomyiidae	*Zaphne caudata*	Y	–	–	–	–	–	1	–
Anthomyiidae	*Zaphne inuncta*	Y	–	–	–	–	–	1	–
Anthomyzidae	*Anagnota bicolor*	Y	Y	–	4	–	9	5	–
Anthomyzidae	*Anthomyza collini*	Y	–	2	–	10	–	2	–
Anthomyzidae	*Anthomyza elbergi*	–	–	–	–	–	–	3	–
Anthomyzidae	*Anthomyza gracilis*	Y	–	–	2	–	1	1	–
Anthomyzidae	*Paranthomyza nitida*	Y	–	1	–	–	–	–	–
Anthomyzidae	*Stiphrosoma cingulatum*	Y	–	–	–	–	2	–	–
Anthomyzidae	*Stiphrosoma laetum*	Y	–	–	6	–	10	–	–
Asteiidae	*Asteia amoena*	–	–	1	–	–	–	–	–
Bibionidae	*Dilophus febrilis*	–	–	–	3	23	2	5	–
Bibionidae	*Dilophus femoratus*	–	–	–	23	–	–	12	–
Bolitophilidae	*Bolitophila cinerea*	–	–	1	–	–	–	–	–
Calliphoridae	*Bellardia bayeri*	–	–	–	1	8	–	3	–
Calliphoridae	*Bellardia pandia*	Y	–	–	–	–	–	2	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Calliphoridae	*Calliphora vicina*	–	–	–	–	–	–	1	–
Calliphoridae	*Lucilia ampullacea*	–	–	–	–	1	–	–	–
Calliphoridae	*Lucilia caesar*	–	–	1	–	–	–	1	–
Calliphoridae	*Lucilia illustris*	–	–	–	–	1	–	–	–
Calliphoridae	*Lucilia sericata*	–	–	–	–	1	–	1	–
Calliphoridae	*Melinda viridicyanea*	–	–	1	–	2	1	2	–
Calliphoridae	*Paykullia maculata*	–	–	–	–	1	–	–	–
Calliphoridae	*Stomorhina lunata*	–	–	–	–	–	–	1	–
Campichoetidae	*Campichoeta obscuripennis*	–	–	1	–	–	–	1	–
Carnidae	*Meoneura flavifacies*	–	–	–	–	–	–	1	–
Carnidae	*Meoneura vagans*	–	–	–	–	1	–	–	–
Chloropidae	*Cetema neglectum*	–	–	–	6	–	–	1	–
Chloropidae	*Chlorops hypostigma*	Y	–	–	1	–	–	27	–
Chloropidae	*Chlorops limbatus*	Y	–	–	–	1	–	1	–
Chloropidae	*Chlorops pumilionis*	–	–	–	2	1	–	3	–
Chloropidae	*Cryptonevra flavitarsis*	Y	–	1	–	6	–	–	–
Chloropidae	*Dicraeus vagans*	–	–	–	1	–	–	13	–
Chloropidae	*Elachiptera cornuta*	–	–	1	–	1	4	–	–
Chloropidae	*Elachiptera diastema*	–	–	–	1	4	3	–	–
Chloropidae	*Elachiptera megaspis*	Y	–	1	1	1	–	21	–
Chloropidae	*Elachiptera scrobiculata*	Y	Y	1	6	5	38	15	–
Chloropidae	*Elachiptera 'sp. nr cornuta'*	–	–	–	–	1	1	–	–
Chloropidae	*Lasiochaeta pubescens*	Y	Y	–	–	1	1	–	–
Chloropidae	*Lipara rufitarsis*	Y	Y	–	–	–	–	1	–
Chloropidae	*Oscinella cariciphila*	Y	–	–	–	1	–	–	–
Chloropidae	*Oscinella frit*	–	–	–	19	8	–	12	–
Chloropidae	*Oscinella nigerrima*	–	–	–	–	–	–	1	–
Chloropidae	*Oscinella nitidissima*	–	–	–	18	–	6	–	–
Chloropidae	*Oscinella trochanterata*	Y	–	–	–	–	2	4	–
Chloropidae	*Oscinisoma cognatum*	Y	–	–	–	–	1	2	–
Chloropidae	*Pseudopachychaeta oscinina*	Y	–	–	1	–	–	–	–
Chloropidae	*Rhopalopterum anthracinum*	Y	–	–	–	1	–	–	–
Chloropidae	*Thaumatomyia notata*	–	–	1	1	3	–	3	–
Culicidae	*Coquillettidia richiardii*	Y	–	–	1	–	–	–	–
Diastatidae	*Diastata adusta*	Y	–	–	–	–	1	–	–
Dixidae	*Dixa nebulosa*	Y	–	1	–	–	–	–	–
Dixidae	*Dixella attica*	–	–	–	–	1	–	–	–
Dixidae	*Dixella autumnalis*	Y	–	–	–	–	–	2	–
Dixidae	*Dixella martinii*	Y	–	–	–	–	–	1	–
Dolichopodidae	*Achalcus britannicus*	Y	Y	–	–	–	4	4	–
Dolichopodidae	*Achalcus cinereus*	Y	Y	3	–	5	6	16	–
Dolichopodidae	*Achalcus flavicollis*	Y	Y	–	5	–	2	10	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Dolichopodidae	*Argyra argyria*	–	–	–	–	–	–	1	–
Dolichopodidae	*Argyra vestita*	–	Y	–	–	–	–	1	–
Dolichopodidae	*Campsicnemus curvipes*	Y	–	6	3	–	–	–	–
Dolichopodidae	*Campsicnemus loripes*	Y	–	14	1	–	–	–	–
Dolichopodidae	*Campsicnemus scambus*	Y	–	6	4	–	–	2	–
Dolichopodidae	*Chrysotus gramineus*	Y	–	1	–	–	1	5	–
