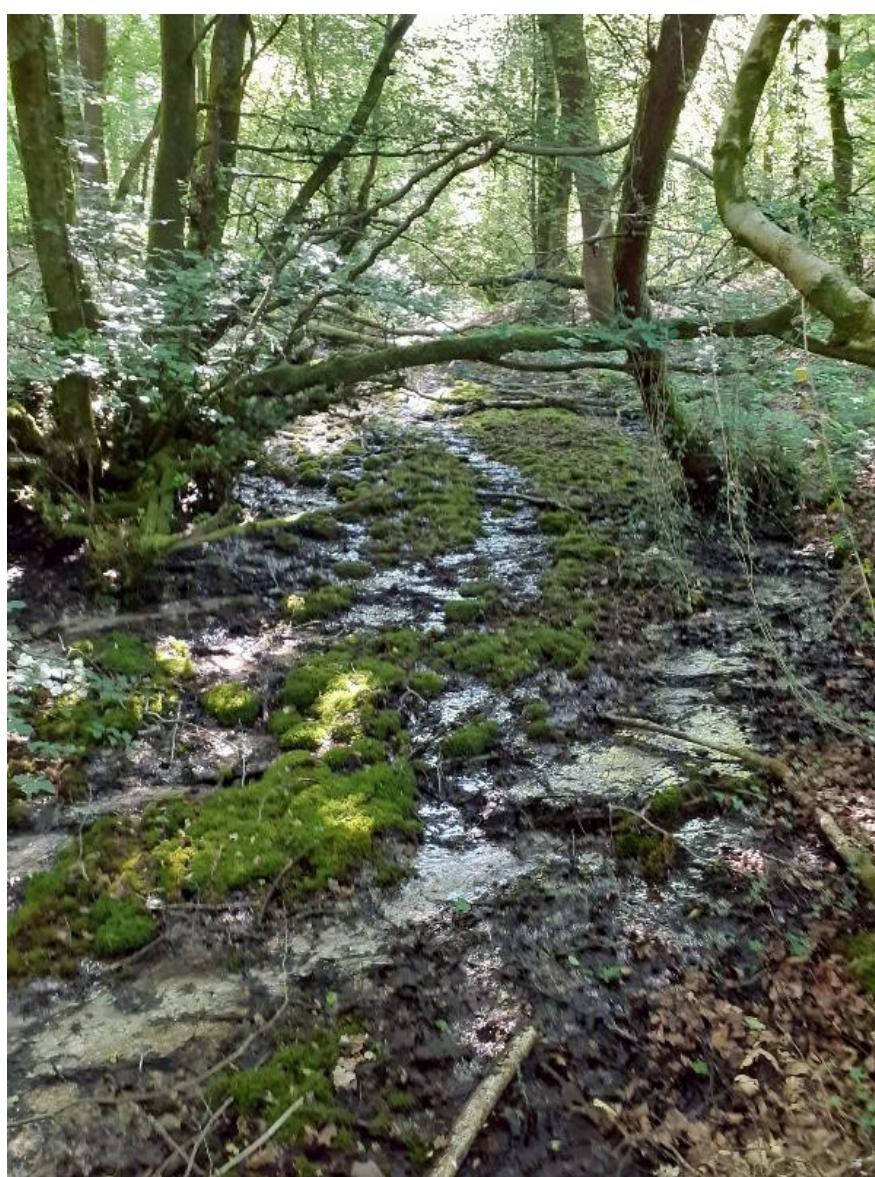


An invertebrate survey of woodland seepages at Coed y Bedw SSSI in 2023

NRW Evidence Report No. 777

Author name: Andy Godfrey



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Crynodeb gweithredol

Ymgwymerwyd ag arolwg a gomisiynwyd gan Cyfoeth Naturiol Cymru i ganfod cyflwr y creaduriaid di-asgwrn-cefn mewn tryddiferiadau calchaid ar SoDdGA Coed y Bedw yn 2023. Cofnododd ymweliadau a wnaed ar 8 a 9 Mehefin ac 14 ac 15 Medi gyfanswm o 229 o dacsonau di-asgwrn-cefn gan gynnwys dwy rywogaeth sy'n Brin yn Genedlaethol a naw rywogaeth sy'n Anfynych yn Genedlaethol. Cofnodwyd tair rywogaeth o bryfed am y tro cyntaf yng Nghymru - y pryf ffrwythau *Amiota collini*, y pryf dawnsio *Oedalea oriunda* ac, yn fwyaf arwyddocaol, y pryf teiliwr *Dicranomyia imbecilla* sy'n gysylltiedig â thryddiferiadau calchaid.

Caiff naw o'r rywogaethau a gofnodwyd eu cysylltu'n gryf â thryddiferiadau, gan gynnwys wyth a briodolir i'r Math Penodol o Gasgliad (SAT) W126 (tryddiferiad) – y pryfed teiliwr *Dicranomyia fusca*, *Lipsothrix nervosa*, *Molophilus corniger*, *Pedicia straminea* a *Thaumastoptera calceata*, y pryf o'r teulu Lauxaniidae *Meiosomyza laeta* a'r pryfed pric *Beraea maurus* a *Crunoecia irrorata*. Y rywogaeth ychwanegol a ganfuwyd, sydd i'w chael mewn tryddiferiadau, oedd *D. imbecilla*. Gan fod meddalwedd ddadansoddol Pantheon yn gosod trothwy o chwe rywogaeth ar gyfer W126, mae'n awgrymu bod ffawna di-asgwrn-cefn y tryddiferiad mewn cyflwr ffafriol yng Nghoed y Bedw. Fodd bynnag, nid yw Pantheon yn asesu cyflwr cynefinoedd, a nodwyd yn ystod ymweliadau'r arolwg bod nifer o ffynhonnau a nentydd bach wedi sychu, yn ôl pob tebyg o ganlyniad i gyfnodau hir o dywydd sych yn y gwanwyn a dechrau'r haf. Os bydd ffynhonnau, tryddiferiadau a nentydd yn parhau i fynd yn sych, bydd yn cael effaith fawr ar y creaduriaid di-asgwrn-cefn cysylltiedig. Mae'n bosibl fod gweithgarwch chwarela cyfagos, dŵr ffo llygredig o'r ffordd a chlefyd coed ynn hefyd yn cael effaith ar hydroleg ac ansawdd dŵr Coed y Bedw.

Executive summary

A survey commissioned by Natural Resources Wales to determine the condition of the invertebrate fauna of woodland calcareous seepages at Coed y Bedw SSSI was undertaken in 2023. Visits made on 8th & 9th June and 14th & 15th September recorded a total of 229 invertebrate taxa including two Nationally Rare and nine Nationally Scarce species. Three fly species were recorded for the first time in Wales - the fruitfly *Amiota collini*, the dancefly *Oedalea oriunda* and, most significantly, the Pallid Tufa Crane fly *Dicranomyia imbecilla* which is associated with calcareous seepages.

Nine species recorded are strongly associated with seepages including eight which are attributed to the Specific Assemblage Type (SAT) W126 (seepage) - the crane flies *Dicranomyia fusca*, *Lipsothrix nervosa*, *Molophilus corniger*, *Pedicia straminea* and *Thaumastoptera calceata*, the lauxaniid fly *Meiosomyza laeta* and the caddisflies *Beraea maurus* and *Crunoecia irrorata*. The additional seepage species found was *D. imbecilla*. As the Pantheon analytical software sets a threshold of six species for W126, it suggests that the seepage invertebrate fauna is in favourable condition at Coed y Bedw. However, Pantheon does not assess habitat condition and it was noted during survey visits that several springs and small streams had dried up, probably as a result of prolonged dry periods in the spring and early summer. If springs, seepages and streams continue to dry up it will have major consequences on the associated invertebrate fauna. Neighbouring quarrying activity, road pollution run-off and ash die-back may also have an impact upon hydrology and water quality at Coed y Bedw.

1. Introduction

Coed y Bedw SSSI near Penttyrch in Glamorgan is part of the westernmost group of beech woodlands, which includes Garth Wood SSSI to the immediate south and Fforestganol a Chwm Nofydd SSSI to the east, on the western side of the Taff Valley where it crosses the Carboniferous Limestone (Figure 1). Beech (*Fagus sylvatica*) forms stands mixed with oak (*Quercus* spp.), Ash (*Fraxinus excelsior*), Alder (*Alnus glutinosa*) and birch (*Betula* spp.) within a 16ha woodland, where the soils are derived from Millstone Grit. A key attribute of the woodland is the presence of hydrological features including a stream and, more significantly, a series of tufa-depositing seepages which can support important invertebrate species and assemblages (Boyce, 2002). Woodland calcareous seepage invertebrate faunas of regional importance occur elsewhere in Glamorgan at Cwm Taf Fechan Woodlands SSSI, Nant Whitton Woodlands SSSI (Mike Howe, pers. comm.) and Coed Horseland (Boardman, 2020).

