

Appendix 5J

Terrestrial Invertebrate Survey Report

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1. Introduction

1.1 Background

- 1.1.1 The Environment Partnership (TEP) was commissioned through WSP by Cadent Gas Limited (Cadent) to undertake terrestrial invertebrate surveys at selected locations along the HyNet North West Hydrogen Pipeline (hereafter referred to as 'the Project'). Cadent (the Applicant) is applying to the Secretary of State for a Development Consent Order (DCO) to construct, operate, and maintain a new underground hydrogen pipeline of approximately 100km in length.
- 1.1.2 The Project within the Preliminary Order Limits can be split into five distinct areas, comprising four pipeline Corridor routes and the Central Hub, an area where the four Corridor routes meet which cannot be associated with any specific route. Please note that as part of the design process, the order limits have undergone a number of iterations (as described in **Appendix 2A: Design evolution** of the Draft ES) and this report is based on the Preliminary Order Limits as the stood in 2023.
- 1.1.3 This report details the results of terrestrial invertebrate surveys conducted in 2023 to inform the impact assessment for the Project.

1.2 Legislation

- 1.2.1 The Natural Environment and Rural Communities (NERC) Act came into force on 1 October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England.
- 1.2.2 The S41 list is used to guide decision-makers such as public bodies, including local authorities and utilities companies, in implementing their duty under Section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions, including development control and planning. This is commonly referred to as the 'Biodiversity Duty'.
- 1.2.3 The Biodiversity Duty was modified and strengthened by the Environment Act 2021 by an amendment to the original Natural Environment and Rural Communities Act 2006 (NERC Act) section 40 duty, which extends the biodiversity duty on public authorities to include the enhancement of biodiversity alongside conservation by way of creating "the general biodiversity objective". This is achieved by a revised section 40 of the NERC Act, including new provisions, which are now in force.
- 1.2.4 In England, there are 56 Habitats of Principal Importance and 943 Species of Principal Importance on the S41 list. These are all the habitats and species found in England that were identified as requiring action in the UK BAP and which continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. Of the 943 Species of Principal Importance, 379 of these are terrestrial invertebrates (covering insects, arachnids, and molluscs).

1.2.5 Other relevant legislation and policy covering invertebrates include:

- UK invertebrate species protected by international statuses i.e. The Habitats Directive;
- Invertebrate species listed on Schedule 5 (species that are protected) and Schedule 9 (species that are invasive) of the Wildlife and Countryside Act 1981 (as amended) for England and Wales; and
- Invertebrate species endangered by trade and listed under the European Union and Convention of International Trade of Endangered Species of Wild Fauna and Flora.

2. Methodology

2.1 Desk Study

Terrestrial Invertebrate Records

- 2.1.1 A desk study was undertaken in Spring 2022 and the methodology for this is set out in Section 5.5 and Table 5.8 of the Preliminary Environmental Information Report (PEIR). The desk study recorded the presence of statutory designated sites within up to 20km¹ of the Preliminary Order Limits (Section 5.6.1, Table 5.10, and Figure 5.1 of the PEIR) and non-statutory designated sites within 2km (Section 5.6.2, Table 5.11, and Figure 5.2 of the PEIR). The desk study also recorded the presence of Habitats of Principal Importance (HPI) within 2km of the Preliminary Order Limits (section 5.6.3., Table 5.12 and Figure 5.3 of the PEIR). Records of protected and notable species within 2km of the Preliminary Order Limits are discussed within section 5.6.12-5.6.41 of the PEIR.
- 2.1.2 The desk study information from the PEIR is not repeated in this report or discussed further. The desk study will be updated for the Environmental Statement following design freeze for the Project.

2.2 Survey Area

Defining Survey Scope

- 2.2.1 In line with CIEEM guidance², surveys were focussed on those areas in which works associated with the Project could contribute to significant adverse effects on terrestrial invertebrate populations or could result in contravention of the legislation protecting terrestrial invertebrates.
- 2.2.2 After scoping the potential effects of the Project, it was considered that across much of the Preliminary Order Limits, works would have relatively low impacts due to the nature of the habitats affected, the predominantly temporary nature of the works, and the subsequent re-establishment of previously disturbed habitats.
- 2.2.3 The Project covers six local planning authority (LPA) boundaries: Cheshire West and Chester, Cheshire East, Halton, St Helens, Warrington, and Trafford. The Project is divided into the following four Corridors, which meet at the Central Hub near Bartington, northwest of Northwich in Cheshire:

¹ Dependent on reasons for designation; within 2km for habitats, extending to 10km for bats, and up to 20km for ornithological interest for international sites.

² Chartered Institute of Ecology and Environmental Management (CIEEM) (2019). Guidelines for Ecological Impact Assessment in the United Kingdom. CIEEM, Winchester.

- **Line 1 West Corridor - Stanlow HPP Hydrogen Above Ground Installation (HAGI) to Central Hub HAGI** (hereafter referred to as the 'Western Corridor'): The Western Corridor runs from Elton, Cheshire heading northeast to Frodsham before turning east, crossing the M56 motorway and towards Bartington;
- **Line 2 South Corridor - Central Hub HAGI to Inovyn HSF HAGI** (hereafter referred to as the 'Southern Corridor'): The Southern Corridor runs from east of Bostock Green, Middlewich heading west and then north around Moulton before heading west again across the River Weaver and then north across the A556 and A49 towards Bartington;
- **Line 3 East Corridor - Central Hub HAGI to Partington HAGI** (hereafter referred to as the 'Eastern Corridor'): The Eastern Corridor runs from Carrington, Trafford heading south to the M56 motorway before heading southwest and across the M6 motorway towards Bartington; and
- **Line 4 North Corridor - Central Hub HAGI to Clock Face HAGI** (hereafter referred to as the 'Northern Corridor'): The Northern Corridor runs from St Helens heading south to the M62 motorway before turning southeast towards the Manchester Ship Canal and then south again and across the M56 motorway towards Bartington.

2.2.4 The Survey Area for terrestrial invertebrate surveys focussed on land within the Preliminary Order Limits, targeting areas of higher quality habitat that have potential to support significant or notable assemblages of terrestrial invertebrates.

2.2.5 Habitat within the Preliminary Order Limits is predominately farmland with scattered woodland, hedgerows and tree-lined field boundaries and watercourses. The Preliminary Order Limits also cross or run adjacent to some active industrial/commercial areas, mineral extraction sites, inactive post-industrial areas, golf courses and residential areas. Terrestrial invertebrates require a mix of habitats and landscape features and whilst the majority of the land within the Preliminary Order Limits comprises arable and pasture fields with negligible or low value for terrestrial invertebrates, there are areas with a mosaic of habitats creating higher value landscapes with potential to support protected or notable species or assemblages of terrestrial invertebrates.

2.2.6 Suitable areas of habitat were identified following the methodology in the following section.

Desktop Scoping

2.2.7 Commencing in summer 2022, the original scope required identifying locations within a 50m corridor of the proposed pipeline route and HAGI locations. A desk-based review of Local Wildlife Sites (LWS) and Natural England's (NE) Section 41 (S41) priority habitat database³ identified areas that intersected the 50m corridor and or HAGI locations that had potential to support scarce or threatened invertebrates or rich assemblages of invertebrates.

³ Available on the Multi-Agency Geographic Information for the Countryside website (MAGIC.gov.uk). [Accessed 03/07/2022].

2.2.8 Further resources were also used to interrogate the route corridor:

- Local records from Cheshire Wildlife Trust, Greater Manchester Ecology Unit (GMEU), Merseyside Biobank and rECOrd (the biodiversity information system for Cheshire, Halton, Warrington, and Wirral). Each of the Local Record Centre resources included extensive lists of sites, priority habitats and species. The data was obtained by the project in May 2022 (see **Section 2.1**).
- The nationally and internationally designated sites database on MAGIC.gov.uk, including, Ramsar Sites, Special Areas of Conservation (SAC), National Nature Reserves (NNR), Sites of Special Scientific Interest (SSSI), Local Nature Reserves (LNR) and Country Parks.
- Satellite imagery and ‘street view’ imagery⁴, particularly useful when assessing non-statutory sites and habitat that is not definable as priority habitats including roadside trees and verges. Other non-priority habitat that is of value to invertebrates include mosaics of habitats that have complex interface such as grassland and scrub matrix and patchworks of woodlands, scrub, and grassland.
- Data (as available at time of scoping) from bat tree assessments undertaken for the Project, to identify notable deadwood.

2.2.9 Sites (referred to hereafter as ‘Areas’) that were put forward for field scoping were those that have the potential to be directly affected by the Project, that have records of Species of Principal Importance (SPI) present or near to their boundary, have records of nationally significant species present or near to their boundary, or have habitats and/or features of potential value to invertebrates (as identified from the desk study sources).

2.2.10 The Preliminary Order Limits were updated in 2023 and these were reviewed to identify any areas no longer within the Preliminary Order Limits or new Areas requiring survey either due to boundary changes or due to additional land access becoming available.

Field Scoping

2.2.11 Areas to be field scoped for potential inclusion in full surveys were walked, with all relevant Areas accessed and an evaluation made regarding their various characteristics including topography, habitat structural complexity, juxtapositions of habitats and/or features and also the frequency of features. Niche features that are known to increase the opportunity for scarce and threatened species are also searched for and assessed including the extent of bare ground and patchy short swards (open mosaics on previously developed land) and the flowering plant composition, both diversity of species and plant groups and also the abundance of flowers.

⁴ Google Earth Pro [Accessed 03/07/2022].

2.3 Field Surveys

Sampling Methods

- 2.3.1 The methods used for the full surveys were those recommended in the Natural England guidance document *Surveying Terrestrial and Freshwater Invertebrates for Conservation Evaluation* (Drake et al., 2007⁵).
- 2.3.2 The following methods were used in targeted surveys:
- Sweep netting – provided the main proportion of the survey element as it is the most efficient method for cataloguing a site's invertebrate resource. Sweep netting involved the use of a long-handled sweep net being swept over vegetation such as stands of grasses or flowers, or along scrub fringes in order to gather invertebrate material;
 - Spot sampling – employed to collect large, conspicuous invertebrates such as bees and wasps from flowering plants, and to supplement the sweep samples. Spot sampling is often the most effective method for recording species from high-fidelity niches;
 - Beating – scrub fringes were beaten with a stick to dislodge invertebrates on branches and leaves. Dislodged invertebrates were collected from a white sheet placed beneath the sample location;
 - Pitfall traps – owing to the potential conflict of accidental capture of legally protected species such as great crested-newts (*Triturus cristatus*) this method was not used; and
 - In place of the above pitfall trapping, grubbing was opted as the preferred method of ground-searching for beetles and other surface-dwelling invertebrates.
- 2.3.3 Not all of the methods listed above were used at each Area, and the most appropriate methods were selected dependent upon the target species and the habitats/features present.
- 2.3.4 Bespoke searches for the SPI white-letter hairstreak (*Satyrrium w-album*) were undertaken using direct observations, and therefore no active sampling was undertaken. White-letter hairstreak searches involved observing sunny sheltered niches on elm trees (*Ulmus* spp) during their peak flight period of July.

⁵ Drake, C.M. et al, (2007). *Surveying terrestrial and freshwater invertebrates for conservation evaluation. Natural England Research Report NERR005*. Natural England.

Survey Effort

- 2.3.5 The effort used to sample each area was dependent upon the features present and footprint of the features and/or whole area. The sampling was undertaken until a fair representation of the species active at the Area at that time of year was recorded. A minimum of 2 hours sampling was undertaken at each area by each visiting invertebrate ecologist, with surveys conducted using a team of two invertebrate specialists; therefore, a minimum of 4 person-hours of sampling per visit was completed at each area within the wider survey area.
- 2.3.6 Species-specific surveys (white-letter hairstreak) consisted of at least two visits during optimal survey periods and weather conditions.

Sampling Groups and Identification

- 2.3.7 The terrestrial invertebrate groups sampled were those relevant to the resources present on each Area and applicable to subsequent analysis in Pantheon (Webb *et al.*, 2018⁶). For clarity these groups are:
- Diptera (acalyptratae) and other fly families used in Patheon analysis;
 - Aculeate hymenoptera (stinging bees, wasps, and ants);
 - Coleoptera (beetles);
 - Heteroptera (true bugs);
 - Orthoptera (grasshoppers and allies);
 - Lepidoptera (butterflies and day-flying moths); and
 - Odonata (dragonflies and damselflies).
- 2.3.8 Where possible, species were identified 'in the field' as field records. However, most material required collection, sorting and subsequent microscopic study. All material is retained under museum conditions for 2 years as of 30th December 2023.

Survey Dates and Personnel

- 2.3.9 Visits for full surveys were undertaken between early June and August 2023. A total of three visits were undertaken at each area (other than the white-letter hairstreak area). The period of sampling covered the key flight periods of the major invertebrate groups used in sampling.
- 2.3.10 The Area subject to the white-letter hairstreak survey was visited twice during peak flight period (July and early August 2023).
- 2.3.11 Full surveys were undertaken by suitably experienced invertebrate ecologists with the lead field surveyor having over eight years invertebrate field survey

⁶ Webb, J. et al (2018). <https://pantheon.brc.ac.uk/content/user-guides> version 3.7.6 accessed October 2023. Natural England, UKCEH, BRC.

experience. The survey was programmed and overseen by a Fellow of the Royal Entomological Society (FRES) with over 25 years invertebrate field experience.