Dolichopodidae	*Chrysotus neglectus*	Y	–	–	–	1	–	1	–
Dolichopodidae	*Dolichopus atratus*	Y	Y	–	–	3	–	2	–
Dolichopodidae	*Dolichopus claviger*	Y	Y	–	–	–	–	4	–
Dolichopodidae	*Dolichopus discifer*	Y	–	–	1	–	–	1	–
Dolichopodidae	*Dolichopus griseipennis*	Y	–	–	–	–	–	6	–
Dolichopodidae	*Dolichopus latilimbatus*	Y	Y	–	–	–	–	2	–
Dolichopodidae	*Dolichopus longitarsis*	Y	Y	–	–	–	–	1	–
Dolichopodidae	*Dolichopus pennatus*	Y	–	–	–	–	–	3	–
Dolichopodidae	*Dolichopus picipes*	Y	–	–	2	–	–	3	–
Dolichopodidae	*Dolichopus plumipes*	Y	–	–	3	1	–	3	–
Dolichopodidae	*Dolichopus popularis*	Y	–	–	–	–	1	–	–
Dolichopodidae	*Dolichopus ungulatus*	Y	–	1	1	1	–	14	–
Dolichopodidae	*Dolichopus urbanus*	Y	–	–	–	–	–	2	–
Dolichopodidae	*Dolichopus vitripennis*	Y	Y	–	1	–	–	–	–
Dolichopodidae	*Gymnopternus metallicus*	Y	–	–	–	–	–	1	–
Dolichopodidae	*Hercostomus nigripennis*	–	–	–	8	–	–	–	–
Dolichopodidae	*Poecilobothrus nobilitatus*	Y	–	–	–	–	–	1	–
Dolichopodidae	*Sympycnus pulicarius*	Y	–	–	4	–	–	14	–
Dolichopodidae	*Syntormon bicolorellum*	Y	Y	–	–	–	1	–	–
Dolichopodidae	*Syntormon sulcipes*	Y	Y	2	–	–	–	–	–
Dolichopodidae	*Thrypticus bellus*	Y	Y	–	1	–	–	–	–
Drosophilidae	*Drosophila phalerata*	–	–	–	–	–	1	–	–
Drosophilidae	*Lordiphosa fenestrarum*	–	–	–	2	–	–	–	–
Drosophilidae	*Scaptomyza pallida*	–	–	3	6	2	1	11	–
Dryomyzidae	*Dryomyza anilis*	–	–	65	–	14	1	31	–
Empididae	*Chelifera precatoria*	Y	–	1	–	–	–	–	–
Empididae	*Clinocera stagnalis*	Y	–	–	2	–	–	–	–
Empididae	*Dolichocephala oblongoguttata*	Y	–	1	–	2	–	2	–
Empididae	*Empis albinervis*	–	–	1	1	–	–	7	–
Empididae	*Empis bicuspidata*	–	–	–	–	–	–	6	–
Empididae	*Empis caudatula*	–	–	–	1	–	–	–	–
Empididae	*Empis livida*	–	–	–	1	–	–	6	–
Empididae	*Empis nigripes*	–	–	–	1	–	–	3	–
Empididae	*Empis planetica*	–	–	–	–	–	–	2	–
Empididae	*Hilara chorica*	Y	–	–	–	–	–	16	–
Empididae	*Hilara litorea*	Y	–	–	–	–	–	1	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Empididae	*Hilara longifurca*	Y	–	–	–	–	–	2	–
Empididae	*Rhamphomyia sciarina*	–	–	–	–	–	2	1	–
Ephydridae	*Axysta cesta*	Y	–	–	–	1	–	–	–
Ephydridae	*Hydrellia albiceps*	Y	–	–	11	–	–	1	–
Ephydridae	*Hydrellia griseola*	Y	–	–	3	–	–	1	–
Ephydridae	*Hydrellia nigricans*	Y	–	–	2	–	–	–	–
Ephydridae	*Notiphila cinerea*	Y	–	–	1	–	–	–	–
Ephydridae	*Notiphila uliginosa*	Y	–	–	1	–	–	–	–
Ephydridae	*Parydra coarctata*	Y	–	–	1	–	–	–	–
Ephydridae	*Psilopa nitidula*	–	–	–	3	–	–	3	–
Ephydridae	*Scatella lacustris*	Y	–	–	62	–	–	–	–
Ephydridae	*Scatella stagnalis*	Y	–	–	–	–	–	1	–
Fanniidae	*Fannia fuscula*	–	–	4	–	1	–	1	–
Fanniidae	*Fannia genualis*	–	–	–	–	–	–	1	–
Fanniidae	*Fannia pauli*	–	–	–	–	–	–	1	–
Fanniidae	*Fannia scalaris*	–	–	–	–	–	–	2	–
Fanniidae	*Fannia serena*	–	–	–	–	–	–	14	–
Fanniidae	*Fannia similis*	–	–	1	–	–	–	–	–
Fanniidae	*Fannia sociella*	–	–	2	–	–	–	1	–
Heleomyzidae	*Eccoptomera microps*	–	–	–	–	–	1	–	–
Heleomyzidae	*Suillia atricornis*	–	–	1	–	–	–	–	–
Heleomyzidae	*Suillia variegata*	–	–	1	–	–	–	–	–
Hybotidae	*Bicellaria vana*	–	–	1	–	–	–	6	–
Hybotidae	*Crossopalpus humilis*	–	–	1	–	–	–	–	–
Hybotidae	*Crossopalpus nigritellus*	–	–	–	–	1	1	1	–
Hybotidae	*Hybos femoratus*	–	–	–	–	2	–	5	–
Hybotidae	*Platypalpus calceatus*	–	–	1	–	–	–	–	–
Hybotidae	*Platypalpus longicornis*	–	–	1	–	2	–	–	–