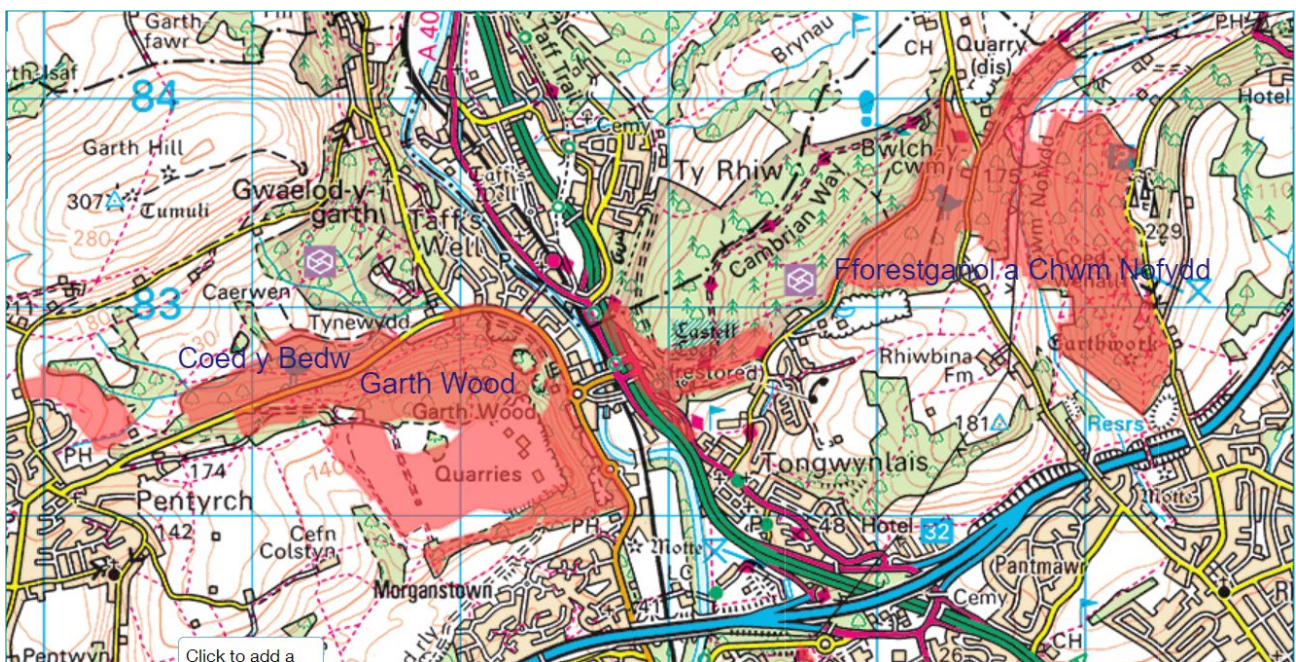


Figure 1. The location of Coed y Bedw SSSI and adjacent SSSI. © Ordnance Survey

Whilst the fauna of seepages at Cwm Nofydd has been surveyed to some degree, with records of the crane flies *Dicranomyia aquosa*, *Dicranomyia lucida*, *Ellipteroides lateralis* and *Molophilus corniger*, little is known of the fauna at Coed y Bedw. As a consequence, a survey of the seepage invertebrate fauna was commissioned by Natural Resources Wales in 2023 to provide a contemporary assessment of the fauna, highlighting any rare and uncommon species, to identify any threats to the habitat and make recommendations for management.

Survey work was undertaken in June and September 2023 to target emergences of key elements of the seepage fauna, and particularly crane flies, which are found mostly in spring and early summer or in late summer/autumn.

2. Methods

2.1. Sampling

The following sampling methods were employed:

- Sweep netting of low-growing vegetation and scrub. This is a standard method for aculeate Hymenoptera, Diptera, phytophagous Coleoptera, Hemiptera and several other groups;
- Direct searching on bare ground, flower-heads, etc and including the field recording of butterflies and other conspicuous invertebrates.

2.2. Areas surveyed

8 June 2023

Site 1: Central and western parts of Coed y Bedw concentrating on tufa springs and seepages downstream of the spring at ST1091182538.

Site 2: Downstream of footbridge at ST1091482542.

Site 3: Footpath east below Heol Goch (road). Included springs at ST1122582677. Followed footpath east to Issues and main stream (Nant Cwmllydrew).

9 June 2023

Site 1: Followed footpath west of wood entrance off Heol Goch.

Site 2: Downstream of confluence at ST1076282514 (see Photograph 5).

Site 3: Tufaceous stream upstream of ST1091482542.

Site 4: East along lower footpath past died-out pond (Photograph 6) and to main stream (Nant Cwmllydrew) and Issues.

14 September 2023

Site 1: Tufaceous seepage below site entrance off Heol Goch and draining northwards to confluence with main stream on lower footpath at ST1091482542.

Site 2: West following main stream (Nant Cwmllydrew) and then following small tufa stream to spring at ST1091282540.

Site 3: Non-tufaceous stream downstream of lower footpath at ST1091482542.

15 September 2023

Site 1: Tufaceous seepage below site entrance off Heol Goch and draining northwards to confluence with main stream on lower footpath at ST1091482542

Site 2: Small tufa stream to spring at ST1091282540.

2.3. Weather conditions

The weather on the survey days is detailed in Table 1.

Table 1. Weather and ground conditions on the survey dates.

Survey date	Weather conditions
8 June 2023	Maximum wind speed 1.5mph, average 0.7mph, temperature 16.9°C at start of survey day. Conditions dry for rest of day
9 June 2023	Occasional breeze but mainly no wind. 16.3°C at start of survey. Sunny & dry
14 September 2023	Ground damp, vegetation dry, heavy rain on drive to site. 100% cloud, no wind & 17.2°C later in morning. Vegetation getting wet from light rain early afternoon
15 September 2023	No wind, dry, 17.8°C. Clouds not visible due to trees to estimate cloud cover

2.4. Identifications

Target groups for terrestrial invertebrates have been identified which are considered by the surveyor to be good habitat indicators. These include Orthoptera (grasshoppers and allies), Odonata (damselflies and dragonflies), shield bugs and grass bugs, selected Coleoptera (beetles), butterflies, day-flying moths, selected Diptera and selected aculeate Hymenoptera (ants, bees and wasps). These have generally been identified to species.

As is usually the case with invertebrate surveys, it has not been possible to identify all the material collected. It is relatively easy to collect a large amount of material and because many invertebrates are difficult to identify, it can take many hours to identify the material. Normally, non-target families are left which was the case here. Approximately 60% of the material sampled has been identified and the remaining material will be retained indefinitely.

Vouchers of rare and uncommon species have been retained. All material was collected by and identified by Andy Godfrey.

2.5. PANTHEON analysis

The species list for the site was downloaded onto the Pantheon website <https://www.brc.ac.uk/pantheon/> for analysis. Pantheon is the latest computer software for analysing invertebrate data to be developed by Natural England. Users import lists of invertebrates (called “samples”) into Pantheon, which then matches the species to the preferred name in the UK Species Inventory analysing the sample, attaching associated

habitats and resources, assemblage types (adapted from the Invertebrate Species-habitat Information System (ISIS), conservation status, habitat fidelity scores, and other information against them. The analysis then displays many of this data as [numerical scores](#). This information can be used to determine site quality by revealing whether the species list is indicative of good quality habitat, inform on species ecology and assist in management decisions by revealing the key ecological resources. Pantheon will also help to establish a shared terminology for describing invertebrate interest, which will greatly augment invertebrate conservation.

Not all the macro-invertebrate taxa are included in the database. To date over 13,000 species have been typed, this being about a quarter of the total macro-invertebrate fauna (estimated at 37,000). It remains limited to those taxa and families where there is enough ecological information to give a fair level of coding accuracy. These include species such as beetles, flies, true bugs, moths, bees and many more. A list of groups covered can be found on the [Taxon groups](#) page (under the Data menu). Pantheon focuses on species primarily found in England but should be applicable to Wales.

2.6. Previous records

A small number of previous crane-fly records were provided by NRW. These comprise five *Tipula* species (Tipulidae) and of the nine records, four were made by the well-known crane-fly expert, Alan Stubbs, one was by George Tordoff and the recorder was withheld for the remainder. The records do not include any significant species.