2.3.12 Visiting periods for full survey:

- w/c 5th June 2023;
- w/c 10th July 2023; and
- w/c 9th August 2023.

2.4 Evaluation

2.4.1 Each area was analysed using Pantheon and the Pantheon tables (provided in **Annex 5J2**) were generated using the Pantheon software package. Pantheon is an analytical tool developed by Natural England and the Centre for Ecology and Hydrology to assist invertebrate nature conservation in England. Site data in the form of species lists can be imported into Pantheon, which then analyses the species within the lists, assigning them to habitats and resources. Pantheon also consigns the most up-to-date national status to the species where it is available.

2.4.2 Pantheon is also capable of other outputs such as Specific Assemblage Types (SATs). A SAT is characterized by stenotopic species (those that can withstand only a narrow range of environmental conditions). SATs are therefore more tightly defined than 'habitats'⁷ or 'resources'⁸ and sit within a parent habitat or Broad Assemblage Type (BAT). More than one SAT can sit within a parent BAT.

2.4.3 Example:

- BAT: F2 – grassland and scrub matrix
- SAT: F211 – herb-rich dense sward
F212 – dense scrub

2.4.4 The information obtained from Pantheon can then be used to assign quality to sites and their features, assist in management decisions, and facilitate requirement for further surveys, where required and appropriate.

⁷ Extract from Webb et al 2018: *Habitats are a mid-level category within the hierarchy and often readily identifiable and recognisable by conservation workers (e.g. saltmarsh). Some are identified as [broad habitats in the UK](#) but most are new terms used to refer to a series of resources or a series of broad habitat types.*

⁸ Extract from Webb et al 2018: *The method for defining species resources was broadly similar to that followed in Natural England Research Report 024 Webb et. al., 2010). Species were typed to structural habitats (e.g. emergent vegetation) and/or other environmental factors (e.g. slow flowing water). Only resources which were considered important for the species completing its life cycle were included. Typing was not attempted for species that are either very catholic or where their ecology was not well defined in the literature.*

- 2.4.5 Pantheon was first made publicly accessible in April 2018; it is the primary analytical tool used by entomologists in site evaluation and the tool recognized and preferred by Natural England⁹.
- 2.4.6 Both 'Resources' and 'Specific Assemblage Type' (SAT) tables were generated and are discussed in **Section 3 Results** where appropriate. Not all species of importance are expressed in the Pantheon output tables (provided in **Annex 5J2**), as they do not form part of the Pantheon analysis, and/or their specific requirements are not yet fully understood.
- 2.4.7 The national status values used follow the recommended national statuses listed on Pantheon (Webb et al., 2018)⁶ and at the time of calculation. The valuation of each Area considered a range of sources including lists of notable species, the Resource and SAT tables (particularly the 'favourable condition' statuses nestled in the SAT table).

2.5 Constraints

Access Limitations

- 2.5.1 Area 14 along the Western Corridor could not be accessed until July, however, field scoping then scoped this Area out of requiring survey and therefore this is no constraint.
- 2.5.2 Area 33 along the Eastern Corridor was initially identified for field scoping and possible full survey, but the level of land access necessary for an invertebrate survey was not granted. Area 33 is in Carrington at the eastern extent of this Corridor and investigation revealed this brownfield site was subject to an extant planning permission granted in 2022 (Voltage Park). The ecology report (2019)¹⁰ for the Voltage Park development did not scope invertebrates into the assessment and the site is being developed. A botanist was able to visit the location in late June 2023 for the Project, and the findings were reviewed alongside the Voltage Park development BNG report (2023)¹¹ to determine if full invertebrate survey was necessary. Area 33 was scoped out of further survey based on site conditions not providing high quality habitats and undergoing active redevelopment.

Ecological Considerations

- 2.5.3 Extremes in weather were experienced in 2023, from a dry and cold spring to a hot and dry June, followed by a wet July and August. This followed periods of extreme weather in 2022, which saw a protracted drought and a series of heatwaves. Little to no rain for many months over the two years coupled with extreme heat events has widely been reported as having a significant impact on invertebrate numbers.

⁹ More information on Pantheon can be found online at <http://www.brc.ac.uk/pantheon/>

¹⁰ Ecological Impact Assessment, Voltage Park, Carrington (February 2019), Waterman Infrastructure & Environment Limited (planning ref: 97261/FUL/19).

¹¹ Voltage Park Phase 2 – Biodiversity Net Gain Design Stage Report (December 2023), Waterman Infrastructure & Environment Limited (planning ref: 112794/FUL/24).

This rapid decline of invertebrates results in difficulty recording species diversity, as many species are now operating at very low densities and numbers.

- 2.5.4 Results therefore are on average lower than expected, and species lists are broadly dominated by common species. It is still possible to reflect fairly the value of a site, though, through the analysis and discussion, and by using the experience of the invertebrate ecologist.

3. Results

3.1 Desktop Scoping

- 3.1.1 The desk scoping reviewed all available information on the proposed route alignment of each Corridor of the Project. The majority of the land use was agricultural and therefore unlikely to be support rich and varied assemblages of invertebrates or suites of species with conservation statuses such as Species of Principal Importance (SPI) or Red Data Book (RDB). Where there was ambiguity however, parcels were listed for field scoping assessment.
- 3.1.2 The desktop scoping identified 56 Areas that had potential to support SPIs, predominantly white-letter hairstreak, RDB species, or are Priority Habitats or mosaics of features that suggest a rich and varied assemblages of invertebrates could be present.
- 3.1.3 Of the 56 Areas, 35 were thought to require ground-truthing and were therefore identified for field scoping. The remaining Areas either had sufficient evidence from the desk study to identify the requirement for full surveys or could be field scoped during the first full survey visit and either carried forward for the full suite of survey visits or dropped from the full survey schedule at that stage.
- 3.1.4 **Table 5J 3.1, Table 5J 3.2, Table 5J 3.3 and Table 5J 3.4** list the Areas identified for scoping along each Corridor, with brief notes on the key features identified in the Area. The scoping areas are shown on Figure 5J.1 in **Annex 5J1**. To facilitate access, the Areas are defined around land ownership boundaries, therefore the extent of any area shown on the plans may extend beyond the area of invertebrate interest present within the Area.

Table 5J 3.1 Areas Identified During Desktop Scoping – Western Corridor

Area ID	Desktop Scoping Criteria	Notes
1	Adjacent to Frodsham, Helsby and Ince Marshes LWS. Potential coastal grazing marsh, wet ditches, and marshy grassland.	Arable habitat and ditches containing reeds.
2	Frodsham, Helsby and Ince Marshes LWS. Potential coastal grazing marsh, wet ditches, and marshy grassland.	Sheep grazed, wet ditches, nutrient rich.
3	Frodsham, Helsby and Ince Marshes LWS. Potential coastal grazing marsh, wet ditches, and marshy grassland.	Arable / modified farmland.
4	Frodsham, Helsby and Ince Marshes LWS. Potential coastal grazing marsh, wet ditches, and marshy grassland.	Arable / modified farmland.

Area ID	Desktop Scoping Criteria	Notes
5	Frodsham, Helsby and Ince Marshes LWS. Potential coastal grazing marsh, wet ditches, and marshy grassland.	Arable modified grassland.
6	Frodsham, Helsby and Ince Marshes LWS. Potential coastal grazing marsh, wet ditches, and marshy grassland.	Arable with reed dominated ditches.
7	Frodsham, Helsby and Ince Marshes LWS. Potential coastal grazing marsh, wet ditches, and marshy grassland.	Arable / modified farmland. Outside Preliminary Order Limits following revision of boundary.
8	Frodsham, Helsby and Ince Marshes LWS. Potential coastal grazing marsh, wet ditches, and marshy grassland.	Sheep-grazed, ditches with nutrient enrichment.
9	Frodsham, Helsby and Ince Marshes LWS. Potential coastal grazing marsh, wet ditches, and marshy grassland.	Arable / modified farmland.
10	Frodsham, Helsby and Ince Marshes LWS. Potential coastal grazing marsh, wet ditches, and marshy grassland.	Cattle grazed modified grassland with reed dominated ditches.
11	Frodsham, Helsby and Ince Marshes LWS. Potential coastal grazing marsh, wet ditches, and marshy grassland.	Arable.
12	Frodsham, Helsby and Ince Marshes LWS. Potential coastal grazing marsh, wet ditches, and marshy grassland.	Horse grazed.
13	Frodsham, Helsby and Ince Marshes LWS. Potential HPI woodland, peaty soils.	Mixed deciduous trees, no elm or dead wood.
14	Frodsham Field Studies Centre LWS. Scrub and grass mosaic. Good mosaic of habitats.	Reed dominated pond, ruderals, and scrub.
15	East Clifton Tip LWS. Potential woodland HPI, woodland edges, grassland mosaic. White letter hairstreak potential.	<u>Full survey.</u> Large site with full mosaic of habitats.
16	Marshy grassland with hedgerows.	Low floristic and structural diversity.
17	Clifton Lagoon LWS. Brownfield, possible HPI.	<u>Full survey.</u> Large site with mosaic of habitats.

Area ID	Desktop Scoping Criteria	Notes
18	Scrub and grass mosaic.	Ruderals, scrub, species-poor reedbed.
19	Scrub and grass mosaic. Dingy Skipper potential.	<u>Full survey.</u> Mosaic of habitats.
20	Golf course. Check for elm trees, white letter hairstreak nearby.	Mixed deciduous trees, no elm or dead wood.
21	Golf course. Check for elm trees, white letter hairstreak nearby.	Mixed deciduous trees, no elm or dead wood.

Table 5J 3.2 Areas Identified for Field Scoping – Southern Corridor

Area ID	Desktop Scoping Criteria	Notes
22	Adjacent to River Dane, Bostock LWS. Large oak trees with saproxylic features, potential HPI.	Arable, nitrogen-rich ditch banks.
23	Potential woodland HPI, some trees with saproxylic features.	Arable, nitrogen-rich ditch banks.
24	Woodland, some trees with saproxylic features.	<u>White letter hairstreak survey.</u> Arable, line of elm trees.
25	Weaver Valley / Newbridge Pool LWS. Woodland, scrub, open habitat mosaic and open water. Potential HPI and white letter hairstreak.	Scoped out due to change in Preliminary Order Limits.
26	Weaver Valley / Newbridge Pool LWS. Woodland, scrub, open habitat mosaic and open water. Potential HPI and white letter hairstreak.	Scoped out due to change in Preliminary Order Limits.
27	Adjacent to Sandiway Golf Course LWS. Grassland, large pond, potential wetland.	Scrub, bramble <i>Rubus sp.</i> , hawthorn <i>Crataegus monogyna</i> , ornamentals.
28	Adjacent to Sandiway Golf Course LWS. Potential woodland HPI, some trees with saproxylic features.	Scrub / ruderals.

29	Post industrial habitat and woodland fringes. Dingy skipper and small heath noted in area.	Scoped out due to change in Preliminary Order Limits.
30	Adjacent to Anderton Lime Bed LWS. Formal park with pools and woodland. Ruddy darter and good list of odonata.	Scoped out due to change in Preliminary Order Limit.

Table 5J 3.3 Areas Identified for Field Scoping – Eastern Corridor

Area ID	Desktop Scoping Criteria	Notes
31	Part of large brownfield site.	Hardstanding and mown grassland. Scrub fringes along a track.
32	Part of large brownfield site. Ruderals, tall and flailed grass.	Gravel, hardstanding, scrub, and early successional plants.
33	Brownfield site.	Areas of hardstanding, mown grass, coarse grass, some ephemeral vegetation, and ruderals. Limited floristic diversity.
34	Adjacent to Partington Nature Reserve LWS. Part of large brownfield site.	Gravel, hardstanding, scrub, and early successional plants.
35	Part of large brownfield site.	Dominated by hardstanding.
36	Part of large brownfield site.	Scrub / ruderals around artificial pool.
37	Woodland on Brownfield. Part of large brownfield site.	Arable / modified farmland.
38	Brownfield site.	Areas of hardstanding, mown grass, coarse grass, and ruderals.
39	Part of large brownfield site.	Oak <i>Quercus sp.</i> , aspen <i>Populus tremula</i> . No deadwood or veteran trees.
40	Tree line, part of brownfield site.	Scrub fringes along a track.
41	Scrub, trees, improved grassland. Part of brownfield site.	Mown grass with bramble / scrub fringe.

Area ID	Desktop Scoping Criteria	Notes
42	Adjacent to Sinderland Green Wood LWS. Grassland and stream corridor, potential higher quality area.	Limited floristic diversity
43	Wide buffers along river (River Bollin and streams), potential higher quality area.	Limited floristic diversity
44	Park Moss Wood LWS. Woodland HPI. Needs assessing to see if features fall within Preliminary Order Limits.	Scoped out as features of interest are outside Preliminary Order Limits.