Hybotidae	*Platypalpus longiseta*	–	–	1	–	–	–	–	–
Hybotidae	*Platypalpus minutus*	–	–	4	1	–	–	5	–
Hybotidae	*Platypalpus pallidiventris*	–	–	14	2	–	–	8	–
Hybotidae	*Stilpon graminum*	–	–	–	1	20	43	12	–
Keroplatidae	*Neoplatyura modesta*	–	–	1	–	–	–	–	–
Lauxaniidae	*Lauxania cylindricornis*	–	–	–	1	2	–	1	–
Lauxaniidae	*Meiosimyza decipiens*	Y	–	–	1	–	–	–	–
Lauxaniidae	*Meiosimyza rorida*	–	–	2	–	–	–	–	–
Lauxaniidae	*Minettia fasciata*	–	–	–	–	4	–	4	–
Limoniidae	*Austrolimnophila ochracea*	–	–	1	–	–	–	–	–
Limoniidae	*Dicranomyia lucida*	Y	Y	1	2	2	–	1	–
Limoniidae	*Dicranomyia modesta*	Y	–	2	–	1	–	1	–
Limoniidae	*Dicranophragma adjunctum*	Y	–	–	–	2	–	1	–
Limoniidae	*Dicranophragma nemorale*	Y	–	–	–	–	1	1	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Limoniidae	*Erioconopa trivialis*	Y	–	–	–	–	5	3	–
Limoniidae	*Erioptera flavata*	Y	–	2	2	–	–	–	–
Limoniidae	*Euphylidorea aperta*	Y	–	–	–	–	–	4	–
Limoniidae	*Helius flavus*	Y	Y	–	–	–	1	14	–
Limoniidae	*Helius longirostris*	Y	–	–	–	–	–	1	–
Limoniidae	*Limonia macrostigma*	Y	–	1	–	–	–	–	–
Limoniidae	*Limonia trivittata*	Y	Y	–	–	–	1	–	–
Limoniidae	*Molophilus bihamatus*	Y	–	9	–	–	–	–	–
Limoniidae	*Molophilus flavus*	Y	–	–	–	–	–	4	–
Limoniidae	*Molophilus griseus*	Y	–	4	1	–	–	–	–
Limoniidae	*Molophilus medius*	Y	–	4	–	2	–	2	–
Limoniidae	*Molophilus occultus*	Y	Y	–	–	10	–	8	–
Limoniidae	*Neolimnomyia filata*	Y	–	3	–	2	–	6	–
Limoniidae	*Neolimonia dumetorum*	–	–	–	–	3	–	–	–
Limoniidae	*Paradelphomyia senilis*	Y	Y	2	–	–	–	11	–
Limoniidae	*Phylidorea ferruginea*	Y	–	2	1	2	–	2	–
Limoniidae	*Phylidorea fulvonervosa*	Y	–	–	–	–	1	2	–
Limoniidae	*Rhipidia maculata*	–	–	1	–	–	–	–	–
Limoniidae	*Tasiocera murina*	–	–	2	–	–	–	–	–
Limoniidae	*Thaumastoptera calceata*	Y	Y	11	–	–	–	–	–
Lonchaeidae	*Lonchaea postica*	–	–	–	–	2	–	–	–
Lonchaeidae	*Silba fumosa*	–	–	–	–	1	–	2	–
Lonchopteridae	*Lonchoptera bifurcata*	–	–	–	4	–	3	2	–
Lonchopteridae	*Lonchoptera lutea*	–	–	4	12	2	8	8	–
Lonchopteridae	*Lonchoptera nitidifrons*	Y	Y	–	2	–	1	3	–
Muscidae	*Azelia cilipes*	–	–	–	–	2	–	–	–
Muscidae	*Azelia triquetra*	–	–	–	–	–	–	2	–
Muscidae	*Coenosia mollicula*	–	–	–	–	–	–	2	–
Muscidae	*Coenosia tigrina*	–	–	–	40	3	1	23	–
Muscidae	*Eudasyphora cyanella*	–	–	–	–	1	–	2	–
Muscidae	*Graphomya maculata*	Y	–	–	–	–	–	26	–
Muscidae	*Hebecnema nigra*	–	–	–	–	1	2	3	–
Muscidae	*Hebecnema umbratica*	–	–	–	–	–	–	13	–
Muscidae	*Hebecnema vespertina*	–	–	–	–	–	1	–	–
Muscidae	*Helina deleta*	–	–	–	–	2	–	2	–
Muscidae	*Helina evecta*	–	–	–	–	13	–	11	–
Muscidae	*Helina impuncta*	–	–	1	–	1	–	–	–
Muscidae	*Helina maculipennis*	–	–	–	–	–	1	–	–
Muscidae	*Helina obscurata*	–	–	–	–	–	2	–	–
Muscidae	*Helina reversio*	–	–	–	2	1	–	–	–
Muscidae	*Hydrotaea albipuncta*	–	–	–	–	–	–	1	–
Muscidae	*Hydrotaea cyrtoneurina*	–	–	28	–	–	1	9	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Muscidae	*Hydrotaea dentipes*	–	–	–	–	1	–	–	–
Muscidae	*Hydrotaea diabolus*	–	–	–	–	1	–	–	–
Muscidae	*Hydrotaea irritans*	–	–	–	–	1	–	4	–
Muscidae	*Limnophora maculosa*	Y	–	–	–	–	–	7	–
Muscidae	*Limnophora triangula*	Y	–	–	–	–	–	16	–
Muscidae	*Lispocephala erythrocera*	Y	–	–	4	2	–	2	–
Muscidae	*Lophosceles cinereiventris*	–	–	–	–	–	–	3	–
Muscidae	*Mesembrina meridiana*	–	–	–	–	98	–	3	–