2.7. Limiting factors

The species selected for identification generally included those from families that are relatively well known ecologically, have published rarity statuses and are relatively straightforward to identify. Some families that could have been important were not identified due largely to time constraints, and these included the owl midges (Psychodidae), biting midges (Ceratopogonidae) and black flies (Simuliidae) which, because they have aquatic or semi-aquatic larvae, could have included significant species. The non-biting midges (Chironomidae) are likely to include important species, but these are rather specialist and were ignored for this reason. Other families such as the fungus gnat families were not identified or targeted because their life histories are not likely to be linked directly to springs or seepages. The latter were very abundant, and it would still be of interest to identify these.

As always, use of other methods (Malaise trap, pond netting, light trapping) and/or additional surveying would have added more species, but these can be time consuming, physically demanding and would have increased the survey costs significantly. It is felt that by concentrating on hand searching and sweep netting, enough material was collected to assess the value of the seepages.

The weather, whilst not always optimal, was dry on most of the surveys and is unlikely to be a limiting factor.

3. Results

3.1. Species richness and rarity

A total of 229 invertebrate taxa was recorded on four survey days, two in June 2023 and two in September 2023. These include two Nationally Rare and nine Nationally Scarce species (Table 2). Three species, *Amiota collini*, *Dicranomyia imbecilla* and *Oedalea oriunda*, were recorded for the first time in Wales. Their ecology, status and distribution are also briefly discussed in this section.

Table 2. Rare and scarce invertebrate species recorded from Coed y Bedw seepages in 2023. The eight species attributed to the Specific Assemblage Type (SAT) W126 (seepage) are highlighted in blue.

Species	Order	Family	Status	Seepage species
<i>Elodes elongatus</i>	Coleoptera	Scirtidae	Nationally Scarce	No
<i>Beraea maurus</i>	Trichoptera	Beraeidae	Local	Yes
<i>Brachyopa pilosa</i>	Diptera	Syrphidae	Nationally Scarce	No
<i>Crunoecia irrorata</i>	Trichoptera	Lepidostomatidae	Local	Yes
<i>Dicranomyia fusca</i>	Diptera	Limoniidae	Local	Yes
<i>Dicranomyia imbecilla</i>	Diptera	Limoniidae	unknown	Yes
<i>Dicranomyia quadra</i>	Diptera	Limoniidae	unknown	No
<i>Helina abdominalis</i>	Diptera	Muscidae	Nationally Scarce	No
<i>Hercostomus angustifrons</i>	Diptera	Drosophilidae	Nationally Scarce	No
<i>Homoneura interstincta</i>	Diptera	Lauxaniidae	unknown	No
<i>Lipsothrix nervosa</i>	Diptera	Limoniidae	Local/Section 7	Yes
<i>Meiosimyza laeta</i>	Diptera	Lauxaniidae	Nationally Scarce	Yes
<i>Microphor anomalus</i>	Diptera	Microphoridae	Nationally Scarce	No
<i>Minettia filia</i>	Diptera	Lauxaniidae	Nationally Scarce	No
<i>Molophilus corniger</i>	Diptera	Limoniidae	Nationally Scarce	Yes
<i>Oedalea oriunda</i>	Diptera	Hybotidae	Nationally Rare	No
<i>Pedicia straminea</i>	Diptera	Pediciidae	Local	Yes
<i>Ptiolina obscura</i>	Diptera	Rhagionidae	Local	No
<i>Scleroprocta pentagonalis</i>	Diptera	Limoniidae	Nationally Rare	No
<i>Thaumastoptera calceata</i>	Diptera	Limoniidae	Nationally Scarce	Yes

Elodes elongatus

A marsh beetle which is widespread throughout England, Wales and Northern Ireland but would appear to be absent from Scotland. There are 202 records on the NBN Atlas. The larvae, like all scirtids, are wholly aquatic whilst the adults are terrestrial.

Amiota collini

This fruit fly was described from a single male collected at Chippenham Fen National Nature Reserve, Cambridgeshire in 1951 by J.E. Collin (Beuk & Máca, 1995). A second male was found in broadleaved woodland in Hertfordshire in July 1999, and it was also recorded it from Highnam Wood RSPB Reserve, Gloucestershire on 24 July 2008. Further work is necessary to determine the status in Britain of this species according to Falk & Ismay (2016). **Recorded new to Wales at Coed y Bedw in 2023.**

Brachyopa pilosa

This hoverfly is reasonably widespread throughout southern and central England and Wales, with a cluster in the Scottish Highlands that has been discovered more recently. It is associated with ancient broadleaved woodland and with Beech (*Fagus sylvatica*) in particular. The larvae have been found under the bark of recently felled or recently dead Aspen (*Populus tremula*) and oak (*Quercus* spp.) and a puparium was found under beech bark.

Dicranomyia imbecilla Pallid Tufa Crane-fly

This crane-fly has been recently split from *Dicranomyia lutea* (Starý & Stubbs, 2015). A rare species of western and northern districts, it is currently known only from northern England and south-west Scotland where it is typically associated with highly calcareous spring-fed seepages, often with tufaceous deposition on mosses, in woodland (Starý & Stubbs, 2015; Stubbs, 2021). It can occur along spring-fed streams associated with seepage complexes, and, at one site it was abundant beside a large woodland stream well below the source (Starý & Stubbs, 2015). **Recorded new to Wales at Coed y Bedw in 2023.**

Dicranomyia quadra Stream Crane-fly

Another crane-fly that has been recently split from *Dicranomyia lutea* (Starý & Stubbs, 2015). This species is mostly typical of western and northern districts in the UK where it is associated with small and moderate-sized streams in hill country in shade or within woodlands (Stubbs, 2021). It is also found along more open streams, and in ravines and gorges. It is quite widespread in south east Wales, including sites such as Cwm Taf Fechan Woodlands and Cwm Nant Sere.

Helina abdominalis

A muscid fly which occurs sparsely throughout England, as far north as Yorkshire and Cumbria, with Welsh records from Glamorgan and Pembrokeshire. It is associated with broad-leaved woodland, both inland and on the coast, including damp situations and alder carr. The early stages are unknown, although other members of the genus have predatory larvae in moss or humus soil.

Hercostomus angustifrons

This species is widely distributed throughout England, with additional records from Radnorshire and Denbighshire. All sites for which details are available are on peat or peaty soils, and they include damp hollows on lowland heaths and small peaty pools or dykes on 'mosses'. Most sites are open, but some have been invaded by trees, and the species seems able to survive these changing conditions. The early stages of this species are unknown, but the larvae probably develop in peaty pools or damp soil or moss, where they may be predaceous on small invertebrates.

Although more widespread than once thought, with at least eleven post-1960 sites, five of which are in Yorkshire (Falk & Crossley, 2005), this is a localised species with an apparent connection with vulnerable peatland sites, but possibly not always so. It may be under-recorded elsewhere. The majority of known sites are currently protected to varying degrees.

Homoneura interstincta

British material identified as this species was re-identified as *Homoneura mediospinosa* by Merz (2003), but more recently *H. interstincta* has been found in Britain. There are Welsh records from Chirk Park, Coed Lletywalter, Gregynog, Newport Docks and Pierce Wood. The status of these two species will require re-assessment in due course.

Lipsothrix nervosa Southern Yellow Splinter Crane-fly

A crane-fly which is widespread in southern England and south Wales. It is locally frequent in fen carr and calcareous seepages where the larvae can develop in small branches that have fallen onto wet peat or other substrate.

Meiosimyza laeta

This lauxaniid fly has mainly been recorded from Scotland but is known in Wales from seven sites including Aberaeron, Allt-yr-esgair, Cors Blaencanog-fach, Fiddlers Elbow, Kenfig Burrows and Lower Wyndcliff Wood. Records for Windsor Forest, Berkshire (1967), Hayley Wood, Cambridgeshire (1981) and Coombes Valley, Staffordshire (1991) require checking and confirmation. This species is probably associated with damp woodland or carr near to rivers or marshes. The early stages are unknown; other members of this genus have been reared from a range of situations including leaf litter, soil, dead wood, birds' nests and moss.

Falk & Ismay (2016) gave nine confirmed post-1960 records. It was recorded as not uncommon at Aviemore in June 1918 and this may refer to the Craigellachie NNR area. The southern records greatly confuse the picture of the distribution and requirements of this species and may be the result of misidentifications, since the published characters used to distinguish *Meiosimyza laeta* and *M. platycephala* do not always work. Nevertheless, there is no doubt that these two species are distinct. It may occur at other sites away from Scotland but be too scarce for detection by the present levels of recording.

Microphor anomalus

This species is delisted in Falk & Crossley (2005) but is Nationally Scarce according to Pantheon. Collin (1961) stated that it was a little-known species to him. There are 77 records on the National Biodiversity Network (NBN) Atlas records spread thinly throughout England and more rarely, in South Wales. There are records from Clytha Park, Cwm Ivy Marsh, Gwent Levels, Magor Marsh, Pembrey Coast, River Monnow and Whiteford Burrows.