Table 5J 3.4 Areas Identified for Field Scoping – Northern Corridor

Area ID	Desktop Scoping Criteria	Notes
45	Brownfield.	Scoped out due to change in Preliminary Order Limits.
46	Brownfield.	Scoped out due to change in Preliminary Order Limits.
47	Adjacent to Thatto Heath Meadows LWS. Small Heath record nearby. Early successional grassland. Narrow site but could have potential for dingy skipper if <i>Lotus</i> spp present.	Pine <i>Pinus sylvestris</i> , maple <i>Acer campestre</i> , beech <i>Fagus sylvatica</i> and oak <i>Quercus</i> sp. No veterans or significant deadwood.
48	Good mosaic of habitats. Scrub, grassland and woodland.	Young plantation. Birch <i>Betula</i> sp., oak <i>Quercus</i> sp., ash <i>Fraxinus excelsior</i> , hawthorn <i>Crataegus monogyna</i> , rowan <i>Sorbus aucuparia</i> .
49	Moore Nature Reserve LWS. Potential woodland HPI, grassland and scrub. White letter hairstreak nearby, scope for elm trees.	Full survey. Complex of mosaic habitats.
50	Woodland. White letter hairstreak nearby, scope for elm trees.	Scoped out due to change in Preliminary Order Limits.
51	Woodland (HPI). White letter hairstreak nearby.	Full survey. Mixed deciduous trees, no elm or dead wood.

Area ID	Desktop Scoping Criteria	Notes
52	Plantation woodland. Near to other woodland (Area 51). White letter hairstreak nearby, scope for elm trees.	Mixed deciduous trees, no elm or dead wood.
53	Plantation woodland. Near to other woodland (Area 51). White letter hairstreak nearby, scope for elm trees.	Mixed deciduous trees, no elm or dead wood.
54	Adjacent to Rows Wood LWS. Mosaic of habitats, woodland HPI, mature hedges, rough grassland. Needs assessing to see if features fall within Preliminary Order Limits.	Cow-grazed, modified farmland. Scoped out as features of interest are outside of Preliminary Order Limits.
55	Woodland HPI. Needs assessing to see if features fall within Preliminary Order Limits.	Scoped out as features of interest are outside of Preliminary Order Limits.
56	Woodland HPI. Needs assessing to see if features fall within Preliminary Order Limits.	Full survey. Small woodland surrounded by Preliminary Order Limits with tree lines extending into Preliminary Order Limits.

3.2 Field Scoping

- 3.2.1 The field scoping in May 2023 identified seven areas that had sufficient features or habitats of potential value to invertebrates to be subjected to closer scrutiny through full survey. The Areas are summarised in **Table 5J 3.5** and locations illustrated on Figure 5J.2 in **Annex 5J1**.
- 3.2.2 Some areas were scoped out due to changes to the Preliminary Order Limits or confirmation during the field scoping that habitats of interest, while potentially present, do not fall within the Preliminary Order Limits and would be unaffected by the Project. These included Areas 25 and 26 along the Southern Corridor, Areas 29 and 30 along the Tata Spur, Area 44 along the Eastern Corridor and Areas 45 and 46 along the Northern Corridor.
- 3.2.3 Most areas that were field scoped out were found to be of low value to invertebrates, for example grasslands that appeared to be semi-improved on satellite imagery turned out to be modified and/or intensively grazed by cattle or horses. Other areas were habitats and/or features of generic character with low structural or feature variation and interfaces. These types of habitat are often ubiquitous and are found widely across the landscape in a range of situations. Low value areas included those that were found to be grazed modified grasslands, arable fields or wet ditches that are nutrient-enriched and lack floral diversity and dominated by reeds and algae. Others included woodlands that were found to be

low value similar-aged plantations, often coniferous or sycamore (*Acer pseudoplatanus*) with little deadwood, structure or individual specimens of great age or size.

- 3.2.4 A number of post-industrial areas were field scoped and found to be dominated by hardstanding, consequently with low floral diversity or abundance and therefore lack the open substrates suitable for rich assemblages of early successional invertebrates.

Table 5J 3.5 Areas Identified for Full Surveys

Scoping Area ID	Survey Area ID	Location
15	A	Western Corridor. Weaver Island, Frodsham (East Clifton Tip LWS).
17	B	Western Corridor. North of the Weaver Navigation, Runcorn (Clifton Lagoon LWS).
19	C	Western Corridor. North of the Weaver Navigation, Runcorn.
24	D	Southern Corridor. South of Moulton, Northwich.
49	E	Northern Corridor. North of the Manchester Ship Canal, adjacent to railway crossing, Moore (Moore Nature Reserve LWS).
51	F	Northern Corridor. Adjacent to the Manchester Ship Canal, Moore.
56	G	Northern Corridor. East of Preston Brook, Runcorn.

- 3.2.5 **Table 5J 3.5** includes a range of sites that are mosaics of habitats and features ranging from woodlands with grassland verges and brownfield habitats with scrub fringes. A single Area (Scoping Area 24) was identified as having potential for presence of the white-letter hairstreak butterfly.

3.3 Field Survey

- 3.3.1 The full surveys produced 389 species of terrestrial invertebrates, with the richest Area surveyed producing 181 species. **Table 5J 3.6** lists the total numbers of species recorded from the surveys at each Area.

Table 5J 3.6 Summary Results of Full Surveys

Scoping Area ID	Survey Area ID	Number of Species	Number of Scarce Species
15	A	111	4
17	B	93	2

19	C	75	2
24	D	N/A*	0
49	E	181	3
51	F	105	3
56	G	91	3

*Bespoke survey for white letter hairstreak.

3.3.2 The surveys recorded six species with a nationally significant status, although all of these are now considered by many recording schemes and invertebrate specialists to be much more common than their current statuses suggest. Therefore, these species with a conservation status should be downgraded or lose their status completely in any upcoming national status reviews. **Table 5J 3.7** sets out the full list of species of conservation value which were recorded during the surveys.

Table 5J 3.7 List of Scarce Species Recorded from All Surveys

Species Name	Vernacular Name	Habitat	Conservation Status	Survey Area ID
<i>Agelastica alni</i>	A leaf beetle	On alders (<i>Alnus</i> spp)	Data Deficient; Nationally Rare*	A, B, C, E, F, G
<i>Polydrusus formosus</i>	A weevil	Scrub and woodland edges	Notable a*	A, B, C, E, F, G
<i>Rhinocyllus conicus</i>	A weevil	Open, short swards	Notable b*	G
<i>Hippodamia variegata</i>	Adonis' ladybird	Open, parches grasslands and brownfields	Notable b*	A, F
<i>Gorytes laticinctus</i>	A solitary wasp	Sandy heaths and brownfield sites	Red Data Book 3*	A
<i>Platyrhinus resinosus</i>	A weevil	Associated with deadwood and mature woodlands	Notable b*	E

*Accepted as being more common than this status suggests; likely to be downgraded.

4. Evaluation

4.1 Survey Area A

- 4.1.1 Survey Area A is a brownfield site within Clifton East Tip LWS that holds significant potential for invertebrates. Overall, the survey produced 111 species including four species with a conservation status. The most significant species recorded is the solitary wasp *Gorytes laticinctus*. Currently listed as Red Data Book 3, it has spread dramatically in recent years so requires a downward revision of its status. It is, however, still a useful indicator to site quality as it relies upon friable sandy material and strong structural variation such as scrub and ruderal fringes on which to hunt for prey items. The presence of this wasp suggests a much richer bee and wasp fauna is present at Area A than the survey indicates, but owing to the poor weather of 2023, their activity and numbers were likely lower than in other years.
- 4.1.2 Survey Area A offers a range of substrate types from sandy to chalk and gravels and an abundant short swards perennial flower composition including common bird's-foot trefoil (*Lotus corniculatus*) and hawkbits (*Leontodon* species). The rich flower resource SAT (SAT code F002) has a strong total of 10 species of fidelity (where the threshold for favourable condition is 15 species) and reinforces this view of Survey Area A being a valuable nectar and pollen resource and can be considered to be of moderate value.

4.2 Survey Area B

- 4.2.1 Survey Area B within Clifton Lagoon LWS is a brownfield site of compacted substrates. 93 species and two species with a nationally significant conservation status were recorded. Due to evolving design of the Project, only the edge of Survey Area B now falls within the Preliminary Order Limits.
- 4.2.2 Survey Area B is dominated by a resource associated with tall swards and scrub but does also have a resource of 16 short turf and bare ground plant species of association. This is not a significant total and does not hold any significant indicator species but does possess typical and characteristic species of open mosaic sites with good structural complexity and interfaces. In more optimal years however, some higher fidelity species may be recorded from Survey Area B. The rich flower resource SAT (F002) holds eight invertebrate species of fidelity (where the threshold is 15) and therefore is of moderate value.
- 4.2.3 None of the SATs recorded are expressed to a high level but are suggesting a lack of robustness complexity within them. This indicates that Survey Area B is of generic quality though still has potential and value to invertebrates given that it is an area of post-industrial ground. It is over nutrient poor soils and has a substantial short turf flora that benefits nectar and pollen foraging invertebrates and open mosaic associated invertebrates such as ground beetles, bugs and ground-nesting bees and wasps.

4.3 Survey Area C

- 4.3.1 Survey Area C produced 75 species with two species with a nationally significant status. The total number of species is considered robust and strong for a small sampling parcel which includes a diverse range of resources from tall sward and scrub, patchy bare ground, and marshland to shaded woodlands and decaying wood. However, owing to Survey Area C being small, the resources and SATs are not well expressed (see **Annex 5J2**) as these assemblages are not of sufficiently large size to possess many species of fidelity. The strongest recorded SAT is the rich flower resource (SAT code: F002) with eight species (where the threshold for favourable condition is 15). The scrub edge SAT (SAT code: F001) is of moderate strength with six species of fidelity (where the threshold for favourable condition is 11). The scrub fringe is structurally complex and diverse and populated by a range of flies and beetles dependent upon this feature. Survey Area C is near to other patches of brownfield and therefore does offer some landscape potential to open mosaics assemblages of invertebrates. Overall, and based on the survey data and analysis, Area C is considered to be of moderate value to invertebrates.

4.4 Survey Area D

- 4.4.1 Survey Area D is a cluster of elm trees (*Ulmus* spp) alongside a lane. These were visited during the peak flight period for white-letter hairstreak (July and early August) but there was no sign of the species being present.

4.5 Survey Area E

- 4.5.1 Survey Area E within Moore Nature Reserve LWS is the sampling Area that produced the richest invertebrate fauna, with a total of 181 species. This species total is a strong number from a three-visit survey and factoring in the poor weather of 2023.
- 4.5.2 Survey Area E is a complex mosaic of woodland, wet areas, grassland, and open short swards, as can be seen from the resource and SAT tables in **Annex 5J2**. The woodland has a good supply of dead and rotting timber, as indicated by the presence of the fungi-associated weevil *Platyrhinus resinosus* (Notable b) and broader suite of 16 species associated with this resource. There are also two specific SATs noted for this broad deadwood resource, the bark and sapwood decay (SAT code A212) and heartwood decay (SAT code A211). Both of the SATs are considered moderately strong for Survey Area E. The short turf and patchy bare ground at Survey Area E are considered suitable for the dingy skipper butterfly (*Erynnis tages*) despite their lack of high expression in the analysis tables. This butterfly is a NERC Act Section 41 Species of Principal Importance and is noted from the data search. However, it was not recorded from the surveys. Overall, and based on the survey data and analysis, Area E is considered to be of moderate value to invertebrates.

4.6 Survey Area F

- 4.6.1 Survey Area F is a brownfield site with typical short perennial vegetation including common bird's-foot trefoil over gravelly substrates. It produced 105 species with three species that have a conservation status. Survey Area F is dominated by species associated with tall swards and scrub fringes. There is also a short sward resource over gravelly and sandy bare ground. Survey Area F is free draining as indicated by the presence of Adonis' ladybird (*Hippodamia variegata*). This small ladybird is found on parched and dry sites and is currently listed as Notable b, though is considered more common now than its status suggests.
- 4.6.2 The features at Survey Area F are not particularly strong but the Area does have strong nectar and pollen resources and, typical with small brownfields, its importance is that it forms a landscape resource of short turf and bare ground patchworks, especially given the presence of similar on the adjacent Survey Area E. Owing to the contribution of nectar and pollen resources and species typical of small brownfield sites, the invertebrate resource in Area F is considered to be of moderate value.

4.7 Survey Area G

- 4.7.1 Survey Area G is a large arable parcel, much of which is not directly impacted by the Project. The areas of potential direct impact, and also the areas of greatest potential to invertebrates are a series of oak trees along a field boundary and mixed deciduous woodland, especially the southern side which is sheltered and warm. There are small pools and some piles of dead wood which add to the interest. The survey recorded 91 species and three with a nationally significant status. The invertebrate resources are dominated by tall swards and scrub, woodland fringes and also includes marshland associated species. Despite the small area sampled, the 91 species recorded is considered a strong total. Overall, Area G is considered to be of moderate value to invertebrates.