Muscidae	*Morellia aenescens*	–	–	–	–	–	–	1	–
Muscidae	*Morellia hortorum*	–	–	–	1	14	–	135	–
Muscidae	*Morellia simplex*	–	–	–	1	–	1	1	–
Muscidae	*Musca autumnalis*	–	–	–	4	1	–	3	–
Muscidae	*Musca domestica*	–	–	–	1	–	–	–	–
Muscidae	*Muscina levida*	–	–	4	–	19	5	3	–
Muscidae	*Muscina prolapsa*	–	–	1	–	–	–	1	–
Muscidae	*Mydaea urbana*	–	–	–	–	9	3	1	–
Muscidae	*Myospila meditabunda*	–	–	–	4	1	–	2	–
Muscidae	*Neomyia cornicina*	–	–	–	26	26	–	29	–
Muscidae	*Neomyia viridescens*	–	–	–	1	1	–	1	–
Muscidae	*Phaonia errans*	–	–	–	–	21	–	2	–
Muscidae	*Phaonia falleni*	Y	Y	2	–	–	–	–	–
Muscidae	*Phaonia halterata*	–	–	–	–	–	–	1	–
Muscidae	*Phaonia incana*	–	–	–	–	–	–	1	–
Muscidae	*Phaonia palpata*	–	–	–	–	2	–	3	–
Muscidae	*Phaonia rufiventris*	–	–	–	–	1	–	2	–
Muscidae	*Phaonia signata*	–	–	2	–	42	4	6	–
Muscidae	*Phaonia subventa*	–	–	–	–	2	–	–	–
Muscidae	*Polietes meridionalis*	–	–	2	–	3	–	–	–
Muscidae	*Stomoxys calcitrans*	–	–	–	1	–	–	–	–
Muscidae	*Thricops semicinereus*	–	–	–	–	1	–	–	–
Mycetophilidae	*Anatella dampfi*	–	–	–	–	–	–	1	–
Mycetophilidae	*Boletina trivittata*	–	–	2	–	–	–	–	–
Mycetophilidae	*Brevicornu griseicolle*	–	–	1	–	–	–	–	–
Mycetophilidae	*Coelosia flava*	–	–	–	–	–	–	3	–
Mycetophilidae	*Cordyla flaviceps*	–	–	2	–	–	–	–	–
Mycetophilidae	*Epicypta limnophila*	–	–	–	1	2	2	2	–
Mycetophilidae	*Exechia neorepanda*	–	–	–	–	1	–	–	–
Mycetophilidae	*Exechiopsis hammi*	–	–	–	–	–	–	1	–
Mycetophilidae	*Exechiopsis subulata*	–	–	–	–	–	1	–	–
Mycetophilidae	*Mycetophila luctuosa*	–	–	1	–	–	–	–	–
Mycetophilidae	*Mycomya annulata*	–	–	–	–	1	–	–	–
Mycetophilidae	*Mycomya cinerascens*	–	–	1	–	–	–	1	–

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Mycetophilidae	*Rymosia bifida*	–	–	–	–	1	–	–	–
Mycetophilidae	*Rymosia fasciata*	–	–	–	1	–	–	–	–
Mycetophilidae	*Synapha fasciata*	–	–	2	–	–	–	1	–
Mycetophilidae	*Tetragoneura sylvatica*	–	–	–	–	1	–	–	–
Mycetophilidae	*Zygomyia humeralis*	–	–	–	–	–	–	1	–
Opetiidae	*Opetia nigra*	–	–	2	–	–	–	2	–
Opomyzidae	*Geomyza tripunctata*	Y	–	–	–	4	3	5	–
Opomyzidae	*Opomyza germinationis*	–	–	2	1	2	1	2	–
Opomyzidae	*Opomyza petrei*	–	–	–	1	2	–	–	–
Pallopteridae	*Palloptera trimacula*	–	–	–	–	–	–	2	–
Pediciidae	*Dicranota pavida*	Y	–	–	–	1	–	–	–
Pediciidae	*Tricyphona immaculata*	Y	Y	–	–	2	12	4	–
Pipunculidae	*Chalarus spurius*	–	–	–	–	–	–	1	–
Pipunculidae	*Tomosvaryella palliditarsis*	–	–	–	–	–	2	–	–
Pipunculidae	*Semicephalops varipes*	–	–	–	1	–	–	1	–
Polleniidae	*Pollenia angustigena*	–	–	–	–	24	1	8	–
Polleniidae	*Pollenia pediculata*	–	–	–	1	1	2	4	–
Polleniidae	*Pollenia rudis*	Y	–	1	1	3	–	–	–
Psychodidae	*Clytocerus dalii*	–	–	5	–	1	–	–	–
Psychodidae	*Clytocerus ocellaris*	–	–	17	1	5	4	21	–
Psychodidae	*Pericoma diversa*	–	–	1	–	–	–	–	–
Psychodidae	*Philosepedon humeralis*	–	–	–	–	2	–	1	–
Psychodidae	*Pneumia nubila*	–	–	2	–	–	–	–	–
Psychodidae	*Pneumia pilularia*	–	–	5	–	–	–	3	–
Psychodidae	*Pneumia trivialis*	–	–	23	–	–	–	29	–
Psychodidae	*Psychoda phalaenoides*	–	–	1	–	–	–	–	–
Psychodidae	*Seoda ambigua*	–	–	34	2	–	–	4	–
Psychodidae	*Telmatoscopus advena*	–	–	19	–	–	–	11	–
Psychodidae	*Threticus lucifugus*	–	–	1	1	–	–	7	–
Psychodidae	*Tonnoiriella pulchra*	–	–	1	–	–	–	–	–
Psychodidae	*Ulomyia fuliginosa*	–	–	21	–	–	–	14	–
Rhagionidae	*Chrysopilus cristatus*	Y	–	–	1	3	1	12	–