Minettia filia

This lauxaniid fly is known from ten widely dispersed localities according to Falk & Ismay (2016). The National Biodiversity Network Atlas has only 23 records in two clusters with one centred around Snowdonia, another in what appears to be Nottinghamshire and with one additional record from South Devon. No Scottish records are shown on the NBN Atlas despite it being known from several Scottish sites.

The habitat is possibly in, or around damp woodland and damp shaded areas elsewhere. The larval biology is unknown; other members of this genus have been reared from leaf litter and dead wood. This is a poorly understood species that may prove to be more widespread, but so scarce as to be undetected by present levels of recording.

Molophilus corniger Saw-edged Yellow Mol Crane-fly

A small crane-fly which is widespread but with more records in the north and west. It is typically found in calcareous seepage carr and sometimes in other situations where the soil and hydrology are similar. It is an indicator species of good quality base-rich conditions.

Oedalea oriunda

A dancefly which was previously known from just three sites - Barnham (13 May 1995) and Barton Mills, Suffolk (9 and 17 May 1938), and Bristol, Gloucestershire (4-11 June 1983) (Falk & Crossley, 2005). At Barton Mills, males were swept from conifers. Barnham is a heathland site with pine (*Pinus*) trees present. The habitat for the Bristol record is unknown. The early stages are not known, but larvae of closely related species are known to develop in rotten wood, probably as predators on small invertebrates. This species is listed as Data Deficient by Falk & Crossley (ibid). **Recorded new to Wales at Coed y Bedw in 2023.**

Ptiolina obscura Black-fringed Moss-snipefly

This snipe-fly was regarded as Nationally Scarce by Falk (1991) but recently downgraded to Least Concern (Drake, 2017). It is mostly associated with wet mosses in woodlands (Stubbs *et al.*, 2001).

Scleroprocta pentagonalis Plain-legged Furry Splay Crane-fly

This crane-fly is mainly western in distribution in the UK, with many records for the Welsh borders in particular. It is always in low numbers along small woodland streams, especially where there are adjacent seepages.

Thaumastoptera calceata Yellow Case-bearer Crane-fly

Records for this small delicate crane-fly are widely dispersed in England and Wales as far north as Yorkshire. It is restricted to seepage carr, especially that with alder (*Alnus glutinosa*). The larvae make a mobile case and live amongst detritus in limy mud near small woodland streams.

Comments on the crane-flies of Coed y Bedw

The remit of the work specifically mentioned surveying for crane-flies. Forty-two crane-fly taxa were recorded, and these comprised thirty Limoniidae, three Tipulidae, three Ptychopteridae, three Trichoceridae, two Pediciidae and one Cylindrotomidae. One Section 7 crane-fly was recorded (*Lipsothrix nervosa*), along with one Nationally Rare species (*Scleroprocta pentagonalis*) and two that are Nationally Scarce (*Molophilus corniger*, *Thaumastoptera calceata*). None of these is particularly rare. The number of *Tipula* species was poor with only one species. *Dicranomyia imbecilla* is of interest as it is a rare species of western and northern districts, currently only known from northern England and south-west Scotland (Stary & Stubbs, 2015; Stubbs, 2021) and is therefore new to Wales from Coed y Bedw. Some of the identifications in the current report are based on females which can be difficult to separate from similar species and in at least one specimen from Coed Y Bedw there was a slight difference in morphology compared with Stary & Stubbs (ibid). It may also be worth pointing out that Figure 19 and Figure 20 of Stary & Stubbs (ibid) which show photographs of the wings of *D. lutea* and *D. imbecilla* which are clearly identical photos, and this could lead to errors in identification if other characters are not used.

Overall assessment based on rare and uncommon species

The species of interest suggest that the springs and seepages within Coed Y Bedw are of high quality and should continue to be protected and maintained as such.

3.2. PANTHEON results

The full species list generated for Coed y Bedw was inputted into Pantheon. Pantheon recognised a sample size of 229 species of which 205 were analysed giving a return of 90%. Pantheon rejects some species for specific reasons particularly those not identified to species and those not coded into the software. Any misspellings of scientific names or duplicates are dealt with before the data is analysed so these should not be present.

The Pantheon analysis identified six Specific Assemblage Types (SAT):

- W126 (seepage) – 8 species;
- W113 (fast-flowing streams and waterfalls) – 2 species;
- W312 (*Sphagnum* bog);
- A212 (bark & sapwood decay) – 5 species;
- F001 (Scrub edge) – 2 species;
- F003 (scrub-heath & moorland).

The key SATs for Coed y Bedw are W126 and, to a lesser degree, W113. The highest scoring SAT was W126 (Seepage) with 8 characteristic species, representing 15% of the total species pool. These are the crane flies *Dicranomyia fusca*, *Lipsothrix nervosa*, *Molophilus corniger*, *Pedicia straminea* and *Thaumastoptera calceata*, the lauxaniid fly *Meiosomyza laeta* and the caddisflies *Beraea maurus* and *Crunoecia irrorata* (see Table 2). A UK threshold for achieving favourable status for W126 has been set at 6 species, and therefore results from Pantheon suggest that the seepage fauna at Coed y Bedw is in favourable condition.

W113 (fast-flowing streams and waterfalls) scored with 2 species, forming 9% of the species pool. This is just one short of the required UK threshold for favourable status. It is likely that a relatively small amount of additional sampling would achieve the threshold.

In summary, Pantheon analysis suggests that the Specific Assemblage Type (SAT) W126 (Seepage) is in favourable condition. However, it should be noted that Natural Resources Wales does not use Pantheon to derive favourable condition as, whilst it provides a measure of the species assemblage, it does not assess habitat condition or any threats to that habitat.

3.3. Habitat management issues

Dried-up springs

An attempt was made to locate all the springs marked on the maps provided by NRW. Many were not located included all the ones on or close to the lower footpath in the northern part of the site. These included, for example, the three springs close to the Ford at ST1084182637 in the western part of the site and the three at the eastern end of the site near the Issues at ST1154582815. The pond on the lower footpath was also dry (Photograph 6) as were small streams such as the one shown in Photograph 7 at the western end of the site. It is suggested that the springs, seepages and streams are monitored to determine if they are drying-out and if this is the case, measures should be introduced to reverse the trend. The local Wildlife Trust which manages the site may have more information on this and should be consulted.

Impact of the quarry on the surrounding springs and watercourses

The impacts of the quarrying at Ton Mawr and Taff Well Quarries to the south-east of the site should be investigated. Pumping of water to keep the deep quarries dry could have a detrimental impact on the surrounding hydrology and could be the reason (or part of the reason) why so many springs have dried-up on Coed y Bedw.

Pollution from Heol Goch

Run-off of petrol and diesel in particular from Heol Goch (road) is another issue that should be monitored, particularly given that the main wet springs are located a short distance (15-20m) downslope of the road. These appeared clean and pollution-free to the surveyor based on a visual inspection only.

Ash die-back

Ash die-back is affecting ash trees in the woodland and at the time of the survey parts of the site were closed due to the disease and Cardiff University were mapping affected trees using a drone - the surveyor watched the drone in operation on 14th September 2023 and spoke with the researcher. Loss of significant numbers of ash trees could have an impact on shade/sunlight reaching the woodland floor as well as the stability of the soils. Most of the site is on a north-west facing slope and loss of trees could result in landslips, increased sediment load and increased flow in the watercourses.

Climate change

Climate change will invariably have an impact on the site, as it will on all SSSIs. The summer droughts and prolonged dry periods that Wales has experienced over the last few years will have a major influence on the hydrology of springs and seepages. Conversely, increased rainfall and gales along with milder winters may also be having impacts. Changes in weather patterns should be investigated and considered when drawing up future plans for the SSSI.

4. Conclusions

Of the 229 invertebrate taxa were recorded over four days in June and September 2023, nine are strongly associated with seepages. These included eight species which are attributed to the Specific Assemblage Type (SAT) W126 (seepage), namely the crane flies *Dicranomyia fusca*, *Lipsothrix nervosa*, *Molophilus corniger*, *Pedicia straminea* and *Thaumastoptera calceata*, the lauxaniid fly *Meiosomyza laeta* and the caddisflies *Beraea maurus* and *Crunoecia irrorata*. As the Pantheon analytical software sets a threshold of six species for W126, it suggests that the seepage invertebrate fauna is in favourable condition. However, Pantheon does not assess habitat condition and it was noted during survey visits that several springs and small streams had dried up, probably as a result of prolonged dry periods in the spring and early summer. Other threats to the hydrology and water quality of the springs, seepages and small streams within the woodland include neighbouring quarrying activity, road pollution run-off and ash die-back.