5. Summary

5.1 Overview

- 5.1.1 The desktop and field scoping noted that the Project passes through landscape and habitat that are considered to be generally of low value to invertebrates, hence the low number of identified areas that required full survey.
- 5.1.2 The terrestrial invertebrate assessment sampled seven areas that were assessed to be of elevated value to invertebrates. They are sites that are mosaics of features and habitats and therefore offer potential to be rich with invertebrates, including those with a conservation status. They range from woodlands and grassland matrices to brownfield sites with abundant short perennial swards, bare ground, and scrub fringes.
- 5.1.3 The areas surveyed were found to possess species and assemblages that are indicative of the habitats and features identified from the scoping process, including strong suites of species that are typical of the identified habitats of potential value, but it has been found that the habitats are not of significantly high quality to support high value assemblages or species of genuine conservation value.

5.2 Conclusions

- 5.2.1 Due to the absence of high value terrestrial invertebrate assemblages or species of genuine conservation value, there is therefore, scope to increase the value of the local landscape for invertebrates as a means to mitigate or compensate for potential development impacts that can't be avoided. Increases in rich flower resources open mosaics and stronger woodland features are areas which can be enhanced in the short term with increased connectivity. A greater footprint of woodland and also open mosaics are habitats that can be created over the medium to long term.

Next Steps

- 5.2.2 There are no further survey requirements going forward for the invertebrate surveys.

Annex 5J 1 Figures

Figure 5J.1 Invertebrate Scoping Sites

Figure 5J.2 Invertebrate Survey Sites

Annex 5J 2

Sample Sites - Pantheon Output Tables and Species Lists

Survey Area A

Table 5J2 1.1 Survey Area A Resource-usage Table (Taken from Webb et al., 2017)

Broad Biotope	Habitat	No. of Species	No. of Species with Conservation Status (Excluding Research-only Moths)	Species with Conservation Status (Excluding Research-only Moths)
Open habitats	tall sward & scrub	53	1	<i>Hippodamia variegata</i> (Notable b*)
Open habitats	short sward & bare ground	19	1	<i>Gorytes laticinctus</i> (Red Data Book 3*)
Tree-associated	arboreal	7	2	<i>Agelastica alni</i> (Data Deficient; Nationally Rare*); <i>Polydrusus formosus</i> (Notable a*)
Wetland	acid & sedge peats	7	—	—
Wetland	marshland	4	—	—
Tree-associated	shaded woodland floor	4	—	—
Wetland	running water	1	—	—
Tree-associated	decaying wood	1	—	—

*Accepted as being more common than this status suggests; likely to be downgraded.

Table 5J2 1.2 Survey Area A SAT Table (Taken from Webb *et al.*, 2017)

Broad Biotope	SAT	SAT Code	No. of Species	No. of Species with Conservation Status (Excluding research-only Moths)	Species with Conservation Status (Excluding Research-only Moths)	Reported Condition*
open habitats	rich flower resource	F002	10	—	—	Unfavourable (10 species, 15 required)
open habitats	scrub edge	F001	3	—	—	Unfavourable (3 species, 11 required)
open habitats	scrub-heath & moorland	F003	3	—	—	Unfavourable (3 species, 9 required)
tree-associated	bark & sapwood decay	A212	1	—	—	Unfavourable (1 species, 19 required)
open habitats	bare sand & chalk	F111	1	—	—	Unfavourable (1 species, 19 required)

Table 5J2 1.3 Survey Area A Species List

Species	Family	Order	Conservation Status
<i>Acetropis (Acetropis) gimmerthalii</i>	Miridae	Hemiptera	
<i>Aelia acuminata</i>	Pentatomidae	Hemiptera	
<i>Agelastica alni</i>	Chrysomelidae	Coleoptera	Data Deficient; Nationally Rare*
<i>Aglais urticae</i>	Nymphalidae	Lepidoptera	
<i>Andrena bicolor</i>	Andrenidae	Hymenoptera	
<i>Andrena dorsata</i>	Andrenidae	Hymenoptera	
<i>Andrena flavipes</i>	Andrenidae	Hymenoptera	
<i>Anthocoris nemoralis</i>	Anthocoridae	Hemiptera	
<i>Apion haematodes</i>	Apionidae	Coleoptera	
<i>Autographa gamma</i>	Noctuidae	Lepidoptera	
<i>Bombus hypnorum</i>	Apidae	Hymenoptera	
<i>Bombus lapidarius</i>	Apidae	Hymenoptera	
<i>Bombus pascuorum</i>	Apidae	Hymenoptera	
<i>Bombus terrestris</i>	Apidae	Hymenoptera	
<i>Brachypterus urticae</i>	Kateretidae	Coleoptera	
<i>Bruchela rufipes</i>	Anthribidae	Coleoptera	
<i>Byturus tomentosus</i>	Byturidae	Coleoptera	
<i>Callistege mi</i>	Erebidae	Lepidoptera	
<i>Cantharis rustica</i>	Cantharidae	Coleoptera	
<i>Capsus ater</i>	Miridae	Hemiptera	
<i>Ceratapion gibbirostre</i>	Apionidae	Coleoptera	
<i>Cerceris rybyensis</i>	Crabronidae	Hymenoptera	
<i>Chaetostomella cylindrica</i>	Tephritidae	Diptera	
<i>Chrysotoxum bicinctum</i>	Syrphidae	Diptera	

Species	Family	Order	Conservation Status
<i>Cicindela campestris</i>	Carabidae	Coleoptera	
<i>Coccinella septempunctata</i>	Coccinellidae	Coleoptera	
<i>Contacyphon laevipennis</i>	Scirtidae	Coleoptera	
<i>Coremacera marginata</i>	Sciomyzidae	Diptera	
<i>Deraeocoris (Deraeocoris) flavilinea</i>	Miridae	Hemiptera	
<i>Deraeocoris (Deraeocoris) ruber</i>	Miridae	Hemiptera	
<i>Deraeocoris (Knightocapsus) lutescens</i>	Miridae	Hemiptera	
<i>Dichetophora obliterated</i>	Sciomyzidae	Diptera	
<i>Dolichopus unguatus</i>	Dolichopodidae	Diptera	
<i>Empis livida</i>	Empididae	Diptera	
<i>Eristalis arbustorum</i>	Syrphidae	Diptera	
<i>Eristalis pertinax</i>	Syrphidae	Diptera	
<i>Eupeodes luniger</i>	Syrphidae	Diptera	
<i>Gorytes laticinctus</i>	Crabronidae	Hymenoptera	Red Data Book 3*
<i>Halictus tumulorum</i>	Halictidae	Hymenoptera	
<i>Harmonia axyridis</i>	Coccinellidae	Coleoptera	
<i>Harpalus rubripes</i>	Carabidae	Coleoptera	
<i>Helophilus pendulus</i>	Syrphidae	Diptera	
<i>Herina lugubris</i>	Ulidiidae	Diptera	
<i>Hippodamia variegata</i>	Coccinellidae	Coleoptera	Notable b*
<i>Hoplia philanthus</i>	Scarabaeidae	Coleoptera	
<i>Hypera plantaginis</i>	Curculionidae	Coleoptera	
<i>Ischnura elegans</i>	Coenagrionidae	Odonata	
<i>Kleidocerys resedae</i>	Lygaeidae	Hemiptera	

Species	Family	Order	Conservation Status
<i>Lasioglossum calceatum</i>	Halictidae	Hymenoptera	
<i>Lasioglossum leucopus</i>	Halictidae	Hymenoptera	
<i>Leptogaster cylindrica</i>	Asilidae	Diptera	
<i>Limnia unguicornis</i>	Sciomyzidae	Diptera	
<i>Lycaena phlaeas</i>	Lycaenidae	Lepidoptera	
<i>Malachius bipustulatus</i>	Malachiidae	Coleoptera	
<i>Maniola jurtina</i>	Nymphalidae	Lepidoptera	
<i>Minettia fasciata</i>	Lauxaniidae	Diptera	
<i>Myrmus miriformis</i>	Rhopalidae	Hemiptera	
<i>Notostira elongata</i>	Miridae	Hemiptera	
<i>Nysius senecionis</i>	Lygaeidae	Hemiptera	
<i>Oedemera lurida</i>	Oedemeridae	Coleoptera	
<i>Oedemera nobilis</i>	Oedemeridae	Coleoptera	
<i>Olibrus aeneus</i>	Phalacridae	Coleoptera	
<i>Olibrus liquidus</i>	Phalacridae	Coleoptera	
<i>Omocestus viridulus</i>	Acrididae	Orthoptera	
<i>Oncopsis alni</i>	Cicadellidae	Hemiptera	
<i>Oncopsis avellanae</i>	Cicadellidae	Hemiptera	
<i>Opomyza germinationis</i>	Opomyzidae	Diptera	
<i>Opomyza petrei</i>	Opomyzidae	Diptera	
<i>Otiorhynchus ovatus</i>	Curculionidae	Coleoptera	
<i>Pachygaster atra</i>	Stratiomyidae	Diptera	
<i>Palomena prasina</i>	Pentatomidae	Hemiptera	
<i>Pararge aegeria</i>	Nymphalidae	Lepidoptera	
<i>Perapion marchicum</i>	Apionidae	Coleoptera	
<i>Phasia obesa</i>	Tachinidae	Diptera	

Species	Family	Order	Conservation Status
<i>Pherbellia cinerella</i>	Sciomyzidae	Diptera	
<i>Philaenus spumarius</i>	Aphrophoridae	Hemiptera	
<i>Phlogophora meticulosa</i>	Noctuidae	Lepidoptera	
<i>Phytocoris (Ktenocoris) varipes</i>	Miridae	Hemiptera	
<i>Picromerus bidens</i>	Pentatomidae	Hemiptera	
<i>Pieris rapae</i>	Pieridae	Lepidoptera	
<i>Piezodorus lituratus</i>	Pentatomidae	Hemiptera	
<i>Pithanus maerkelii</i>	Miridae	Hemiptera	
<i>Plagiognathus (Plagiognathus) arbustorum</i>	Miridae	Hemiptera	
<i>Plagiognathus (Plagiognathus) chrysanthemi</i>	Miridae	Hemiptera	
<i>Polydrusus formosus</i>	Curculionidae	Coleoptera	Notable a*
<i>Polygonia c-album</i>	Nymphalidae	Lepidoptera	
<i>Polyommatus icarus</i>	Lycaenidae	Lepidoptera	
<i>Propylea quattuordecimpunctata</i>	Coccinellidae	Coleoptera	
<i>Pyronia tithonus</i>	Nymphalidae	Lepidoptera	
<i>Rhagonycha fulva</i>	Cantharidae	Coleoptera	
<i>Sapromyza quadripunctata</i>	Lauxaniidae	Diptera	
<i>Sarcophaga incisilobata</i>	Sarcophagidae	Diptera	
<i>Scathophaga stercoraria</i>	Scathophagidae	Diptera	
<i>Scellus notatus</i>	Dolichopodidae	Diptera	
<i>Sciapus platypterus</i>	Dolichopodidae	Diptera	
<i>Scirtes hemisphaericus</i>	Scirtidae	Coleoptera	
<i>Sicus ferrugineus</i>	Conopidae	Diptera	
<i>Sitona lineatus</i>	Curculionidae	Coleoptera	

Species	Family	Order	Conservation Status
<i>Sphaeroderma testaceum</i>	Chrysomelidae	Coleoptera	
<i>Stenodema (Brachystira) calcarata</i>	Miridae	Hemiptera	
<i>Sympetrum striolatum</i>	Libellulidae	Odonata	
<i>Syrphus torvus</i>	Syrphidae	Diptera	
<i>Thymelicus sylvestris</i>	Hesperiidae	Lepidoptera	
<i>Tingis (Tingis) cardui</i>	Tingidae	Hemiptera	
<i>Tropidia scita</i>	Syrphidae	Diptera	
<i>Trypetoptera punctulata</i>	Sciomyzidae	Diptera	
<i>Tyria jacobaeae</i>	Erebidae	Lepidoptera	
<i>Urophora stylata</i>	Tephritidae	Diptera	
<i>Vanessa atalanta</i>	Nymphalidae	Lepidoptera	
<i>Zygaena filipendulae</i>	Zygaenidae	Lepidoptera	
<i>Zygaena lonicerae</i>	Zygaenidae	Lepidoptera	

*Accepted as being more common than this status suggests; likely to be downgraded.

Survey Area B

Table 5J2 2.1 Survey Area B Resource-usage Table (Taken from Webb *et al.*, 2017)

Broad Biotope	Habitat	No. of Species	No. of Species with Conservation Status (Excluding Research-only Moths)	Species with Conservation Status (Excluding Research-only Moths)
open habitats	tall sward & scrub	46	—	—
open habitats	short sward & bare ground	16	—	—
tree-associated	arboreal	9	2	<i>Agelastica alni</i> (Data Deficient; Nationally Rare*); <i>Polydrusus formosus</i> (Notable a*)
wetland	marshland	4	—	—
wetland	acid & sedge peats	4	—	—
tree-associated	decaying wood	2	—	—
tree-associated	shaded woodland floor	2	—	—
wetland	running water	1	—	—

*Accepted as being more common than this status suggests; likely to be downgraded.