Rhagionidae	*Rhagio scolopaceus*	–	–	–	–	–	–	1	–
Sarcophagidae	*Brachicoma devia*	–	Y	–	–	1	–	–	–
Sarcophagidae	*Ravinia pernix*	–	–	–	–	1	–	–	–
Sarcophagidae	*Sarcophaga aratrix*	–	–	–	–	1	–	–	–
Sarcophagidae	*Sarcophaga caerulescens*	–	–	–	–	1	–	–	–
Sarcophagidae	*Sarcophaga carnaria*	–	–	–	–	50	–	–	–
Sarcophagidae	*Sarcophaga crassimargo*	–	–	–	–	2	–	1	–
Sarcophagidae	*Sarcophaga subvicina*	–	–	–	–	5	–	–	–
Sarcophagidae	*Sarcophaga vagans*	–	–	–	–	3	–	–	–
Sarcophagidae	*Sarcophaga variegata*	–	–	–	–	3	–	–	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Scathophagidae	*Cleigastra apicalis*	Y	Y	–	–	–	1	–	–
Scathophagidae	*Leptopa filiformis*	–	Y	–	–	–	–	1	–
Scathophagidae	*Norellisoma lituratum*	Y	–	1	–	–	–	1	–
Scathophagidae	*Norellisoma spinimanum*	Y	–	–	–	–	–	1	–
Scathophagidae	*Scathophaga furcata*	Y	–	2	–	–	–	2	–
Scathophagidae	*Scathophaga stercoraria*	–	–	2	5	27	1	21	–
Scathophagidae	*Scathophaga suilla*	Y	–	–	–	–	–	1	–
Scatopsidae	*Coboldia fuscipes*	–	–	–	3	–	–	–	–
Scatopsidae	*Efcookella albitarsis*	–	–	–	–	6	–	–	–
Scatopsidae	*Ferneiella incompleta*	–	–	–	–	–	1	–	–
Sciaridae	*Austrosciara hyalipennis*	–	–	–	–	4	–	5	–
Sciaridae	*Bradysia nitidicollis*	–	–	–	1	1	–	1	–
Sciaridae	*Bradysia pectoralis*	–	–	–	–	2	–	–	–
Sciaridae	*Bradysia placida*	–	–	1	–	–	–	–	–
Sciaridae	*Leptosciarella rejecta*	–	–	–	–	–	–	2	–
Sciaridae	*Leptosciarella subpilosa*	–	–	–	1	–	–	–	–
Sciaridae	*Phytosciara flavipes*	–	–	2	–	2	–	1	–
Sciaridae	*Schwenckfeldina carbonaria*	–	–	2	–	2	–	3	–
Sciaridae	*Trichosia splendens*	–	–	1	–	–	–	1	–
Sciomyzidae	*Ilione albiseta*	Y	–	–	1	–	–	1	–
Sciomyzidae	*Ilione lineata*	Y	Y	1	2	–	2	3	–
Sciomyzidae	*Pherbellia dorsata*	Y	Y	–	4	–	–	–	–
Sciomyzidae	*Pherbellia schoenherri*	Y	Y	–	–	–	1	–	–
Sciomyzidae	*Pherbina coryleti*	Y	–	–	1	–	–	–	–
Sciomyzidae	*Pteromicra angustipennis*	Y	Y	–	–	–	1	–	–
Sciomyzidae	*Renocera pallida*	Y	–	2	–	–	1	2	–
Sciomyzidae	*Sepedon sphegea*	Y	–	–	1	–	–	–	–
Sciomyzidae	*Sepedon spinipes*	Y	Y	–	1	–	–	1	–
Sciomyzidae	*Tetanocera ferruginea*	Y	–	–	1	–	–	–	–
Sciomyzidae	*Tetanocera robusta*	Y	Y	–	–	–	–	1	–
Sepsidae	*Nemopoda nitidula*	–	–	8	–	–	8	1	–
Sepsidae	*Sepsis cynipsea*	–	–	1	2	5	10	7	–
Sepsidae	*Sepsis flavimana*	–	–	–	–	–	–	3	–
Sepsidae	*Sepsis fulgens*	–	–	7	2	20	7	3	–
Sepsidae	*Sepsis punctum*	–	–	–	–	–	1	6	–
Sepsidae	*Sepsis violacea*	–	–	–	–	–	–	1	–
Sepsidae	*Themira annulipes*	Y	–	–	–	–	2	–	–
Sphaeroceridae	*Chaetopodella scutellaris*	–	–	–	–	2	5	1	–
Sphaeroceridae	*Copromyza stercoraria*	–	–	–	–	–	2	–	–
Sphaeroceridae	*Crumomyia fimetaria*	–	–	1	–	–	–	–	–
Sphaeroceridae	*Crumomyia pedestris*	–	–	1	2	–	8	4	–
Sphaeroceridae	*Eulimosina ochripes*	–	–	–	–	–	–	1	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Sphaeroceridae	*Ischiolepta crenata*	–	–	–	–	–	6	2	–
Sphaeroceridae	*Leptocera fontinalis*	–	–	2	1	–	11	–	–
Sphaeroceridae	*Limosina silvatica*	–	–	2	1	–	1	–	–
Sphaeroceridae	*Lotophila atra*	–	–	–	1	1	3	5	–
Sphaeroceridae	*Minilimosina fungicola*	–	–	1	–	–	–	–	–
Sphaeroceridae	*Minilimosina vitripennis*	–	–	–	1	5	–	2	–
Sphaeroceridae	*Opacifrons coxata*	–	–	4	5	5	6	10	–
Sphaeroceridae	*Phthitia longisetosa*	–	–	–	–	3	–	–	–
Sphaeroceridae	*Pseudocollinella humida*	–	–	–	9	–	–	2	–