Three species were recorded new to Wales during the current survey - the fruitfly *Amiota collini*, the dancefly *Oedalea oriunda* and, most significantly, the Pallid Tufa Crane fly *Dicranomyia imbecilla* which is associated with calcareous seepages.

5. References

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6. Acknowledgements

Thanks to Ryan Paddock of Natural Resources Wales for commissioning the survey.

Appendix 1. Invertebrates recorded from Coed y Bedw in 2023. Seepage species are highlighted in blue.

Species	Subsite	Grid reference	Date	Abundance
<i>Acartophthalmus nigrinus</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Achyrolimonia decemmaculata</i>	Site 1	ST1091182538	08/06/2023	3 ad
<i>Achyrolimonia decemmaculata</i>	Site 2	ST1091282540	14/09/2023	2 ad
<i>Achyrolimonia decemmaculata</i>	Site 3	ST1091482542	14/09/2023	1 ad
<i>Agapetus fuscipes</i>	Site 1	ST1091182538	08/06/2023	15 ad
<i>Agapetus fuscipes</i>	Site 2	ST1091482542	08/06/2023	4 ad
<i>Agapetus fuscipes</i>	Site 3	ST1091482542	09/06/2023	13 ad
<i>Agapetus fuscipes</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Agathomyia viduella</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Agathomyia viduella</i>	Site 3	ST1091482542	09/06/2023	2 ad
<i>Amiota collini</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Ancylus fluviatilis</i>	Site 1	ST1091482542	15/09/2023	2 ad
<i>Anepsiomyia flaviventris</i>	Site 1	ST1091182538	08/06/2023	6 ad
<i>Anepsiomyia flaviventris</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Anepsiomyia flaviventris</i>	Site 3	ST1091482542	09/06/2023	3 ad
<i>Anthocoris nemorum</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Anthocoris nemorum</i>	Site 1	ST1091482542	15/09/2023	2 ad
<i>Aphrophora alni</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Argyra leucocephala</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Argyra perplexa</i>	Site 2	ST1091282540	14/09/2023	3 ad
<i>Argyra perplexa</i>	Site 1	ST1091482542	15/09/2023	5 ad
<i>Argyra perplexa</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Aulagromyza hendeliana</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Austrolimnophila ochracea</i>	Site 1	ST1091182538	08/06/2023	11 ad
<i>Austrolimnophila ochracea</i>	Site 2	ST1091482542	08/06/2023	10 ad
<i>Austrolimnophila ochracea</i>	Site 3	ST1122582677	08/06/2023	4 ad
<i>Austrolimnophila ochracea</i>	Site 3	ST1091482542	09/06/2023	12 ad
<i>Azelia cilipes</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Baccha elongata</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Beraea maurus</i>	Site 1	ST1091182538	08/06/2023	5 ad
<i>Beris chalybata</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Beris fuscipes</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Beris vallata</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Bicellaria vana</i>	Site 1	ST1091182538	08/06/2023	3 ad
<i>Bicellaria vana</i>	Site 3	ST1122582677	08/06/2023	3 ad
<i>Bicellaria vana</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Brachyopa pilosa</i>	Site 3	ST1122582677	08/06/2023	1 ad

Species	Subsite	Grid reference	Date	Abundance
<i>Calliopum simillimum</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Calliopum simillimum</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Campichoeta punctum</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Campichoeta punctum</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Campsicnemus curvipes</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Campsicnemus curvipes</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Campsicnemus curvipes</i>	Site 1	ST1091482542	14/09/2023	3 ad
<i>Campsicnemus curvipes</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Campsicnemus curvipes</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Campsicnemus loripes</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Campsicnemus scambus</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Cephalops furcatus</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Cerodontha fulvipes</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Chelifera precabunda</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Chelifera precabunda</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Chelifera precatoria</i>	Site 1	ST1091182538	08/06/2023	4 ad
<i>Chelifera precatoria</i>	Site 3	ST1091482542	09/06/2023	4 ad
<i>Chelifera stigmatica</i>	Site 3	ST1091482542	14/09/2023	1 ad
<i>Chelifera subangusta</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Chloroperla torrentium</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Chrysogaster virescens</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Chrysopidia ciliata</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Chrysopilus cristatus</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Chrysopilus cristatus</i>	Site 3	ST1122582677	08/06/2023	4 ad
<i>Chrysotus gramineus</i>	Site 1	ST1091182538	08/06/2023	10 ad
<i>Chrysotus gramineus</i>	Site 2	ST1091482542	08/06/2023	3 ad
<i>Chrysotus gramineus</i>	Site 3	ST1122582677	08/06/2023	2 ad
<i>Chrysotus gramineus</i>	Site 3	ST1091482542	09/06/2023	20 ad
<i>Cinochira atra</i>	Site 2	ST1091282540	14/09/2023	2 ad
<i>Cinochira atra</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Clinocera fontinalis</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Clinocera fontinalis</i>	Site 1	ST1091482542	15/09/2023	2 ad
<i>Clusia flava</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Clusiodes gentilis</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Clusiodes gentilis</i>	Site 3	ST1091482542	09/06/2023	2 ad
<i>Clusiodes verticalis</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Coenosia agromyzina</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Coenosia albicornis</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Crenobia alpina</i>	Site 1	ST1091482542	15/09/2023	5 ad
<i>Crenobia alpina</i>	Site 2	ST1091282540	15/09/2023	5 ad
<i>Crumomyia nitida</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Crunoecia irrorata</i>	Site 1	ST1091182538	08/06/2023	7 ad

Species	Subsite	Grid reference	Date	Abundance
<i>Crunoecia irrorata</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Cylindrotoma distinctissima</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Cymus melanocephalus</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Dicranomyia fusca</i>	Site 1	ST1091182538	08/06/2023	8 ad
<i>Dicranomyia fusca</i>	Site 2	ST1091482542	08/06/2023	2 ad
<i>Dicranomyia fusca</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Dicranomyia fusca</i>	Site 3	ST1091482542	09/06/2023	7 ad
<i>Dicranomyia fusca</i>	Site 1	ST1091482542	14/09/2023	3 ad
<i>Dicranomyia fusca</i>	Site 2	ST1091282540	14/09/2023	5 ad
<i>Dicranomyia fusca</i>	Site 1	ST1091482542	15/09/2023	3 ad
<i>Dicranomyia fusca</i>	Site 2	ST1091282540	15/09/2023	4 ad
<i>Dicranomyia imbecilla</i>	Site 3	ST1122582677	08/06/2023	2 ad
<i>Dicranomyia lutea</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Dicranomyia quadra</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Dicranomyia quadra</i>	Site 2	ST1091482542	08/06/2023	4 ad
<i>Dicranomyia quadra</i>	Site 3	ST1091482542	09/06/2023	2 ad
<i>Dicranota pavida</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Dicranota pavida</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Dicranota pavida</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Dicranota pavida</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Dicranota pavida</i>	Site 3	ST1091482542	14/09/2023	2 ad
<i>Dicranota pavida</i>	Site 2	ST1091282540	15/09/2023	3 ad
<i>Dioctria linearis</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Dixa nubilipennis</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Dixa nubilipennis</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Dixa nubilipennis</i>	Site 3	ST1091482542	09/06/2023	3 ad
<i>Dixa nubilipennis</i>	Site 2	ST1091282540	14/09/2023	3 ad
<i>Dixa nubilipennis</i>	Site 2	ST1091282540	15/09/2023	4 ad
<i>Dixa submaculata</i>	Site 1	ST1091182538	08/06/2023	60 ad
<i>Dixa submaculata</i>	Site 2	ST1091482542	08/06/2023	10 ad
<i>Dixa submaculata</i>	Site 3	ST1122582677	08/06/2023	3 ad
<i>Dixa submaculata</i>	Site 3	ST1091482542	09/06/2023	25 ad
<i>Dixa submaculata</i>	Site 1	ST1091482542	14/09/2023	2 ad
<i>Dixa submaculata</i>	Site 2	ST1091282540	14/09/2023	3 ad
<i>Dixa submaculata</i>	Site 3	ST1091482542	14/09/2023	2 ad
<i>Dixa submaculata</i>	Site 1	ST1091482542	15/09/2023	2 ad
<i>Dixa submaculata</i>	Site 2	ST1091282540	15/09/2023	3 ad
<i>Dolichocephala guttata</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Dolichocephala oblongoguttata</i>	Site 3	ST1091482542	09/06/2023	2 ad
<i>Dolichopeza albipes</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Dolichopeza albipes</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Dolichopus popularis</i>	Site 1	ST1091182538	08/06/2023	2 ad