Table 5J2 2.2 Survey Area B SAT Table (Taken from Webb *et al.*, 2017)

Broad Biotope	SAT	SAT Code	No. of Species	No. of Species with Conservation Status (Excluding Research-only Moths)	Species with Conservation Status (Excluding Research-only Moths)	Reported Condition*
open habitats	rich flower resource	F002	8	–	–	Unfavourable (8 species, 15 required)
open habitats	scrub edge	F001	3	–	–	Unfavourable (3 species, 11 required)
open habitats	scrub-heath & moorland	F003	2	–	–	Unfavourable (2 species, 9 required)
tree-associated	bark & sapwood decay	A212	1	–	–	Unfavourable (1 species, 19 required)
tree-associated	heartwood decay	A211	1	–	–	Unfavourable (1 species, 6 required)
open habitats	bare sand & chalk	F111	1	–	–	Unfavourable (1 species, 19 required)
open habitats	open short sward	F112	1	–	–	Unfavourable (1 species, 13 required)

Table 5J2 2.3 Survey Area B Species List

Species	Family	Order	Conservation Status
<i>Adalia bipunctata</i>	Coccinellidae	Coleoptera	
<i>Adalia decempunctata</i>	Coccinellidae	Coleoptera	
<i>Aelia acuminata</i>	Pentatomidae	Hemiptera	
<i>Agelastica alni</i>	Chrysomelidae	Coleoptera	Data Deficient; Nationally Rare*
<i>Aglais io</i>	Nymphalidae	Lepidoptera	
<i>Androniscus dentiger</i>	Trichoniscidae	Isopoda	
<i>Anomoia purmunda</i>	Tephritidae	Diptera	
<i>Anoplius nigerrimus</i>	Pompilidae	Hymenoptera	
<i>Apolygus spinolae</i>	Miridae	Hemiptera	
<i>Autographa gamma</i>	Noctuidae	Lepidoptera	
<i>Bembidion properans</i>	Carabidae	Coleoptera	
<i>Bombus hypnorum</i>	Apidae	Hymenoptera	
<i>Bombus lapidarius</i>	Apidae	Hymenoptera	
<i>Bombus pascuorum</i>	Apidae	Hymenoptera	
<i>Bombus terrestris</i>	Apidae	Hymenoptera	
<i>Carabus violaceus</i>	Carabidae	Coleoptera	
<i>Celypha lacunana</i>	Tortricidae	Lepidoptera	
<i>Chrysotoxum bicinctum</i>	Syrphidae	Diptera	
<i>Cicindela campestris</i>	Carabidae	Coleoptera	
<i>Coccinella septempunctata</i>	Coccinellidae	Coleoptera	
<i>Contacyphon padi</i>	Scirtidae	Coleoptera	
<i>Coreus marginatus</i>	Coreidae	Hemiptera	
<i>Dasysyrphus tricinctus</i>	Syrphidae	Diptera	

Species	Family	Order	Conservation Status
<i>Deraeocoris</i> (<i>Deraeocoris</i>) <i>flavilinea</i>	Miridae	Hemiptera	
<i>Deraeocoris</i> (<i>Deraeocoris</i>) <i>ruber</i>	Miridae	Hemiptera	
<i>Dolichopus</i> <i>griseipennis</i>	Dolichopodidae	Diptera	
<i>Dolycoris baccarum</i>	Pentatomidae	Hemiptera	
<i>Ectemnius continuus</i>	Crabronidae	Hymenoptera	
<i>Elasmucha grisea</i>	Acanthosomatidae	Hemiptera	
<i>Episyrphus balteatus</i>	Syrphidae	Diptera	
<i>Eupteryx aurata</i>	Cicadellidae	Hemiptera	
<i>Eurygaster testudinaria</i>	Scutelleridae	Hemiptera	
<i>Eutrichapion ervi</i>	Apionidae	Coleoptera	
<i>Eutrichapion viciae</i>	Apionidae	Coleoptera	
<i>Grypocoris</i> (<i>Lophyromiris</i>) <i>stysi</i>	Miridae	Hemiptera	
<i>Harmonia axyridis</i>	Coccinellidae	Coleoptera	
<i>Herina lugubris</i>	Ulidiidae	Diptera	
<i>Hoplitis claviventris</i>	Megachilidae	Hymenoptera	
<i>Kleidocerys resedae</i>	Lygaeidae	Hemiptera	
<i>Lasioglossum</i> <i>fulvicorne</i>	Halictidae	Hymenoptera	
<i>Lasioglossum</i> <i>leucopus</i>	Halictidae	Hymenoptera	
<i>Limnia unguicornis</i>	Sciomyzidae	Diptera	
<i>Liocoris tripustulatus</i>	Miridae	Hemiptera	
<i>Lochmaea crataegi</i>	Chrysomelidae	Coleoptera	
<i>Maniola jurtina</i>	Nymphalidae	Lepidoptera	
<i>Meligethes aeneus</i>	Nitidulidae	Coleoptera	

Species	Family	Order	Conservation Status
<i>Minettia fasciata</i>	Lauxaniidae	Diptera	
<i>Musca autumnalis</i>	Muscidae	Diptera	
<i>Myathropa florea</i>	Syrphidae	Diptera	
<i>Myrmus miriformis</i>	Rhopalidae	Hemiptera	
<i>Neophilaenus exclamationis</i>	Aphrophoridae	Hemiptera	
<i>Noeeta pupillata</i>	Tephritidae	Diptera	
<i>Nomada flavoguttata</i>	Apidae	Hymenoptera	
<i>Oedemera lurida</i>	Oedemeridae	Coleoptera	
<i>Palomena prasina</i>	Pentatomidae	Hemiptera	
<i>Paragus haemorrhous</i>	Syrphidae	Diptera	
<i>Pherbellia cinerella</i>	Sciomyzidae	Diptera	
<i>Philaenus spumarius</i>	Aphrophoridae	Hemiptera	
<i>Physocephala rufipes</i>	Conopidae	Diptera	
<i>Phytocoris (Ktenocoris) varipes</i>	Miridae	Hemiptera	
<i>Pieris napi</i>	Pieridae	Lepidoptera	
<i>Plagiognathus (Plagiognathus) arbustorum</i>	Miridae	Hemiptera	
<i>Platycheirus albimanus</i>	Syrphidae	Diptera	
<i>Platycheirus fulviventris</i>	Syrphidae	Diptera	
<i>Plusia festucae</i>	Noctuidae	Lepidoptera	
<i>Polydrusus cervinus</i>	Curculionidae	Coleoptera	
<i>Polydrusus formosus</i>	Curculionidae	Coleoptera	Notable a*
<i>Polygonia c-album</i>	Nymphalidae	Lepidoptera	
<i>Polyommatus icarus</i>	Lycaenidae	Lepidoptera	

Species	Family	Order	Conservation Status
<i>Propylea quattuordecimpunctata</i>	Coccinellidae	Coleoptera	
<i>Pseudomalus auratus</i>	Chrysididae	Hymenoptera	
<i>Pyronia tithonus</i>	Nymphalidae	Lepidoptera	
<i>Rhagonycha fulva</i>	Cantharidae	Coleoptera	
<i>Rhopalus (Rhopalus) subrufus</i>	Rhopalidae	Hemiptera	
<i>Sericus brunneus</i>	Elateridae	Coleoptera	
<i>Sitona lineatus</i>	Curculionidae	Coleoptera	
<i>Sitona obsoletus</i>	Curculionidae	Coleoptera	
<i>Sphaerophoria philanthus</i>	Syrphidae	Diptera	
<i>Sphaerophoria scripta</i>	Syrphidae	Diptera	
<i>Sphecodes monilicornis</i>	Halictidae	Hymenoptera	
<i>Stenodema (Brachystira) calcarata</i>	Miridae	Hemiptera	
<i>Stenotus binotatus</i>	Miridae	Hemiptera	
<i>Sympetrum striolatum</i>	Libellulidae	Odonata	
<i>Tasgius globulifer</i>	Staphylinidae	Coleoptera	
<i>Tetrix undulata</i>	Tetrigidae	Orthoptera	
<i>Thymelicus sylvestris</i>	Hesperiidae	Lepidoptera	
<i>Tropidia scita</i>	Syrphidae	Diptera	
<i>Urophora quadrifasciata</i>	Tephritidae	Diptera	
<i>Urophora stylata</i>	Tephritidae	Diptera	
<i>Volucella bombylans</i>	Syrphidae	Diptera	
<i>Volucella inanis</i>	Syrphidae	Diptera	
<i>Volucella pellucens</i>	Syrphidae	Diptera	

Species	Family	Order	Conservation Status
<i>Volucella zonaria</i>	Syrphidae	Diptera	

*Accepted as being more common than this status suggests; likely to be downgraded.

Survey Area C

Table 5J2 3.1 Survey Area C Resource-usage Table (Taken from Webb *et al.*, 2017)

Broad Biotope	Habitat	No. of Species	No. of Species with Conservation Status (Excluding Research-Only Moths)	Species with Conservation Status (Excluding Research-only Moths)
open habitats	tall sward & scrub	34	—	—
tree-associated	arboreal	10	2	<i>Agelastica alni</i> (Data Deficient; Nationally Rare*); <i>Polydrusus formosus</i> (Notable a*)
open habitats	short sward & bare ground	7	—	—
tree-associated	shaded woodland floor	6	—	—
wetland	acid & sedge peats	6	—	—
tree-associated	wet woodland	3	—	—
tree-associated	decaying wood	3	—	—
wetland	wet woodland	3	—	—
wetland	running water	1	—	—
wetland	marshland	1	—	—

*Accepted as being more common than this status suggests; likely to be downgraded.

Table 5J2 3.2 Survey Area C SAT Table (Taken from Webb *et al.*, 2017)

Broad Biotope	SAT	SAT Code	No. of Species	No. of Species with Conservation Status (Excluding Research-only Moths)	Species with Conservation Status (Excluding Research-only Moths)	Reported Condition*
open habitats	rich flower resource	F002	8	—	—	Unfavourable (8 species, 15 required)
open habitats	scrub edge	F001	6	—	—	Unfavourable (6 species, 11 required)
tree-associated	bark & sapwood decay	A212	3	—	—	Unfavourable (3 species, 19 required)
open habitats	scrub-heath & moorland	F003	2	—	—	Unfavourable (2 species, 9 required)
open habitats	open short sward	F112	1	—	—	Unfavourable (1 species, 13 required)

Table 5J2 3.3 Survey Area C Species List

Species	Family	Order	Conservation Status
<i>Adalia bipunctata</i>	Coccinellidae	Coleoptera	
<i>Adalia decempunctata</i>	Coccinellidae	Coleoptera	
<i>Agelastica alni</i>	Chrysomelidae	Coleoptera	Data Deficient; Nationally Rare*
<i>Aglais io</i>	Nymphalidae	Lepidoptera	
<i>Andrion regensteinense</i>	Curculionidae	Coleoptera	
<i>Anomoia purmunda</i>	Tephritidae	Diptera	
<i>Anthocoris confusus</i>	Anthocoridae	Hemiptera	
<i>Anthocoris nemorum</i>	Anthocoridae	Hemiptera	
<i>Athous haemorrhoidalis</i>	Elateridae	Coleoptera	
<i>Autographa gamma</i>	Noctuidae	Lepidoptera	
<i>Beris vallata</i>	Stratiomyidae	Diptera	
<i>Bombus hypnorum</i>	Apidae	Hymenoptera	
<i>Bombus lapidarius</i>	Apidae	Hymenoptera	
<i>Bombus pascuorum</i>	Apidae	Hymenoptera	
<i>Bombus terrestris</i>	Apidae	Hymenoptera	
<i>Calvia quattuordecimguttata</i>	Coccinellidae	Coleoptera	
<i>Cassida vibex</i>	Chrysomelidae	Coleoptera	
<i>Chaetostomella cylindrica</i>	Tephritidae	Diptera	
<i>Chrysopilus cristatus</i>	Rhagionidae	Diptera	
<i>Closterotomus norwegicus</i>	Miridae	Hemiptera	
<i>Coccinella septempunctata</i>	Coccinellidae	Coleoptera	
<i>Contacyphon padi</i>	Scirtidae	Coleoptera	
<i>Coreus marginatus</i>	Coreidae	Hemiptera	

Species	Family	Order	Conservation Status
<i>Crossocerus cetratus</i>	Crabronidae	Hymenoptera	
<i>Deraeocoris</i> (<i>Deraeocoris</i>) <i>ruber</i>	Miridae	Hemiptera	
<i>Deraeocoris</i> (<i>Knightocapsus</i>) <i>lutescens</i>	Miridae	Hemiptera	
<i>Dicyphus</i> (<i>Dicyphus</i>) <i>epilobii</i>	Miridae	Hemiptera	
<i>Dolycoris baccarum</i>	Pentatomidae	Hemiptera	
<i>Episyrphus balteatus</i>	Syrphidae	Diptera	
<i>Euscelis incisus</i>	Cicadellidae	Hemiptera	
<i>Favonius quercus</i>	Lycaenidae	Lepidoptera	
<i>Grypocoris</i> (<i>Lophyromiris</i>) <i>stysi</i>	Miridae	Hemiptera	
<i>Halictus rubicundus</i>	Halictidae	Hymenoptera	
<i>Halyzia sedecimguttata</i>	Coccinellidae	Coleoptera	
<i>Harmonia axyridis</i>	Coccinellidae	Coleoptera	
<i>Helophilus pendulus</i>	Syrphidae	Diptera	
<i>Hydroporus memnonius</i>	Dytiscidae	Coleoptera	
<i>Kleidocerys resedae</i>	Lygaeidae	Hemiptera	
<i>Lasioglossum albipes</i>	Halictidae	Hymenoptera	
<i>Lasioglossum leucopus</i>	Halictidae	Hymenoptera	
<i>Lasioglossum morio</i>	Halictidae	Hymenoptera	
<i>Leptophyes</i> <i>punctatissima</i>	Phaneropteridae	Orthoptera	
<i>Liocoris tripustulatus</i>	Miridae	Hemiptera	
<i>Longitarsus luridus</i>	Chrysomelidae	Coleoptera	
<i>Malachius bipustulatus</i>	Malachiidae	Coleoptera	
<i>Maniola jurtina</i>	Nymphalidae	Lepidoptera	