Sphaeroceridae	*Pteremis fenestralis*	–	–	–	–	1	–	–	–
Sphaeroceridae	*Pullimosina pullula*	–	–	3	5	3	4	7	–
Sphaeroceridae	*Rachispoda anceps*	–	–	1	9	24	23	12	–
Sphaeroceridae	*Rachispoda limosa*	–	–	–	–	–	–	1	–
Sphaeroceridae	*Rachispoda lutosa*	–	–	–	3	–	–	–	–
Sphaeroceridae	*Spelobia clunipes*	–	–	2	–	1	–	4	–
Sphaeroceridae	*Spelobia luteilabris*	–	–	1	1	1	2	–	–
Sphaeroceridae	*Spelobia manicata*	–	–	–	1	–	1	–	–
Sphaeroceridae	*Spelobia palmata*	–	–	5	–	–	2	3	–
Sphaeroceridae	*Spelobia parapusio*	–	–	1	–	–	–	–	–
Sphaeroceridae	*Spelobia rufilabris*	–	–	2	–	–	–	–	–
Stenomicridae	*Podocera delicata*	Y	Y	–	–	–	1	–	–
Stratiomyidae	*Beris chalybata*	–	–	–	–	–	–	1	–
Stratiomyidae	*Beris geniculata*	Y	–	–	–	–	–	1	–
Stratiomyidae	*Microchrysa flavicornis*	–	–	–	–	–	1	–	–
Stratiomyidae	*Pachygaster leachii*	–	–	1	–	–	–	–	–
Syrphidae	*Cheilosia pagana*	–	–	–	–	–	–	2	–
Syrphidae	*Episyrphus balteatus*	–	–	–	–	1	–	8	–
Syrphidae	*Eristalis arbustorum*	Y	–	–	2	–	–	5	–
Syrphidae	*Eristalis pertinax*	Y	–	–	–	–	–	4	–
Syrphidae	*Eupeodes corollae*	–	–	–	–	1	–	4	–
Syrphidae	*Eupeodes latifasciatus*	–	–	1	–	–	–	–	–
Syrphidae	*Helophilus pendulus*	Y	–	–	1	–	–	1	–
Syrphidae	*Leucozona glaucia*	–	–	–	–	–	–	3	–
Syrphidae	*Melangyna umbellatarum*	–	–	–	–	–	–	1	–
Syrphidae	*Melanogaster hirtella*	Y	Y	–	1	–	–	3	–
Syrphidae	*Melanostoma mellinum*	–	–	–	–	–	–	4	–
Syrphidae	*Melanostoma scalare*	–	–	–	–	–	2	3	–
Syrphidae	*Neoascia tenur*	Y	–	–	4	1	2	29	–
Syrphidae	*Orthonevra nobilis*	Y	Y	–	–	–	–	6	–
Syrphidae	*Platycheirus albimanus*	–	–	–	1	–	–	6	–
Syrphidae	*Platycheirus clypeatus*	Y	–	–	5	–	2	9	–
Syrphidae	*Platycheirus fulviventris*	Y	–	–	–	1	–	–	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Syrphidae	*Platycheirus granditarsus*	Y	–	–	–	–	–	1	–
Syrphidae	*Platycheirus occultus*	Y	–	–	–	–	–	1	–
Syrphidae	*Platycheirus peltatus*	–	–	–	1	–	–	–	–
Syrphidae	*Platycheirus scutatus*	–	–	–	–	–	–	1	–
Syrphidae	*Rhingia campestris*	–	–	–	–	1	–	–	–
Syrphidae	*Rhingia rostrata*	–	–	–	–	–	–	1	–
Syrphidae	*Riponnensia splendens*	Y	–	–	2	1	–	10	–
Syrphidae	*Scaeva pyrastri*	–	–	–	–	–	–	1	–
Syrphidae	*Sericomyia silentis*	Y	–	5	–	–	–	2	–
Syrphidae	*Sphegina clunipes*	–	–	–	–	–	–	2	–
Syrphidae	*Syritta pipiens*	–	–	–	11	1	1	20	–
Syrphidae	*Syrphus ribesii*	–	–	–	–	–	–	5	–
Syrphidae	*Syrphus vitripennis*	–	–	–	–	–	–	2	–
Syrphidae	*Volucella bombylans*	–	–	–	–	1	–	–	–
Syrphidae	*Xylota sylvarum*	–	–	–	–	1	–	–	–
Tabanidae	*Haematopota pluvialis*	Y	–	–	1	–	1	–	–
Tachinidae	*Medina luctuosa*	–	–	–	–	–	–	1	–
Tachinidae	*Medina separata*	–	–	–	–	1	–	–	–
Tachinidae	*Phytomyptera cingulata*	–	–	–	–	–	–	1	–
Tachinidae	*Siphona geniculata*	–	–	–	1	1	–	1	–
Tephritidae	*Chetostoma curvinerve*	–	–	–	–	–	–	1	–
Tephritidae	*Sphenella marginata*	Y	–	–	–	–	–	2	–
Tephritidae	*Trupanea amoena*	–	–	–	–	–	–	3	–
Tephritidae	*Xyphosia miliaria*	–	–	–	–	–	–	1	–
Tipulidae	*Prionocera turcica*	Y	Y	–	3	–	–	–	–
Tipulidae	*Tipula lateralis*	Y	Y	–	–	–	–	2	–
Tipulidae	*Tipula luteipennis*	Y	Y	1	–	7	–	11	–
Tipulidae	*Tipula oleracea*	Y	–	–	1	–	–	–	–
Tipulidae	*Tipula paludosa*	–	–	–	–	–	–	1	–
Tipulidae	*Tipula variicornis*	–	–	–	–	–	–	1	–
Hemiptera	–	–	–	–	–	–	–	–	–
Anthocoridae	*Anthocoris limbatus*	–	–	–	–	–	–	1	–
Anthocoridae	*Anthocoris nemorum*	–	–	2	3	12	1	14	–