Species	Subsite	Grid reference	Date	Abundance
<i>Dolichopus unguatus</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Dolichopus urbanus</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Dolichopus urbanus</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Drosophila cameraria</i>	Site 2	ST1091282540	14/09/2023	2 ad
<i>Drosophila cameraria</i>	Site 3	ST1091482542	14/09/2023	2 ad
<i>Drosophila cameraria</i>	Site 1	ST1091482542	15/09/2023	2 ad
<i>Drosophila cameraria</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Drosophila funebris</i>	Site 2	ST1091282540	14/09/2023	2 ad
<i>Drosophila funebris</i>	Site 3	ST1091482542	14/09/2023	2 ad
<i>Drosophila kuntzei</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Drosophila suzukii</i>	Site 2	ST1091282540	14/09/2023	4 ad
<i>Drosophila suzukii</i>	Site 3	ST1091482542	14/09/2023	2 ad
<i>Drosophila suzukii</i>	Site 1	ST1091482542	15/09/2023	2 ad
<i>Drosophila suzukii</i>	Site 2	ST1091282540	15/09/2023	4 ad
<i>Drusus annulatus</i>	Site 2	ST1091282540	14/09/2023	3 ad
<i>Elodes elongatus</i>	Site 1	ST1091182538	08/06/2023	6 ad
<i>Elodes elongatus</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Elodes elongatus</i>	Site 3	ST1091482542	09/06/2023	3 ad
<i>Eloeophila maculata</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Epiphragma ocellare</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Epiphragma ocellare</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Erioptera divisa</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Erioptera lutea</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Euphyllidorea aperta</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Euphyllidorea meigenii</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Gammarus pulex</i>	Site 1	ST1091482542	15/09/2023	5 ad
<i>Gammarus pulex</i>	Site 2	ST1091282540	15/09/2023	5 ad
<i>Gaurax fascipes</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Glossosoma conformis</i>	Site 2	ST1091482542	08/06/2023	4 ad
<i>Helina abdominalis</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Helina abdominalis</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Helina celsa</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Helina impuncta</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Helina sexmaculata</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Hercostomus aerosus</i>	Site 1	ST1091182538	08/06/2023	5 ad
<i>Hercostomus aerosus</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Hercostomus aerosus</i>	Site 3	ST1091482542	09/06/2023	5 ad
<i>Hercostomus aerosus</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Hercostomus aerosus</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Hercostomus angustifrons</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Hercostomus cupreus</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Hercostomus cupreus</i>	Site 2	ST1091482542	08/06/2023	19 ad

Species	Subsite	Grid reference	Date	Abundance
<i>Hercostomus cupreus</i>	Site 3	ST1122582677	08/06/2023	3 ad
<i>Hercostomus cupreus</i>	Site 3	ST1091482542	09/06/2023	3 ad
<i>Hercostomus nanus</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Hilara anglodanica</i>	Site 2	ST1091482542	08/06/2023	5 ad
<i>Hilara anglodanica</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Hilara anglodanica</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Hilara cornicula</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Hilara cornicula</i>	Site 2	ST1091482542	08/06/2023	6 ad
<i>Hilara cornicula</i>	Site 3	ST1122582677	08/06/2023	6 ad
<i>Hilara cornicula</i>	Site 3	ST1091482542	09/06/2023	10 ad
<i>Hilara discoidalis</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Hilara fuscipes</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Hilara fuscipes</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Hilara interstincta</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Hilara litorea</i>	Site 3	ST1091482542	09/06/2023	4 ad
<i>Hilara lurida</i>	Site 3	ST1122582677	08/06/2023	6 ad
<i>Hilara rejecta</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Hilara thoracica</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Hilara thoracica</i>	Site 2	ST1091482542	08/06/2023	4 ad
<i>Homoneura interstincta</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Hybos femoratus</i>	Site 3	ST1122582677	08/06/2023	3 ad
<i>Hydrellia maura</i>	Site 1	ST1091182538	08/06/2023	4 ad
<i>Hydrellia maura</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Hydrellia maura</i>	Site 3	ST1122582677	08/06/2023	10 ad
<i>Hydrellia maura</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Hydrophoria silvicola</i>	Site 2	ST1091282540	14/09/2023	3 ad
<i>Hydrophoria silvicola</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Hylemya nigrimana</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Hylemya vagans</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Hylemya vagans</i>	Site 2	ST1091482542	08/06/2023	3 ad
<i>Hylemya vagans</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Hylemya vagans</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Hylemya vagans</i>	Site 2	ST1091282540	15/09/2023	2 ad
<i>Kowarzia bipunctata</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Kowarzia bipunctata</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Leptopeza flavipes</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Leucophenga maculata</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Leuctra nigra</i>	Site 1	ST1091182538	08/06/2023	14 ad
<i>Leuctra nigra</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Limnophora triangula</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Limonia macrostigma</i>	Site 1	ST1091182538	08/06/2023	6 ad
<i>Limonia macrostigma</i>	Site 3	ST1122582677	08/06/2023	3 ad

Species	Subsite	Grid reference	Date	Abundance
<i>Limonia macrostigma</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Limonia macrostigma</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Limonia macrostigma</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Limonia macrostigma</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Limonia nubeculosa</i>	Site 1	ST1091182538	08/06/2023	5 ad
<i>Limonia nubeculosa</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Limonia nubeculosa</i>	Site 3	ST1091482542	09/06/2023	4 ad
<i>Limonia nubeculosa</i>	Site 1	ST1091482542	14/09/2023	5 ad
<i>Limonia nubeculosa</i>	Site 2	ST1091282540	14/09/2023	2 ad
<i>Limonia nubeculosa</i>	Site 3	ST1091482542	14/09/2023	2 ad
<i>Limonia nubeculosa</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Limonia nubeculosa</i>	Site 2	ST1091282540	15/09/2023	14 ad
<i>Lipsothrix nervosa</i>	Site 1	ST1091182538	08/06/2023	3 ad
<i>Lipsothrix nervosa</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Lipsothrix nervosa</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Lipsothrix remota</i>	Site 1	ST1091182538	08/06/2023	4 ad
<i>Lipsothrix remota</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Lipsothrix remota</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Lonchoptera lutea</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Lonchoptera lutea</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Lonchoptera lutea</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Lonchoptera lutea</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Lonchoptera lutea</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Lotophila atra</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Lyciella stylata</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Lype phaeopa</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Meiosimyza decipiens</i>	Site 1	ST1091182538	08/06/2023	4 ad
<i>Meiosimyza decipiens</i>	Site 3	ST1091482542	09/06/2023	3 ad
<i>Meiosimyza laeta</i>	Site 1	ST1091182538	08/06/2023	6 ad
<i>Meiosimyza laeta</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Meiosimyza laeta</i>	Site 3	ST1122582677	08/06/2023	3 ad
<i>Meiosimyza platycephala</i>	Site 1	ST1091182538	08/06/2023	4 ad
<i>Meiosimyza platycephala</i>	Site 2	ST1091482542	08/06/2023	5 ad
<i>Meiosimyza platycephala</i>	Site 3	ST1122582677	08/06/2023	5 ad
<i>Meiosimyza platycephala</i>	Site 3	ST1091482542	09/06/2023	2 ad
<i>Meiosimyza rorida</i>	Site 1	ST1091182538	08/06/2023	3 ad
<i>Meiosimyza rorida</i>	Site 2	ST1091482542	08/06/2023	2 ad
<i>Meiosimyza rorida</i>	Site 3	ST1122582677	08/06/2023	5 ad
<i>Meiosimyza rorida</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Meiosimyza rorida</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Meta segmentata</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Meta segmentata</i>	Site 1	ST1091482542	14/09/2023	4 ad

Species	Subsite	Grid reference	Date	Abundance
<i>Meta segmentata</i>	Site 2	ST1091282540	14/09/2023	2 ad
<i>Metatropis rufescens</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Microphor anomalus</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Microphor anomalus</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Microphor crassipes</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Minettia filia</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Minettia filia</i>	Site 2	ST1091482542	08/06/2023	2 ad
<i>Minettia filia</i>	Site 3	ST1122582677	08/06/2023	11 ad
<i>Minettia inusta</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Minettia inusta</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Minettia longipennis</i>	Site 1	ST1091182538	08/06/2023	3 ad
<i>Minettia longipennis</i>	Site 2	ST1091482542	08/06/2023	2 ad
<i>Minettia longipennis</i>	Site 3	ST1122582677	08/06/2023	3 ad
<i>Minettia longipennis</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Molophilus bifidus</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Molophilus corniger</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Molophilus corniger</i>	Site 3	ST1091482542	09/06/2023	8 ad
<i>Molophilus undulatus</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Mompha terminella</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Nemoura cambrica</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Nemoura cambrica</i>	Site 2	ST1091482542	08/06/2023	5 ad
<i>Nemoura cambrica</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Nemoura cambrica</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Neoitamus cyanurus</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Neolimnomyia adjuncta</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Neolimnomyia filata</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Neolimnomyia nemoralis</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Neolimonia dumetorum</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Nephrotoma quadrifaria</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Neuroctena anilis</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Neuroctena anilis</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Neuroctena anilis</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Neuroctena anilis</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Ocydromia glabricula</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Ocydromia glabricula</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Oedalea flavipes</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Oedalea oriunda</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Oedalea stigmatella</i>	Site 1	ST1091182538	08/06/2023	3 ad
<i>Oedalea stigmatella</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Oedalea stigmatella</i>	Site 3	ST1122582677	08/06/2023	2 ad
<i>Oedalea stigmatella</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Oedalea tibialis</i>	Site 1	ST1091182538	08/06/2023	1 ad