Species	Family	Order	Conservation Status
<i>Minettia fasciata</i>	Lauxaniidae	Diptera	
<i>Oedemera lurida</i>	Oedemeridae	Coleoptera	
<i>Oedemera nobilis</i>	Oedemeridae	Coleoptera	
<i>Oncotylus (Oncotylus) viridiflavus</i>	Miridae	Hemiptera	
<i>Opomyza florum</i>	Opomyzidae	Diptera	
<i>Oxycera rara</i>	Stratiomyidae	Diptera	
<i>Palomena prasina</i>	Pentatomidae	Hemiptera	
<i>Pararge aegeria</i>	Nymphalidae	Lepidoptera	
<i>Philaenus spumarius</i>	Aphrophoridae	Hemiptera	
<i>Phytocoris (Ktenocoris) varipes</i>	Miridae	Hemiptera	
<i>Picromerus bidens</i>	Pentatomidae	Hemiptera	
<i>Pieris brassicae</i>	Pieridae	Lepidoptera	
<i>Pieris rapae</i>	Pieridae	Lepidoptera	
<i>Piezodorus lituratus</i>	Pentatomidae	Hemiptera	
<i>Plagiognathus (Plagiognathus) arbustorum</i>	Miridae	Hemiptera	
<i>Platycheirus occultus</i>	Syrphidae	Diptera	
<i>Platycheirus rosarum</i>	Syrphidae	Diptera	
<i>Platycheirus scutatus</i>	Syrphidae	Diptera	
<i>Polydrusus formosus</i>	Curculionidae	Coleoptera	Notable a*
<i>Polygonia c-album</i>	Nymphalidae	Lepidoptera	
<i>Propylea quattuordecimpunctata</i>	Coccinellidae	Coleoptera	
<i>Psenulus pallipes</i>	Crabronidae	Hymenoptera	
<i>Pyronia tithonus</i>	Nymphalidae	Lepidoptera	
<i>Rhagonycha fulva</i>	Cantharidae	Coleoptera	

Species	Family	Order	Conservation Status
<i>Sphaeroderma rubidum</i>	Chrysomelidae	Coleoptera	
<i>Syrphus ribesii</i>	Syrphidae	Diptera	
<i>Urophora quadrifasciata</i>	Tephritidae	Diptera	
<i>Volucella pellucens</i>	Syrphidae	Diptera	

*Accepted as being more common than this status suggests; likely to be downgraded.

Survey Area E

Table 5J2 4.1 Survey Area E Resource-usage Table (Taken from Webb *et al.*, 2017)

Broad Biotope	Habitat	No. of Species	No. of Species with Conservation Status (Excluding Research-only Moths)	Species with Conservation status (Excluding Research-only Moths)
open habitats	tall sward & scrub	90	—	—
tree-associated	decaying wood	16	1	<i>Platyrhinus resinosus</i> (Notable b*)
tree-associated	arboreal	13	2	<i>Agelastica alni</i> (Data Deficient; Nationally Rare*); <i>Polydrusus formosus</i> (Notable a*)
open habitats	short sward & bare ground	12	—	—
tree-associated	shaded woodland floor	11	—	—
wetland	acid & sedge peats	11	—	—
wetland	marshland	9	—	—
tree-associated	wet woodland	1	—	—
wetland	wet woodland	1	—	—

*Accepted as being more common than this status suggests; likely to be downgraded.

Table 5J2 4.2 Survey Area E SAT Table (Taken from Webb *et al.*, 2017)

Broad Biotope	SAT	SAT Code	No. of Species	No. of Species with Conservation Status (Excluding Research-only moths)	Species with Conservation Status (Excluding Research-only Moths)	Reported Condition*
tree-associated	bark & sapwood decay	A212	9	–	–	Unfavourable (9 species, 19 required)
open habitats	scrub edge	F001	6	–	–	Unfavourable (6 species, 11 required)
open habitats	rich flower resource	F002	5	–	–	Unfavourable (5 species, 15 required)
tree-associated	heartwood decay	A211	3	–	–	Unfavourable (3 species, 6 required)
wetland	reed-fen & pools	W314	2	–	–	Unfavourable (2 species, 11 required)
tree-associated	fungus fruiting bodies	A213	1	1	–	Unfavourable (1 species, 7 required)
open habitats	bare sand & chalk	F111	1	–	–	Unfavourable (1 species, 19 required)
open habitats	open short sward	F112	1	–	–	Unfavourable (1 species, 13 required)
wetland	open water on disturbed mineral sediments	W211	1	–	–	Unfavourable (1 species, 6 required)

Table 5J2 4.3 Survey Area E Species List

Species	Family	Order	Conservation Status
<i>Acidia cognata</i>	Tephritidae	Diptera	
<i>Adalia bipunctata</i>	Coccinellidae	Coleoptera	
<i>Adrastus pallens</i>	Elateridae	Coleoptera	
<i>Aelia acuminata</i>	Pentatomidae	Hemiptera	
<i>Agabus bipustulatus</i>	Dytiscidae	Coleoptera	
<i>Agelastica alni</i>	Chrysomelidae	Coleoptera	Data Deficient; Nationally Rare*
<i>Agriotes pallidulus</i>	Elateridae	Coleoptera	
<i>Amara plebeja</i>	Carabidae	Coleoptera	
<i>Anaspis fasciata</i>	Scraptiidae	Coleoptera	
<i>Anaspis frontalis</i>	Scraptiidae	Coleoptera	
<i>Anaspis maculata</i>	Scraptiidae	Coleoptera	
<i>Ancistrocerus trifasciatus</i>	Vespidae	Hymenoptera	
<i>Anotylus sculpturatus</i>	Staphylinidae	Coleoptera	
<i>Anthocomus rufus</i>	Melyridae	Coleoptera	
<i>Anthophila fabriciana</i>	Choreutidae	Lepidoptera	
<i>Aphantopus hyperantus</i>	Nymphalidae	Lepidoptera	
<i>Aplotarsus incanus</i>	Elateridae	Coleoptera	
<i>Archarius pyrrhoceras</i>	Curculionidae	Coleoptera	
<i>Arenostola phragmitidis</i>	Noctuidae	Lepidoptera	
<i>Argogorytes mystaceus</i>	Crabronidae	Hymenoptera	
<i>Athous haemorrhoidalis</i>	Elateridae	Coleoptera	
<i>Autographa gamma</i>	Noctuidae	Lepidoptera	
<i>Blepharidopterus angulatus</i>	Miridae	Hemiptera	
<i>Bombus (Thoracobombus) pascuorum</i>	Apidae	Hymenoptera	

Species	Family	Order	Conservation Status
<i>Bombus hypnorum</i>	Apidae	Hymenoptera	
<i>Bombus lapidarius</i>	Apidae	Hymenoptera	
<i>Bombus lucorum</i>	Apidae	Hymenoptera	
<i>Bombus terrestris</i>	Apidae	Hymenoptera	
<i>Brachypterus urticae</i>	Kateretidae	Coleoptera	
<i>Byturus tomentosus</i>	Byturidae	Coleoptera	
<i>Calathus rotundicollis</i>	Carabidae	Coleoptera	
<i>Calliopum simillimum</i>	Lauxaniidae	Diptera	
<i>Calliopum tuberculosum</i>	Lauxaniidae	Diptera	
<i>Cantharis flavilabris</i> (=nigra auctt.) <i>black scutellum</i>	Cantharidae	Coleoptera	
<i>Cantharis livida</i>	Cantharidae	Coleoptera	
<i>Cantharis nigricans</i>	Cantharidae	Coleoptera	
<i>Cantharis rustica</i>	Cantharidae	Coleoptera	
<i>Capsus ater</i>	Miridae	Hemiptera	
<i>Cercopis vulnerata</i>	Cercopidae	Hemiptera	
<i>Chaetocnema picipes</i>	Chrysomelidae	Coleoptera	
<i>Cheilosia bergenstammi</i>	Syrphidae	Diptera	
<i>Cheilosia illustrata</i>	Syrphidae	Diptera	
<i>Cheilosia pagana</i>	Syrphidae	Diptera	
<i>Chrysopilus cristatus</i>	Rhagionidae	Diptera	
<i>Chrysops relictus</i>	Tabanidae	Diptera	
<i>Cicadella viridis</i>	Cicadellidae	Hemiptera	
<i>Clytus arietis</i>	Cerambycidae	Coleoptera	
<i>Coccinella septempunctata</i>	Coccinellidae	Coleoptera	
<i>Coenagrion puella</i>	Coenagrionidae	Odonata	

Species	Family	Order	Conservation Status
<i>Coremacera marginata</i>	Sciomyzidae	Diptera	
<i>Coreus marginatus</i>	Coreidae	Hemiptera	
<i>Cychrus caraboides</i>	Carabidae	Coleoptera	
<i>Cyllecoris histrionius</i>	Miridae	Hemiptera	
<i>Demetrias atricapillus</i>	Carabidae	Coleoptera	
<i>Deraeocoris (Deraeocoris) flavilinea</i>	Miridae	Hemiptera	
<i>Deraeocoris (Deraeocoris) ruber</i>	Miridae	Hemiptera	
<i>Dexiosoma caninum</i>	Tachinidae	Diptera	
<i>Dicyphus (Dicyphus) epilobii</i>	Miridae	Hemiptera	
<i>Dioctria atricapilla</i>	Asilidae	Diptera	
<i>Dioctria rufipes</i>	Asilidae	Diptera	
<i>Dolycoris baccarum</i>	Pentatomidae	Hemiptera	
<i>Enallagma cyathigerum</i>	Coenagrionidae	Odonata	
<i>Epirrhoe alternata</i>	Geometridae	Lepidoptera	
<i>Episyrphus balteatus</i>	Syrphidae	Diptera	
<i>Epuraea aestiva</i>	Nitidulidae	Coleoptera	
<i>Eriocampa ovata</i>	Tenthredinidae	Hymenoptera	
<i>Eristalis arbustorum</i>	Syrphidae	Diptera	
<i>Eristalis intricaria</i>	Syrphidae	Diptera	
<i>Eristalis pertinax</i>	Syrphidae	Diptera	
<i>Eupteryx aurata</i>	Cicadellidae	Hemiptera	
<i>Eutomostethus ephippium</i>	Tenthredinidae	Hymenoptera	
<i>Gabrius splendidulus</i>	Staphylinidae	Coleoptera	
<i>Gastrophysa viridula</i>	Chrysomelidae	Coleoptera	

Species	Family	Order	Conservation Status
<i>Gonepteryx rhamni</i>	Pieridae	Lepidoptera	
<i>Grammoptera ruficornis</i>	Cerambycidae	Coleoptera	
<i>Grypocoris (Lophyromiris) stysi</i>	Miridae	Hemiptera	
<i>Haematopota pluvialis</i>	Tabanidae	Diptera	
<i>Harmonia axyridis</i>	Coccinellidae	Coleoptera	
<i>Helophilus pendulus</i>	Syrphidae	Diptera	
<i>Hemicrepidius hirtus</i>	Elateridae	Coleoptera	
<i>Heterotoma planicornis</i>	Miridae	Hemiptera	
<i>Himacerus (Himacerus) apterus</i>	Nabidae	Hemiptera	
<i>Hydrobius fuscipes</i>	Hydrophilidae	Coleoptera	
<i>Ischnura elegans</i>	Coenagrionidae	Odonata	
<i>Lagria hirta</i>	Tenebrionidae	Coleoptera	
<i>Leptogaster cylindrica</i>	Asilidae	Diptera	
<i>Leptopterna ferrugata</i>	Miridae	Hemiptera	
<i>Libellula depressa</i>	Libellulidae	Odonata	
<i>Libellula quadrimaculata</i>	Libellulidae	Odonata	
<i>Liocoris tripustulatus</i>	Miridae	Hemiptera	
<i>Longitarsus rubiginosus</i>	Chrysomelidae	Coleoptera	
<i>Lygocoris (Lygocoris) rugicollis</i>	Miridae	Hemiptera	
<i>Malachius bipustulatus</i>	Malachiidae	Coleoptera	
<i>Maniola jurtina</i>	Nymphalidae	Lepidoptera	
<i>Melanostoma mellinum</i>	Syrphidae	Diptera	
<i>Merodon equestris</i>	Syrphidae	Diptera	
<i>Myathropa florea</i>	Syrphidae	Diptera	

