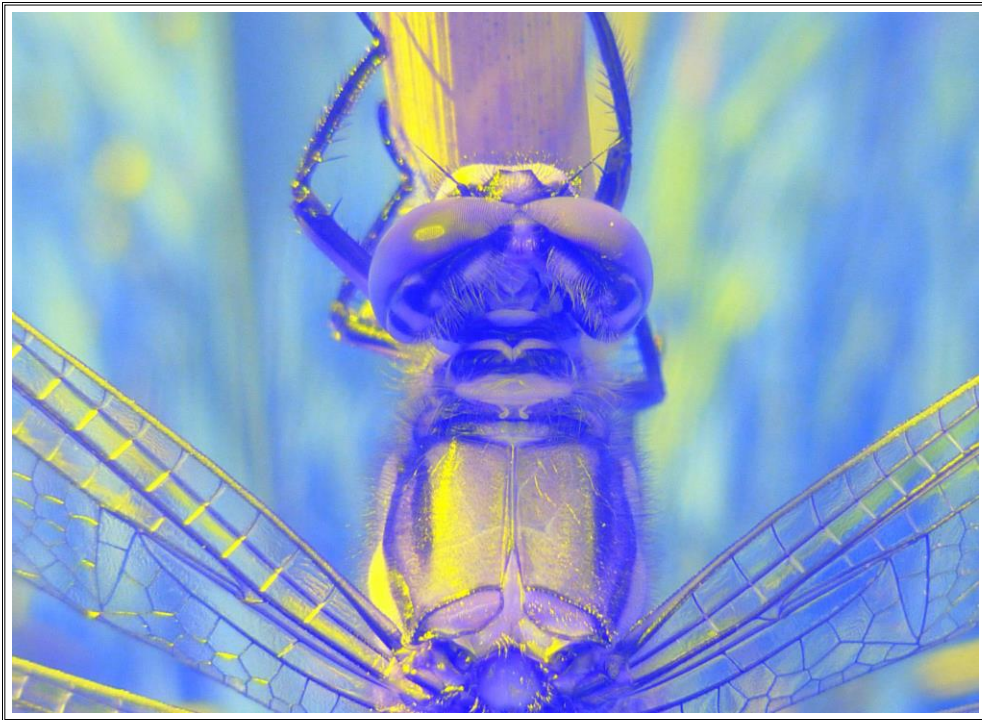


LOHP Invertebrate Survey 2021

Invertebrate Survey Report LOHP 2021

Betty's Fen, Blo' Norton Fen and Hinderclay Fen



**Prepared by Steve Lane for
Little Ouse Headwaters Project**

December 2021

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1 Summary

- ✦ A baseline survey of invertebrates was carried out at the LOHP sites Hinderclay, Betty's and Blo' Norton Fens, during 12 visits, between February and September 2021.
- ✦ 1,261 species were recorded during the survey. Eighty-two of these species are designated as Nationally Scarce (Notable, NS) and thirteen species are designated as Nationally Rare (Red Data Book, NR).
- ✦ 10 species qualify with an IUCN Threat status or 'Near Threatened' status. Breckland Leatherbug *Arenocoris waltii* is classed as IUCN 'Critically Endangered', although in reality, due to range expansion and possible under-recording formerly, it no longer merits this designation and needs to be re-evaluated under IUCN criteria. Two species; Desmoulin's Whorl Snail, and Small Heath butterfly, qualify as IUCN 'Vulnerable' due to Nationally declining ranges and shrinking populations. The IUCN 'Vulnerable' beetle *Heterocerus fuscus* is in need of re-evaluation due to overlooked inland populations. Otherwise, six beetle species (five of which are aquatics) are considered IUCN 'Near Threatened'. These are the water beetles *Hydrochus crenatus*, *H. elongatus*, *Limnebius aluta*, *Hydrophilus piceus* and *Enochrus nigrinus* and the soldier beetle *Malthodes crassicornis*.
- ✦ Ten NERC (Natural Environment and Rural Communities Act 2006) Section 41 species were recorded. These comprise eight moth species, Small Heath butterfly and Desmoulin's Whorl Snail. The moths (and Small Heath in this specific context) are of 'research only' significance, but for Desmoulin's Whorl Snail The NERC legislation requires that the presence of this species needs to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity.
- ✦ No **fully** legally-protected species were found during the survey.
- ✦ The survey demonstrates the importance of the wetland aquatic and wetland terrestrial invertebrate faunas at the Betty's Fen and Blo' Norton Fen complex, and also the importance of the lichen heath at Hinderclay Fen, which holds significant invertebrate assemblages more typical of quality 'breckland heath' habitats in East Anglia.
- ✦ Brief recommendations are given for habitat creation and also management of existing habitats, with the aim of potentially enhancing the value of this important fen complex for its invertebrate assemblages.