Species	Subsite	Grid reference	Date	Abundance
<i>Oedalea zetterstedti</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Oedalea zetterstedti</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Oniscus asellus</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Oniscus asellus</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Ormosia nodulosa</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Ormosia nodulosa</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Ormosia nodulosa</i>	Site 3	ST1091482542	09/06/2023	2 ad
<i>Oropezeella sphenoptera</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Osmylus fulvicephalus</i>	Site 2	ST1091482542	08/06/2023	2 ad
<i>Palloptera umbellatarum</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Panorpa communis</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Paraplatypeza atra</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Paroligolophus agrestis</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Paroligolophus agrestis</i>	Site 2	ST1091282540	15/09/2023	3 ad
<i>Parydra coarctata</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Parydra coarctata</i>	Site 3	ST1122582677	08/06/2023	3 ad
<i>Parydra coarctata</i>	Site 3	ST1091482542	09/06/2023	3 ad
<i>Pedicia straminea</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Pegomya bicolor</i>	Site 2	ST1091482542	08/06/2023	2 ad
<i>Pegomya transgressa</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Pegomya vittigera</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Pegoplata infirma</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Pelidnoptera fuscipennis</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Peplomyza litura</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Peplomyza litura</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Peplomyza litura</i>	Site 3	ST1122582677	08/06/2023	3 ad
<i>Peplomyza litura</i>	Site 3	ST1091482542	09/06/2023	3 ad
<i>Pericoma fuliginosa</i>	Site 1	ST1091182538	08/06/2023	30 ad
<i>Pericoma fuliginosa</i>	Site 2	ST1091482542	08/06/2023	2 ad
<i>Pericoma fuliginosa</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Pericoma fuliginosa</i>	Site 3	ST1091482542	09/06/2023	12 ad
<i>Pericoma fuliginosa</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Pericoma fuliginosa</i>	Site 2	ST1091282540	14/09/2023	2 ad
<i>Pericoma fuliginosa</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Pericoma fuliginosa</i>	Site 2	ST1091282540	15/09/2023	2 ad
<i>Phaonia pallida</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Phaonia rufiventris</i>	Site 3	ST1091482542	14/09/2023	1 ad
<i>Philaenus spumarius</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Philopotamus montanus</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Philopotamus montanus</i>	Site 2	ST1091482542	08/06/2023	5 ad
<i>Philopotamus montanus</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Philopotamus montanus</i>	Site 3	ST1091482542	14/09/2023	3 ad

Species	Subsite	Grid reference	Date	Abundance
<i>Philopotamus montanus</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Philopotamus montanus</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Phyllonorycter coryli</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Phyllonorycter coryli</i>	Site 1	ST1091482542	15/09/2023	2 ad
<i>Phyllonorycter froelichiella</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Phyllonorycter maestingella</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Phytomyza ilicis</i>	Site 1	ST1091482542	15/09/2023	2 ad
<i>Phytomyza tetrasticha</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Platypalpus albifacies</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Platypalpus candicans</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Platypalpus candicans</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Platypalpus clarandus</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Platypalpus cursitans</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Platypalpus longicornis</i>	Site 1	ST1091182538	08/06/2023	3 ad
<i>Platypalpus longicornis</i>	Site 3	ST1122582677	08/06/2023	2 ad
<i>Platypalpus minutus s.l.</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Platypalpus pallidiventris</i>	Site 3	ST1091482542	09/06/2023	3 ad
<i>Platypalpus parvicauda</i>	Site 1	ST1091182538	08/06/2023	4 ad
<i>Platypalpus parvicauda</i>	Site 3	ST1122582677	08/06/2023	2 ad
<i>Platypalpus parvicauda</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Platypalpus pectoralis</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Platypalpus verralli</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Plectrocnemia geniculata</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Potamopyrgus antipodarum</i>	Site 1	ST1091482542	15/09/2023	5 ad
<i>Potamopyrgus antipodarum</i>	Site 2	ST1091282540	15/09/2023	5 ad
<i>Psyllopsis fraxini</i>	Site 1	ST1091482542	15/09/2023	2 ad
<i>Psyllopsis fraxini</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Ptiolina obscura</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Ptychoptera albimana</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Ptychoptera albimana</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Ptychoptera lacustris</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Ptychoptera lacustris</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Ptychoptera paludosa</i>	Site 1	ST1091182538	08/06/2023	3 ad
<i>Ptychoptera paludosa</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Pyrochroa coccinea</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Rhagio scolopacea</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Rhagio scolopacea</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Rhamphomyia flava</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Rhamphomyia flava</i>	Site 2	ST1091482542	08/06/2023	2 ad
<i>Rhamphomyia flava</i>	Site 3	ST1122582677	08/06/2023	7 ad
<i>Rhamphomyia flava</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Rhamphomyia nigripennis</i>	Site 3	ST1122582677	08/06/2023	10 ad

Species	Subsite	Grid reference	Date	Abundance
<i>Rhamphomyia tarsata</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Rhamphomyia tibiella</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Rhamphomyia tibiella</i>	Site 3	ST1122582677	08/06/2023	3 ad
<i>Rhaphium appendiculatum</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Rhipidia duplicata</i>	Site 1	ST1091182538	08/06/2023	3 ad
<i>Rhipidia duplicata</i>	Site 3	ST1091482542	09/06/2023	1 ad
<i>Rhopalum coarctatum</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Rhypholophus varius</i>	Site 1	ST1091482542	14/09/2023	2 ad
<i>Rhypholophus varius</i>	Site 2	ST1091282540	14/09/2023	5 ad
<i>Rhypholophus varius</i>	Site 1	ST1091482542	15/09/2023	10 ad
<i>Rhypholophus varius</i>	Site 2	ST1091282540	16/09/2023	16 ad
<i>Riccardoella oudemansi</i>	Site 1	ST1091482542	15/09/2023	5 ad
<i>Sapromyza basalis</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Sapromyza basalis</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Scathophaga furcata</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Scathophaga furcata</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Scleroprocta pentagonalis</i>	Site 2	ST1091482542	08/06/2023	2 ad
<i>Scleroprocta pentagonalis</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Scleroprocta pentagonalis</i>	Site 3	ST1091482542	09/06/2023	2 ad
<i>Sphegina clunipes</i>	Site 3	ST1122582677	08/06/2023	2 ad
<i>Sphegina elegans</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Sphegina elegans</i>	Site 3	ST1122582677	08/06/2023	2 ad
<i>Sphegina elegans</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Sphegina verecunda</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Sphegina verecunda</i>	Site 3	ST1122582677	08/06/2023	6 ad
<i>Stigmella aurella</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Stigmella hemargyrella</i>	Site 1	ST1091482542	14/09/2023	2 ad
<i>Stigmella microtheriella</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Stigmella tityrella</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Suillia affinis</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Suillia atricornis</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Suillia bicolor</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Suillia bicolor</i>	Site 3	ST1091482542	09/06/2023	2 ad
<i>Suillia bicolor</i>	Site 2	ST1091282540	14/09/2023	2 ad
<i>Suillia bicolor</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Suillia bicolor</i>	Site 2	ST1091282540	15/09/2023	4 ad
<i>Suillia fuscicornis</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Suillia humilis</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Suillia humilis</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Suillia humilis</i>	Site 2	ST1091282540	15/09/2023	2 ad
<i>Sybistroma obscurellum</i>	Site 2	ST1091282540	15/09/2023	3 ad
<i>Sylvicola cinctus</i>	Site 1	ST1091182538	08/06/2023	2 ad