Aphrophoridae	*Aphrophora alni*	–	–	3	–	2	–	2	–
Aphrophoridae	*Neophilaenus lineatus*	–	–	–	6	13	2	2	–
Aphrophoridae	*Philaenus spumarius*	–	–	4	33	4	3	104	–
Ceratocombidae	*Ceratocombus coleoptratus*	–	Y	–	–	–	2	–	–
Cicadellidae	*Anoscopus albifrons*	–	–	–	–	1	–	–	–
Cicadellidae	*Aphrodes makarovi*	–	–	–	–	–	1	–	–
Cicadellidae	*Cicadella viridis*	Y	–	–	5	10	2	9	–
Cicadellidae	*Conosanus obsoletus*	–	–	–	1	–	–	3	–
Cicadellidae	*Eupteryx signatipennis*	Y	–	–	–	–	–	1	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Cicadellidae	*Eupteryx thoulessi*	Y	–	–	2	–	–	–	–
Cicadellidae	*Eupteryx vittata*	–	–	–	–	–	–	3	–
Cicadellidae	*Euscelis incisus*	–	–	–	–	–	–	1	–
Cicadellidae	*Evacanthus interruptus*	–	–	–	6	–	–	2	–
Cicadellidae	*Macrosteles sexnotatus*	–	–	–	1	–	–	–	–
Cicadellidae	*Macrosteles viridigriseus*	–	–	–	2	–	–	–	–
Cicadellidae	*Megophthalmus scanicus*	–	–	–	–	–	–	3	–
Cicadellidae	*Populicerus confusus*	–	–	1	–	–	–	–	–
Cicadellidae	*Sonronius dahlbomi*	–	–	–	–	–	–	2	–
Cicadellidae	*Zyginidia scutellaris*	–	–	–	1	–	–	–	–
Cixiidae	*Cixius distinguendus*	–	–	–	–	1	–	–	–
Cixiidae	*Cixius nervosus*	–	–	–	–	1	–	1	–
Coreidae	*Coreus marginatus*	–	–	–	–	2	–	–	–
Delphacidae	*Conomelus anceps*	Y	–	–	13	4	7	13	–
Delphacidae	*Delphacodes capnodes*	Y	Y	–	–	5	8	–	–
Delphacidae	*Florodelphax leptosoma*	–	–	–	–	6	3	1	–
Delphacidae	*Javesella pellucida*	–	–	–	1	–	–	–	–
Delphacidae	*Megamelodes quadrimaculatus*	–	–	–	2	3	–	8	–
Delphacidae	*Muellerianella extrusa*	Y	–	–	–	–	3	–	–
Delphacidae	*Stenocranus longipennis*	Y	–	1	–	–	10	3	–
Delphacidae	*Stenocranus major*	Y	–	–	–	–	–	6	–
Lygaeidae	*Cymus glandicolor*	Y	–	1	–	1	72	8	–
Lygaeidae	*Drymus brunneus*	–	–	1	–	–	–	–	–
Lygaeidae	*Drymus ryei*	–	–	–	–	–	–	3	–
Lygaeidae	*Drymus sylvaticus*	–	–	1	1	5	3	6	–
Lygaeidae	*Lamproplax picea*	Y	Y	–	–	1	–	–	–
Lygaeidae	*Pachybrachius fracticollis*	Y	Y	–	1	8	–	–	–
Lygaeidae	*Peritrechus lundii*	–	–	–	–	–	1	–	–
Lygaeidae	*Scolopostethus thomsoni*	–	–	1	6	–	–	7	–
Lygaeidae	*Stygnocoris fuligineus*	–	–	–	–	1	–	–	–
Lygaeidae	*Stygnocoris sabulosus*	–	–	4	27	77	8	12	–
Microphysidae	*Myrmedobia exilis*	–	–	–	–	1	–	–	–
Miridae	*Apolygus spinolae*	–	–	–	–	–	–	2	–
Miridae	*Asciodema obsoleta*	–	–	–	–	–	–	–	1
Miridae	*Atractotomus mali*	–	–	–	–	–	–	2	–
Miridae	*Bryocoris pteridis*	–	–	6	–	–	–	2	–
Miridae	*Charagochilus gyllenhalii*	–	–	–	1	–	–	–	–
Miridae	*Closterotomus norwegicus*	–	–	–	7	–	–	18	–
Miridae	*Cyrtorhinus caricis*	–	–	–	–	–	–	2	–
Miridae	*Dicyphus epilobii*	–	–	1	–	–	–	5	–
Miridae	*Leptopterna dolabrata*	–	–	–	–	–	–	1	–
Miridae	*Liocoris tripustulatus*	–	–	–	1	–	–	4	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Miridae	*Lygocoris pabulinus*	–	–	–	–	–	–	3	–
Miridae	*Mecomma ambulans*	–	–	–	1	2	1	11	–
Miridae	*Monalocoris filicis*	–	–	6	1	2	–	6	–
Miridae	*Orthops campestris*	–	–	–	1	–	–	26	–
Miridae	*Pithanus maerkelii*	–	–	–	4	–	5	2	–
Miridae	*Plagiognathus arbustorum*	–	–	–	17	–	–	55	–
Miridae	*Psallus haematodes*	–	–	11	–	–	–	1	–
Miridae	*Stenodema calcarata*	–	–	–	4	34	6	15	–
Miridae	*Stenotus binotatus*	–	–	–	–	–	2	1	–
Miridae	*Teratocoris caricis*	Y	Y	–	2	–	–	–	–
Miridae	*Tytthus pygmaeus*	Y	–	–	–	–	5	2	–
Nabidae	*Himacerus major*	–	–	–	–	1	–	–	–
Nabidae	*Nabis ferus*	–	–	1	–	9	1	1	–