Species	Family	Order	Conservation Status
<i>Nabis (Dolichonabis) limbatus</i>	Nabidae	Hemiptera	
<i>Nebria brevicollis</i>	Carabidae	Coleoptera	
<i>Nedys quadrimaculatus</i>	Curculionidae	Coleoptera	
<i>Nemastoma bimaculatum</i>	Nemastomatidae	Opiliones	
<i>Neocrepidodera transversa</i>	Chrysomelidae	Coleoptera	
<i>Nephrotoma submaculosa</i>	Tipulidae	Diptera	
<i>Ochlodes sylvanus</i>	Hesperiidae	Lepidoptera	
<i>Ocypus brunnipes</i>	Staphylinidae	Coleoptera	
<i>Ocys harpaloides</i>	Carabidae	Coleoptera	
<i>Oedemera lurida</i>	Oedemeridae	Coleoptera	
<i>Oedemera nobilis</i>	Oedemeridae	Coleoptera	
<i>Olibrus aeneus</i>	Phalacridae	Coleoptera	
<i>Oncopsis subangulata</i>	Cicadellidae	Hemiptera	
<i>Opomyza florum</i>	Opomyzidae	Diptera	
<i>Opomyza germinationis</i>	Opomyzidae	Diptera	
<i>Orius (Orius) niger</i>	Anthocoridae	Hemiptera	
<i>Orthetrum cancellatum</i>	Libellulidae	Odonata	
<i>Orthops (Orthops) campestris</i>	Miridae	Hemiptera	
<i>Oulema melanopus</i>	Chrysomelidae	Coleoptera	
<i>Paidiscura pallens</i>	Theridiidae	Araneae	
<i>Palomena prasina</i>	Pentatomidae	Hemiptera	
<i>Pararge aegeria</i>	Nymphalidae	Lepidoptera	
<i>Parhelophilus frutetorum</i>	Syrphidae	Diptera	
<i>Passaloecus singularis</i>	Crabronidae	Hymenoptera	
<i>Patania ruralis</i>	Crambidae	Lepidoptera	

Species	Family	Order	Conservation Status
<i>Perapion violaceum</i>	Apionidae	Coleoptera	
<i>Phaedon tumidulus</i>	Chrysomelidae	Coleoptera	
<i>Pherbellia cinerella</i>	Sciomyzidae	Diptera	
<i>Philaenus spumarius</i>	Aphrophoridae	Hemiptera	
<i>Philophylla caesio</i>	Tephritidae	Diptera	
<i>Phragmatobia fuliginosa</i>	Erebidae	Lepidoptera	
<i>Phratora laticollis</i>	Chrysomelidae	Coleoptera	
<i>Phyllobius glaucus</i>	Curculionidae	Coleoptera	
<i>Phyllobius roboretanus</i>	Curculionidae	Coleoptera	
<i>Physocephala rufipes</i>	Conopidae	Diptera	
<i>Pieris brassicae</i>	Pieridae	Lepidoptera	
<i>Plagiodera versicolora</i>	Chrysomelidae	Coleoptera	
<i>Plagiognathus (Plagiognathus) arbustorum</i>	Miridae	Hemiptera	
<i>Plagiognathus (Plagiognathus) chrysanthemi</i>	Miridae	Hemiptera	
<i>Platycheirus albimanus</i>	Syrphidae	Diptera	
<i>Platyrhinus resinosus</i>	Anthribidae	Coleoptera	Notable b*
<i>Poecilobothrus nobilitatus</i>	Dolichopodidae	Diptera	
<i>Poecilus cupreus</i>	Carabidae	Coleoptera	
<i>Polydrusus formosus</i>	Curculionidae	Coleoptera	Notable a*
<i>Polydrusus pterygomalis</i>	Curculionidae	Coleoptera	
<i>Polygonia c-album</i>	Nymphalidae	Lepidoptera	
<i>Polyommatus icarus</i>	Lycaenidae	Lepidoptera	
<i>Propylea quattuordecimpunctata</i>	Coccinellidae	Coleoptera	

Species	Family	Order	Conservation Status
<i>Protapion apricans</i>	Apionidae	Coleoptera	
<i>Ptilinus pectinicornis</i>	Ptinidae	Coleoptera	
<i>Pyrochroa serraticornis</i>	Pyrochroidae	Coleoptera	
<i>Pyronia tithonus</i>	Nymphalidae	Lepidoptera	
<i>Rhabdomiris striatellus</i>	Miridae	Hemiptera	
<i>Rhagio tringarius</i>	Rhagionidae	Diptera	
<i>Rhagonycha fulva</i>	Cantharidae	Coleoptera	
<i>Rhantus suturalis</i>	Dytiscidae	Coleoptera	
<i>Rivula sericealis</i>	Erebidae	Lepidoptera	
<i>Rutpela maculata</i>	Cerambycidae	Coleoptera	
<i>Scaeva pyrastris</i>	Syrphidae	Diptera	
<i>Scathophaga stercoraria</i>	Scathophagidae	Diptera	
<i>Scolopostethus thomsoni</i>	Lygaeidae	Hemiptera	
<i>Scymnus auritus</i>	Coccinellidae	Coleoptera	
<i>Sicus ferrugineus</i>	Conopidae	Diptera	
<i>Sinodendron cylindricum</i>	Lucanidae	Coleoptera	
<i>Sitona hispidulus</i>	Curculionidae	Coleoptera	
<i>Sitona lineatus</i>	Curculionidae	Coleoptera	
<i>Sphaerophoria scripta</i>	Syrphidae	Diptera	
<i>Stenodema (Stenodema) laevigata</i>	Miridae	Hemiptera	
<i>Stenus similis</i>	Staphylinidae	Coleoptera	
<i>Stygnocoris sabulosus</i>	Lygaeidae	Hemiptera	
<i>Syrphus ribesii</i>	Syrphidae	Diptera	
<i>Tachyporus hypnorum</i>	Staphylinidae	Coleoptera	
<i>Thymelicus sylvestris</i>	Hesperiidae	Lepidoptera	

Species	Family	Order	Conservation Status
<i>Tropidia scita</i>	Syrphidae	Diptera	
<i>Tyria jacobaeae</i>	Erebidae	Lepidoptera	
<i>Udea lutealis</i>	Crambidae	Lepidoptera	
<i>Vanessa atalanta</i>	Nymphalidae	Lepidoptera	
<i>Volucella bombylans</i>	Syrphidae	Diptera	
<i>Volucella pellucens</i>	Syrphidae	Diptera	
<i>Volucella zonaria</i>	Syrphidae	Diptera	
<i>Xylota segnis</i>	Syrphidae	Diptera	
<i>Zygaena filipendulae</i>	Zygaenidae	Lepidoptera	
<i>Zygaena lonicerae</i>	Zygaenidae	Lepidoptera	

Survey Area F

Table 5J2 5.1 Survey Area F Resource-usage Table (Taken from Webb *et al.*, 2017)

Broad Biotope	Habitat	No. of Species	No. of Species with Conservation Status (Excluding Research-only Moths)	Species with Conservation Status (Excluding Research-only Moths)
open habitats	tall sward & scrub	50	1	<i>Hippodamia variegata</i> (Notable b*)
tree-associated	arboreal	12	2	<i>Agelastica alni</i> (Data Deficient; Nationally Rare*); <i>Polydrusus formosus</i> (Notable a*)
open habitats	short sward & bare ground	10	—	—
tree-associated	decaying wood	5	—	—
wetland	marshland	5	—	—
tree-associated	shaded woodland floor	1	—	—

*Accepted as being more common than this status suggests; likely to be downgraded.

Table 5J2 5.2 Survey Area F SAT Table (Taken from Webb *et al.*, 2017)

Broad Biotope	SAT	SAT Code	No. of species	No. of Species with Conservation Status (Excluding Research-only Moths)	Species with Conservation Status (Excluding Research-only Moths)	Reported Condition*
open habitats	rich flower resource	F002	7	—	—	Unfavourable (7 species, 15 required)
tree-associated	bark & sapwood decay	A212	4	—	—	Unfavourable (4 species, 19 required)
open habitats	scrub edge	F001	4	—	—	Unfavourable (4 species, 11 required)
open habitats	bare sand & chalk	F111	2	—	—	Unfavourable (2 species, 19 required)
open habitats	open short sward	F112	2	—	—	Unfavourable (2 species, 13 required)
open habitats	rich flower resource	F002	7	—	—	Unfavourable (7 species, 15 required)

Table 5J2 5.3 Survey Area F Species List

Species	Family	Order	Conservation Status
<i>Adalia decempunctata</i>	Coccinellidae	Coleoptera	
<i>Aelia acuminata</i>	Pentatomidae	Hemiptera	
<i>Agelastica alni</i>	Chrysomelidae	Coleoptera	Data Deficient; Nationally Rare*
<i>Aglais io</i>	Nymphalidae	Lepidoptera	
<i>Agonum muelleri</i>	Carabidae	Coleoptera	
<i>Andrena minutula</i>	Andrenidae	Hymenoptera	
<i>Anomoia purmunda</i>	Tephritidae	Diptera	
<i>Anthocoris nemorum</i>	Anthocoridae	Hemiptera	
<i>Aphrophora alni</i>	Aphrophoridae	Hemiptera	
<i>Autographa gamma</i>	Noctuidae	Lepidoptera	
<i>Bembecia ichneumoniformis</i>	Sesiidae	Lepidoptera	
<i>Bombus hypnorum</i>	Apidae	Hymenoptera	
<i>Bombus lapidarius</i>	Apidae	Hymenoptera	
<i>Bombus pascuorum</i>	Apidae	Hymenoptera	
<i>Bombus terrestris</i>	Apidae	Hymenoptera	
<i>Calvia quattuordecimguttata</i>	Coccinellidae	Coleoptera	
<i>Cantharis cryptica</i>	Cantharidae	Coleoptera	
<i>Cantharis livida</i>	Cantharidae	Coleoptera	
<i>Cantharis pallida</i>	Cantharidae	Coleoptera	
<i>Capsus ater</i>	Miridae	Hemiptera	
<i>Celypha lacunana</i>	Tortricidae	Lepidoptera	
<i>Cercopis vulnerata</i>	Cercopidae	Hemiptera	
<i>Ceutorhynchus obstrictus (=assimilis auctt.)</i>	Curculionidae	Coleoptera	

Species	Family	Order	Conservation Status
<i>Chrysolina hyperici</i>	Chrysomelidae	Coleoptera	
<i>Cicadella viridis</i>	Cicadellidae	Hemiptera	
<i>Coccinella septempunctata</i>	Coccinellidae	Coleoptera	
<i>Conomelus anceps</i>	Delphacidae	Hemiptera	
<i>Coreus marginatus</i>	Coreidae	Hemiptera	
<i>Coriomeris denticulatus</i>	Coreidae	Hemiptera	
<i>Crepidodera aurata</i>	Chrysomelidae	Coleoptera	
<i>Crepidodera fulvicornis</i>	Chrysomelidae	Coleoptera	
<i>Cychrus caraboides</i>	Carabidae	Coleoptera	
<i>Cymus melanocephalus</i>	Lygaeidae	Hemiptera	
<i>Deraeocoris</i> (<i>Deraeocoris</i>) <i>flavilinea</i>	Miridae	Hemiptera	
<i>Deraeocoris</i> (<i>Deraeocoris</i>) <i>ruber</i>	Miridae	Hemiptera	
<i>Dolycoris baccarum</i>	Pentatomidae	Hemiptera	
<i>Enallagma cyathigerum</i>	Coenagrionidae	Odonata	
<i>Enoplognatha ovata</i> <i>sensu lato</i>	Theridiidae	Araneae	
<i>Epirrhoe alternata</i>	Geometridae	Lepidoptera	
<i>Episyrphus balteatus</i>	Syrphidae	Diptera	
<i>Eristalis tenax</i>	Syrphidae	Diptera	
<i>Euthrix potatoria</i>	Lasiocampidae	Lepidoptera	
<i>Galerucella lineola</i>	Chrysomelidae	Coleoptera	
<i>Gonepteryx rhamni</i>	Pieridae	Lepidoptera	
<i>Harmonia axyridis</i>	Coccinellidae	Coleoptera	
<i>Helophorus brevipalpis</i>	Helophoridae	Coleoptera	