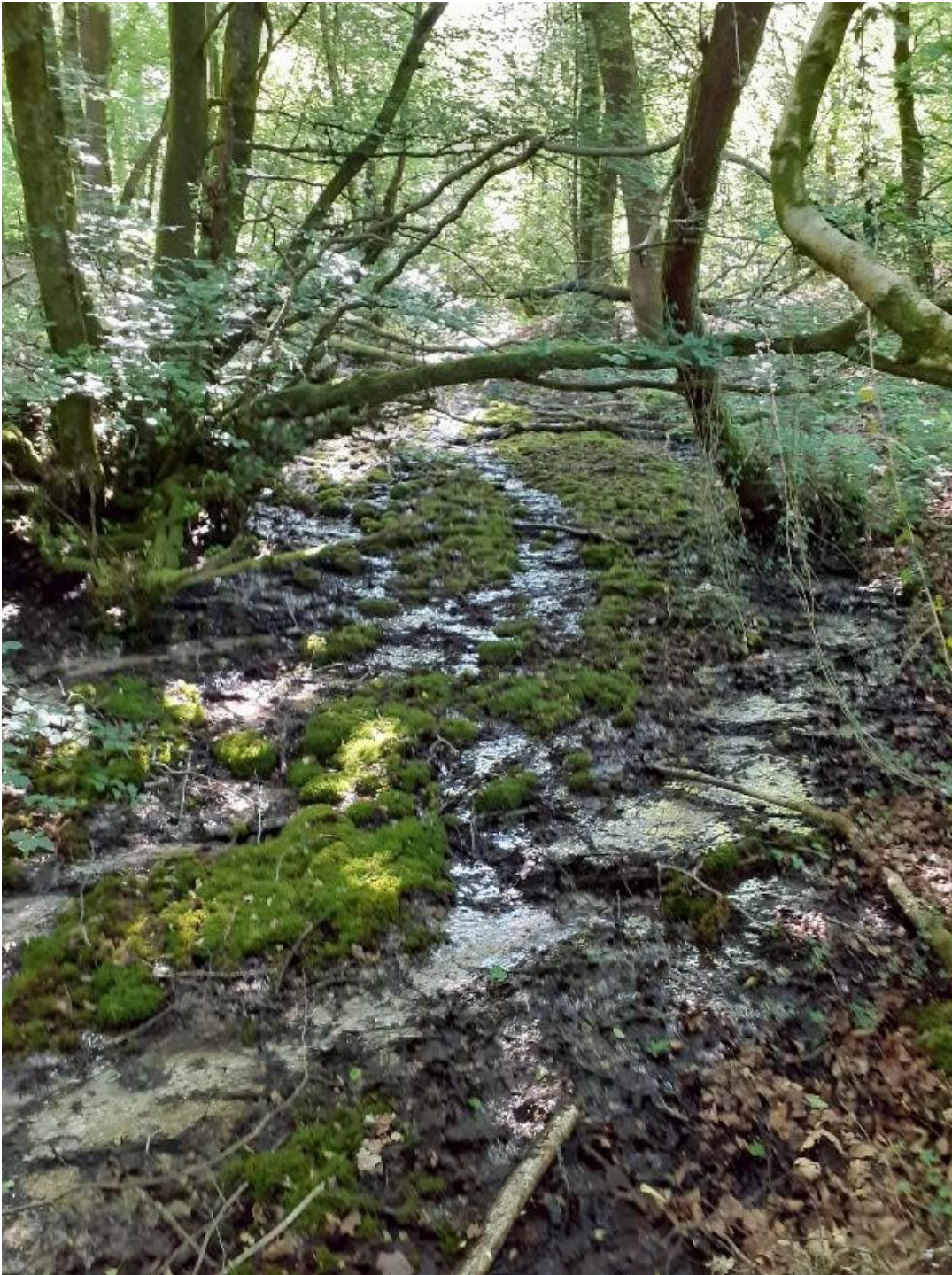
Species	Subsite	Grid reference	Date	Abundance
<i>Sylvicola cinctus</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Sylvicola cinctus</i>	Site 3	ST1122582677	08/06/2023	5 ad
<i>Sylvicola cinctus</i>	Site 3	ST1091482542	09/06/2023	3 ad
<i>Sylvicola cinctus</i>	Site 1	ST1091482542	14/09/2023	1 ad
<i>Sylvicola cinctus</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Sylvicola cinctus</i>	Site 2	ST1091282540	15/09/2023	2 ad
<i>Sympycnus sp</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Syntormon pallipes</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Tasiocera murina</i>	Site 3	ST1122582677	08/06/2023	4 ad
<i>Tephrochlamys rufiventris</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Tephrochlamys rufiventris</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Thaumalea testacea</i>	Site 1	ST1091182538	08/06/2023	10 ad
<i>Thaumalea testacea</i>	Site 3	ST1091482542	09/06/2023	10 ad
<i>Thaumalea testacea</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Thaumalea verralli</i>	Site 2	ST1091482542	08/06/2023	2 ad
<i>Thaumastoptera calceata</i>	Site 1	ST1091182538	08/06/2023	12 ad
<i>Thaumastoptera calceata</i>	Site 3	ST1091482542	09/06/2023	20 ad
<i>Thaumatomyia notata</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Thaumatomyia notata</i>	Site 3	ST1122582677	08/06/2023	1 ad
<i>Tipula marmorata</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Tipula marmorata</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Trichocera annulata</i>	Site 1	ST1091482542	15/09/2023	1 ad
<i>Trichocera regelationis</i>	Site 2	ST1091282540	14/09/2023	2 ad
<i>Trichocera saltator</i>	Site 2	ST1091282540	14/09/2023	2 ad
<i>Trichocera saltator</i>	Site 3	ST1091482542	14/09/2023	1 ad
<i>Trichocera saltator</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Tricholauxania praeusta</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Tricholauxania praeusta</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Tricholauxania praeusta</i>	Site 3	ST1122582677	08/06/2023	8 ad
<i>Tricholauxania praeusta</i>	Site 3	ST1091482542	09/06/2023	2 ad
<i>Trichopeza longicornis</i>	Site 1	ST1091182538	08/06/2023	2 ad
<i>Trichopeza longicornis</i>	Site 2	ST1091482542	08/06/2023	1 ad
<i>Trichopeza longicornis</i>	Site 3	ST1122582677	08/06/2023	2 ad
<i>Trichopeza longicornis</i>	Site 3	ST1091482542	09/06/2023	7 ad
<i>Trichopeza longicornis</i>	Site 2	ST1091282540	14/09/2023	1 ad
<i>Trichopeza longicornis</i>	Site 2	ST1091282540	15/09/2023	1 ad
<i>Tricimba cincta</i>	Site 1	ST1091182538	08/06/2023	1 ad
<i>Wormaldia occipitalis</i>	Site 1	ST1091182538	08/06/2023	33 ad
<i>Wormaldia occipitalis</i>	Site 2	ST1091482542	08/06/2023	12 ad
<i>Wormaldia occipitalis</i>	Site 3	ST1122582677	08/06/2023	4 ad
<i>Wormaldia occipitalis</i>	Site 3	ST1091482542	09/06/2023	46 ad
<i>Wormaldia occipitalis</i>	Site 1	ST1091482542	14/09/2023	15 ad

Species	Subsite	Grid reference	Date	Abundance
<i>Wormaldia occipitalis</i>	Site 2	ST1091282540	14/09/2023	7 ad
<i>Wormaldia occipitalis</i>	Site 3	ST1091482542	14/09/2023	1 ad
<i>Wormaldia occipitalis</i>	Site 1	ST1091482542	15/09/2023	6 ad
<i>Wormaldia occipitalis</i>	Site 2	ST1091282540	15/09/2023	9 ad
<i>Xylota segnis</i>	Site 3	ST1122582677	08/06/2023	1 ad

Appendix 2. Site photographs



Photograph 1. Stepped tufaceous seepage on northern path at ST1076282514.



Photograph 2. Tufaceous stream upstream of Photograph 1 at ST1113182690.



Photograph 3. Spring head upstream of Photograph 2 at ST1075982518.



Photograph 4. Main stream on Coed y Bedw at approximately ST11058267.



Photograph 5. Small tufaceous tributary joining main stream upstream of Photograph 4.



Photograph 6. Dried-out pond at approximately ST1103982667.



Photograph 7. Dry stream in west of site at ST1104282662.

Data Archive Appendix

The data archive contains:

[A] The final report in Microsoft Word and Adobe PDF formats.

~~[B] A full set of maps produced in JPEG format.~~

~~[C] A series of GIS layers on which the maps in the report are based with a series of word documents detailing the data processing and structure of the GIS layers.~~

~~[D] A set of raster files in ESRI and ASCII grid formats.~~

~~[E] A database named [name] in Microsoft Access 2000 format with metadata described in a Microsoft Word document [name.doc].~~

~~[F] A full set of images produced in [jpg/tiff] format.~~

[G] Species records held in Welsh Invertebrate Database (WID).

Metadata for this project is publicly accessible through Natural Resources Wales' 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. XXXXXX.

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