Nabidae	*Nabis flavomarginatus*	–	–	–	1	–	–	–	–
Nabidae	*Nabis limbatus*	–	–	–	1	1	1	–	–
Pentatomidae	*Palomena prasina*	–	–	–	–	1	–	–	–
Pentatomidae	*Pentatoma rufipes*	–	–	–	–	–	1	–	–
Pentatomidae	*Picromerus bidens*	–	–	–	–	–	–	–	1
Pentatomidae	*Piezodorus lituratus*	–	–	–	1	–	–	–	1
Pentatomidae	*Troilus luridus*	–	–	2	–	–	–	–	–
Pentatomidae	*Zicrona caerulea*	–	Y	–	–	–	–	2	–
Rhopalidae	*Liorhyssus hyalinus*	–	Y	–	–	1	–	–	–
Saldidae	*Chartoscirta cincta*	Y	–	3	4	–	9	4	–
Saldidae	*Saldula saltatoria*	Y	–	–	4	–	–	1	–
Tingidae	*Acalypta carinata*	–	–	–	–	1	–	–	–
Tingidae	*Tingis cardui*	–	–	–	–	–	1	–	–
Hymenoptera	–	–	–	–	–	–	–	–	–
Andrenidae	*Andrena fucata*	–	–	–	–	–	–	1	–
Andrenidae	*Andrena haemorrhoa*	–	–	–	1	1	–	–	–
Andrenidae	*Andrena minutula*	–	–	–	–	–	–	2	–
Andrenidae	*Andrena scotica*	–	–	–	–	–	–	2	–
Apidae	*Apis mellifera*	–	–	–	–	–	–	1	–
Apidae	*Bombus pascuorum*	–	–	–	–	1	–	–	–
Apidae	*Bombus vestalis*	–	–	–	1	–	–	–	–
Crabronidae	*Crossocerus nigritus*	–	–	–	–	–	–	1	–
Crabronidae	*Ectemnius continuus*	–	–	–	–	–	–	5	–
Crabronidae	*Ectemnius lapidarius*	–	–	–	–	–	–	8	–
Formicidae	*Lasius niger*	–	–	–	–	–	–	3	–
Formicidae	*Leptothorax acervorum*	–	–	–	1	–	–	–	–
Formicidae	*Myrmica ruginodis*	–	–	2	21	48	4	20	–
Formicidae	*Myrmica scabrinodis*	–	–	–	–	4	–	2	–
Halictidae	*Lasioglossum albipes*	–	–	–	–	–	–	1	–

Family	Taxon	Pantheon Wetland	Fenland Assemblage	Carr	Open fen	Poor fen	Graminoid tall fen	Mixed tall fen	Other
Halictidae	*Lasioglossum calceatum*	–	–	–	16	–	–	2	–
Halictidae	*Lasioglossum morio*	–	–	–	–	1	–	–	–
Vespidae	*Symmorphus bifasciatus*	–	–	1	–	–	–	–	–
Vespidae	*Vespula vulgaris*	–	–	–	–	5	–	–	–
Isopoda	–	–	–	–	–	–	–	–	–
Asellidae	*Asellus aquaticus*	Y	–	–	–	–	1	–	–
Oniscidae	*Oniscus asellus*	–	–	301	2	15	216	271	–
Philosciidae	*Philoscia muscorum*	–	–	–	–	1	–	4	–
Porcellionidae	*Porcellio scaber*	–	–	2	–	–	4	–	–
Porcellionidae	*Porcellionides cingendus*	–	–	2	1	2	2	4	–
Lepidoptera	–	–	–	–	–	–	–	–	–
Drepanidae	*Thyatira batis*	–	–	–	–	1	–	–	–
Mecoptera	–	–	–	–	–	–	–	–	–
Panorpidae	*Panorpa germanica*	–	–	1	–	1	–	3	–
Opiliones	–	–	–	–	–	–	–	–	–
Nemastomatidae	*Mitostoma chrysomelas*	–	–	–	–	1	–	–	–
Nemastomatidae	*Nemastoma bimaculatum*	–	–	12	2	8	48	45	–
Phalangiidae	*Dicranopalpus ramosus*	–	–	1	–	–	–	–	–
Phalangiidae	*Lacinius ephippiatus*	–	–	–	1	–	–	–	–
Phalangiidae	*Leiobunum blackwalli*	–	–	1	1	–	–	1	–
Phalangiidae	*Leiobunum rotundum*	–	–	3	2	–	–	2	–
Phalangiidae	*Mitopus morio*	–	–	–	1	–	–	–	–
Phalangiidae	*Oligolophus hanseni*	–	–	5	–	–	1	4	–
Phalangiidae	*Oligolophus tridens*	–	–	6	–	3	4	9	–
Phalangiidae	*Paroligolophus agrestis*	–	–	3	–	6	–	–	–
Phalangiidae	*Platybunus triangularis*	–	–	–	–	–	–	1	–

Key: [1] *Cantharis nigra* (=thoracica) (De Geer, 1774) red scutellum; [2] *Rhinoncus pericarpius* (Linnaeus, 1758) (pre 2014 type revision).

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 are held in the Welsh Invertebrate Database (WID).

Metadata for this project is publicly accessible through Natural Resources Wales' Library Catalogue https://libcat.naturalresources.wales (English Version) and https://catllyfr.cyfoethnaturiol.cymru (Welsh Version) by searching 'Dataset Titles'. The metadata is held as record no. **NRW_DS161546**.