Species	Family	Order	Conservation Status
<i>Hippodamia variegata</i>	Coccinellidae	Coleoptera	Notable b*
<i>Hylaeus brevicornis</i>	Colletidae	Hymenoptera	
<i>Hypera postica</i>	Curculionidae	Coleoptera	
<i>Idiocerus lituratus</i>	Cicadellidae	Hemiptera	
<i>Ischnura elegans</i>	Coenagrionidae	Odonata	
<i>Leptopterna dolabrata</i>	Miridae	Hemiptera	
<i>Leptura quadrifasciata</i>	Cerambycidae	Coleoptera	
<i>Limonius poneli</i>	Elateridae	Coleoptera	
<i>Lycaena phlaeas</i>	Lycaenidae	Lepidoptera	
<i>Malachius bipustulatus</i>	Malachiidae	Coleoptera	
<i>Maniola jurtina</i>	Nymphalidae	Lepidoptera	
<i>Meligethes aeneus</i>	Nitidulidae	Coleoptera	
<i>Metidiocerus rutilans</i>	Cicadellidae	Hemiptera	
<i>Myrmus miriformis</i>	Rhopalidae	Hemiptera	
<i>Neolygus contaminatus</i>	Miridae	Hemiptera	
<i>Notiophilus substriatus</i>	Carabidae	Coleoptera	
<i>Nysius huttoni</i>	Lygaeidae	Hemiptera	
<i>Oedemera lurida</i>	Oedemeridae	Coleoptera	
<i>Oedemera nobilis</i>	Oedemeridae	Coleoptera	
<i>Oncopsis flavicollis</i>	Cicadellidae	Hemiptera	
<i>Orchestes hortorum</i>	Curculionidae	Coleoptera	
<i>Orthetrum cancellatum</i>	Libellulidae	Odonata	
<i>Osmia spinulosa</i>	Megachilidae	Hymenoptera	
<i>Oulema melanopus</i>	Chrysomelidae	Coleoptera	
<i>Palomena prasina</i>	Pentatomidae	Hemiptera	
<i>Paradromius linearis</i>	Carabidae	Coleoptera	

Species	Family	Order	Conservation Status
<i>Pararge aegeria</i>	Nymphalidae	Lepidoptera	
<i>Pemphredon lugubris</i>	Crabronidae	Hymenoptera	
<i>Philaenus spumarius</i>	Aphrophoridae	Hemiptera	
<i>Phyllobius pomaceus</i>	Curculionidae	Coleoptera	
<i>Phyllobius roboretanus</i>	Curculionidae	Coleoptera	
<i>Pieris brassicae</i>	Pieridae	Lepidoptera	
<i>Pieris rapae</i>	Pieridae	Lepidoptera	
<i>Plagiognathus (Plagiognathus) arbustorum</i>	Miridae	Hemiptera	
<i>Platydracus stercorarius</i>	Staphylinidae	Coleoptera	
<i>Polydrusus formosus</i>	Curculionidae	Coleoptera	Notable a*
<i>Polyommatus icarus</i>	Lycaenidae	Lepidoptera	
<i>Propylea quattuordecimpunctata</i>	Coccinellidae	Coleoptera	
<i>Pterostichus madidus</i>	Carabidae	Coleoptera	
<i>Pyrausta purpuralis</i>	Crambidae	Lepidoptera	
<i>Pyronia tithonus</i>	Nymphalidae	Lepidoptera	
<i>Rhagonycha fulva</i>	Cantharidae	Coleoptera	
<i>Rhagonycha nigriventris</i>	Cantharidae	Coleoptera	
<i>Rhopalus (Rhopalus) subrufus</i>	Rhopalidae	Hemiptera	
<i>Rutpela maculata</i>	Cerambycidae	Coleoptera	
<i>Scathophaga stercoraria</i>	Scathophagidae	Diptera	
<i>Sitona lineatus</i>	Curculionidae	Coleoptera	
<i>Sitona suturalis</i>	Curculionidae	Coleoptera	
<i>Sphaeroderma rubidum</i>	Chrysomelidae	Coleoptera	

Species	Family	Order	Conservation Status
<i>Sphaerophoria scripta</i>	Syrphidae	Diptera	
<i>Stenodema (Brachystira) calcarata</i>	Miridae	Hemiptera	
<i>Stenodema (Stenodema) laevigata</i>	Miridae	Hemiptera	
<i>Stictopleurus punctatonevrosus</i>	Rhopalidae	Hemiptera	
<i>Sympetrum striolatum</i>	Libellulidae	Odonata	
<i>Tachina fera</i>	Tachinidae	Diptera	
<i>Trechus quadristriatus</i>	Carabidae	Coleoptera	
<i>Tyria jacobaeae</i>	Erebidae	Lepidoptera	
<i>Vanessa atalanta</i>	Nymphalidae	Lepidoptera	
<i>Xylota segnis</i>	Syrphidae	Diptera	

*Accepted as being more common than this status suggests; likely to be downgraded.

Survey Area G

Table 5J2 6.1 Survey Area G Resource-usage Table (Taken from Webb *et al.*, 2017)

Broad Biotope	Habitat	No. of Species	No. of Species with Conservation Status (Excluding Research-only Moths)	Species with Conservation Status (Excluding Research-only Moths)
open habitats	tall sward & scrub	45	—	—
wetland	marshland	11	—	—
tree-associated	arboreal	7	1	<i>Agelastica alni</i> (Data Deficient; Nationally Rare*)
tree-associated	decaying wood	7	—	—
tree-associated	shaded woodland floor	5	—	—
wetland	acid & sedge peats	5	—	—
open habitats	short sward & bare ground	3	1	<i>Rhinocyllus conicus</i> (Notable b*)
wetland	running water	1	—	—
wetland	wet woodland	1	—	—
tree-associated	wet woodland	1	—	—

*Accepted as being more common than this status suggests; likely to be downgraded.

Table 5J2 6.2 Survey Area G SAT table (Taken from Webb *et al.*, 2017)

Broad Biotope	SAT	SAT Code	No. of Species	No. of species with Conservation Status (Excluding Research-only Moths)	Species with Conservation Status (Excluding Research-only Moths)	Reported Condition*
tree-associated	bark & sapwood decay	A212	6	—	—	Unfavourable (6 species, 19 required)
open habitats	rich flower resource	F002	5	—	—	Unfavourable (5 species, 15 required)
open habitats	scrub edge	F001	3	—	—	Unfavourable (3 species, 11 required)
open habitats	scrub-heath & moorland	F003	1	—	—	Unfavourable (1 species, 9 required)
open habitats	bare sand & chalk	F111	1	1	<i>Rhinocyllus conicus</i> Notable b*	Unfavourable (1 species, 19 required)

*Accepted as being more common than this status suggests; likely to be downgraded.

Table 5J2 6.3 Survey Area G Species List

Species	Family	Order	Conservation Status
<i>Agelastica alni</i>	Chrysomelidae	Coleoptera	Data Deficient; Nationally Rare*
<i>Agrilus laticornis</i>	Buprestidae	Coleoptera	
<i>Altica lythri</i>	Chrysomelidae	Coleoptera	
<i>Amara plebeja</i>	Carabidae	Coleoptera	
<i>Anthocoris nemoralis</i>	Anthocoridae	Hemiptera	
<i>Apolygus spinolae</i>	Miridae	Hemiptera	
<i>Beris vallata</i>	Stratiomyidae	Diptera	
<i>Bombus hypnorum</i>	Apidae	Hymenoptera	
<i>Bombus lapidarius</i>	Apidae	Hymenoptera	
<i>Bombus pascuorum</i>	Apidae	Hymenoptera	
<i>Bombus terrestris</i>	Apidae	Hymenoptera	
<i>Campyloneura virgula</i>	Miridae	Hemiptera	
<i>Cantharis flavilabris</i> (=nigra auctt.) black scutellum	Cantharidae	Coleoptera	
<i>Cantharis lateralis</i>	Cantharidae	Coleoptera	
<i>Cantharis pallida</i>	Cantharidae	Coleoptera	
<i>Capsus ater</i>	Miridae	Hemiptera	
<i>Cassida rubiginosa</i>	Chrysomelidae	Coleoptera	
<i>Chloromyia formosa</i>	Stratiomyidae	Diptera	
<i>Closterotomus norwegicus</i>	Miridae	Hemiptera	
<i>Coccinella septempunctata</i>	Coccinellidae	Coleoptera	
<i>Coenagrion puella</i>	Coenagrionidae	Odonata	
<i>Deraeocoris (Deraeocoris) flavilinea</i>	Miridae	Hemiptera	
<i>Dolichopus brevipennis</i>	Dolichopodidae	Diptera	

Species	Family	Order	Conservation Status
<i>Dolichopus griseipennis</i>	Dolichopodidae	Diptera	
<i>Dolichopus plumipes</i>	Dolichopodidae	Diptera	
<i>Dolichopus simplex</i>	Dolichopodidae	Diptera	
<i>Dolichopus wahlbergi</i>	Dolichopodidae	Diptera	
<i>Dryophilocoris</i> (<i>Dryophilocoris</i>) <i>flavoquadrimaculatus</i>	Miridae	Hemiptera	
<i>Empis albinervis</i>	Empididae	Diptera	
<i>Empis livida</i>	Empididae	Diptera	
<i>Empis scutellata</i>	Empididae	Diptera	
<i>Enallagma cyathigerum</i>	Coenagrionidae	Odonata	
<i>Episyrphus balteatus</i>	Syrphidae	Diptera	
<i>Eristalis arbustorum</i>	Syrphidae	Diptera	
<i>Eristalis pertinax</i>	Syrphidae	Diptera	
<i>Grammoptera ruficornis</i>	Cerambycidae	Coleoptera	
<i>Harmonia axyridis</i>	Coccinellidae	Coleoptera	
<i>Harpalus rufipes</i>	Carabidae	Coleoptera	
<i>Helophorus brevipalpis</i>	Helophoridae	Coleoptera	
<i>Heterotoma planicornis</i>	Miridae	Hemiptera	
<i>Hylaeus communis</i>	Colletidae	Hymenoptera	
<i>Ischnura elegans</i>	Coenagrionidae	Odonata	
<i>Lagria hirta</i>	Tenebrionidae	Coleoptera	
<i>Leptopterna ferrugata</i>	Miridae	Hemiptera	
<i>Libellula depressa</i>	Libellulidae	Odonata	
<i>Libellula quadrimaculata</i>	Libellulidae	Odonata	
<i>Liocoris tripustulatus</i>	Miridae	Hemiptera	
<i>Longitarsus luridus</i>	Chrysomelidae	Coleoptera	

Species	Family	Order	Conservation Status
<i>Malachius bipustulatus</i>	Malachiidae	Coleoptera	
<i>Maniola jurtina</i>	Nymphalidae	Lepidoptera	
<i>Microchrysa flavicornis</i>	Stratiomyidae	Diptera	
<i>Nabis (Nabis) ferus</i>	Nabidae	Hemiptera	
<i>Ochlodes sylvanus</i>	Hesperiidae	Lepidoptera	
<i>Oedemera nobilis</i>	Oedemeridae	Coleoptera	
<i>Olibrus aeneus</i>	Phalacridae	Coleoptera	
<i>Oncopsis avellanae</i>	Cicadellidae	Hemiptera	
<i>Opomyza florum</i>	Opomyzidae	Diptera	
<i>Opomyza germinationis</i>	Opomyzidae	Diptera	
<i>Pararge aegeria</i>	Nymphalidae	Lepidoptera	
<i>Pemphredon inornata</i>	Crabronidae	Hymenoptera	
<i>Pemphredon lugubris</i>	Crabronidae	Hymenoptera	
<i>Philaenus spumarius</i>	Aphrophoridae	Hemiptera	
<i>Phyllobius pyri</i>	Curculionidae	Coleoptera	
<i>Pieris brassicae</i>	Pieridae	Lepidoptera	
<i>Pieris rapae</i>	Pieridae	Lepidoptera	
<i>Plagiognathus (Plagiognathus) arbustorum</i>	Miridae	Hemiptera	
<i>Poecilobothrus nobilitatus</i>	Dolichopodidae	Diptera	
<i>Psallus (Hylopsallus) perrisi</i>	Miridae	Hemiptera	
<i>Pterostichus madidus</i>	Carabidae	Coleoptera	
<i>Pterostichus melanarius</i>	Carabidae	Coleoptera	
<i>Pyronia tithonus</i>	Nymphalidae	Lepidoptera	
<i>Rhagonycha fulva</i>	Cantharidae	Coleoptera	
<i>Rhagonycha nigriventris</i>	Cantharidae	Coleoptera	

Species	Family	Order	Conservation Status
<i>Rhingia campestris</i>	Syrphidae	Diptera	
<i>Rhinocyllus conicus</i>	Curculionidae	Coleoptera	Notable b*
<i>Rhogogaster punctulata</i>	Tenthredinidae	Hymenoptera	
<i>Rhyzobius litura</i>	Coccinellidae	Coleoptera	
<i>Scathophaga stercoraria</i>	Scathophagidae	Diptera	
<i>Scolopostethus affinis</i>	Lygaeidae	Hemiptera	
<i>Sitona lineatus</i>	Curculionidae	Coleoptera	
<i>Sphaeroderma testaceum</i>	Chrysomelidae	Coleoptera	
<i>Sympetrum striolatum</i>	Libellulidae	Odonata	
<i>Syrphus ribesii</i>	Syrphidae	Diptera	
<i>Tachycixius pilosus</i>	Cixiidae	Hemiptera	
<i>Tagus ater</i>	Staphylinidae	Coleoptera	
<i>Thanatophilus rugosus</i>	Silphidae	Coleoptera	
<i>Tipula oleracea</i>	Tipulidae	Diptera	
<i>Tipula paludosa</i>	Tipulidae	Diptera	
<i>Tricholauxania praeusta</i>	Lauxaniidae	Diptera	
<i>Vespa crabro</i>	Vespidae	Hymenoptera	
<i>Xanthostigma xanthostigma</i>	Raphidiidae	Raphidioptera	

*Accepted as being more common than this status suggests; likely to be downgraded.

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