2 Scope of Survey

This survey was commissioned by The Little Ouse Headwaters Project (LOHP), 'a local Charity dedicated to the restoration, conservation and promotion of enjoyment of the wildlife and landscape of the Little Ouse valley on the Suffolk/Norfolk borders'.

A walkover of the site was undertaken by Steve Lane and Rowena Langston on February 17, 2021. The purpose of this visit was to identify areas within the overall site complex that might support significant invertebrate assemblages, and to evaluate the time and methodology that would be required to survey in each area.

The contract remit was to carry out a baseline survey, to identify and report on terrestrial and aquatic invertebrate species across a number of sites owned, or leased, and managed by the organisation. The sites, represented by eight adjacent or corridor-linked compartments, form part of a broader fen-habitat restoration scheme and are situated immediately north and south of the Little Ouse river in the vicinity of Blo'Norton and Thelnhem, respectively.

Results of the survey were used to evaluate the quality of the site, compartment by compartment and to offer recommendations for management that focus on the creation of new habitat and the preservation and maintenance of significant habitat and related insect assemblages.

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This report summarises the results of twelve site survey visits between February 17 and September 7, 2021. In addition, the report also considers species casually recorded from single site visits in July 2017, November 2019 and June 2020.

3 Introduction

The following Table gives the site (compartment) code letter, the full compartment name and photographs of each of the eight compartments of the site complex. The eight compartments are also illustrated in **Figs. 1** and **2** below.


Table 1 – Compartments and photographic examples of target survey areas (photographs taken in February 2021)

Site Code	Photograph	Name
A		<p>Hinderclay Fen – main lichen heath and heathland area, with <i>Molinia</i> grassland and gorse <i>Ulex</i> scrub, grading into birch <i>Betula pendula</i> and oak <i>Quercus robur</i> woodland</p>
A		<p>Hinderclay Fen – short turf rabbit-grazed lichen heath flanked by gorse scrub and birch/oak woodland.</p>

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Site Code	Photograph	Name
B		<p>Hinderclay Fen - 'lichen heath annexe' with heather <i>Calluna</i>, gorse <i>Ulex</i> and <i>Molinia</i></p>
C		<p>Hinderclay Fen – ringing ride in <i>Phragmites</i> beds containing well-vegetated seasonal inundations and old 'turf pools'</p>

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Site Code	Photograph	Name
D		<p>Hinderclay Fen – annual cut fen meadow area close to western perimeter of site, containing ‘turf pools’</p>
E		<p>Hinderclay Fen - inundated alder <i>Alnus glutinosa</i> carr in peat-filled channel within woodland block close to western perimeter of site</p>


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Site Code	Photograph	Name
E		<p>Hinderclay Fen - woodland block close to western perimeter of site; birch and oak woodland at higher elevation, above alder swamp</p>
E		<p>Hinderclay Fen - woodland block close to western perimeter of site, oaks in south-west corner</p>

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Site Code	Photograph	Name
F		<p>Betty's Fen – open shallow pool edged by <i>Phragmites</i> beds; reed-beds cut on rotation</p>
G		<p>Blo'Norton Fen – willow <i>Salix</i> and alder <i>Alnus</i> carr with areas of seasonal inundation</p>

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Site Code	Photograph	Name
H		<p>Blo' Norton Fen – area of cut fen with M13 vegetation assemblage towards east perimeter of site</p>

Betty's Fen and Blo' Norton Fen are SSSIs, the latter containing a small area of NVC classification M13-type *Schoenus nigricans – Juncus subnodulosus* mire. Hinderclay Fen was formerly designated as an SSSI due to the plant diversity in this fen corridor, but it was later de-notified because of habitat deterioration caused mainly by water abstraction.

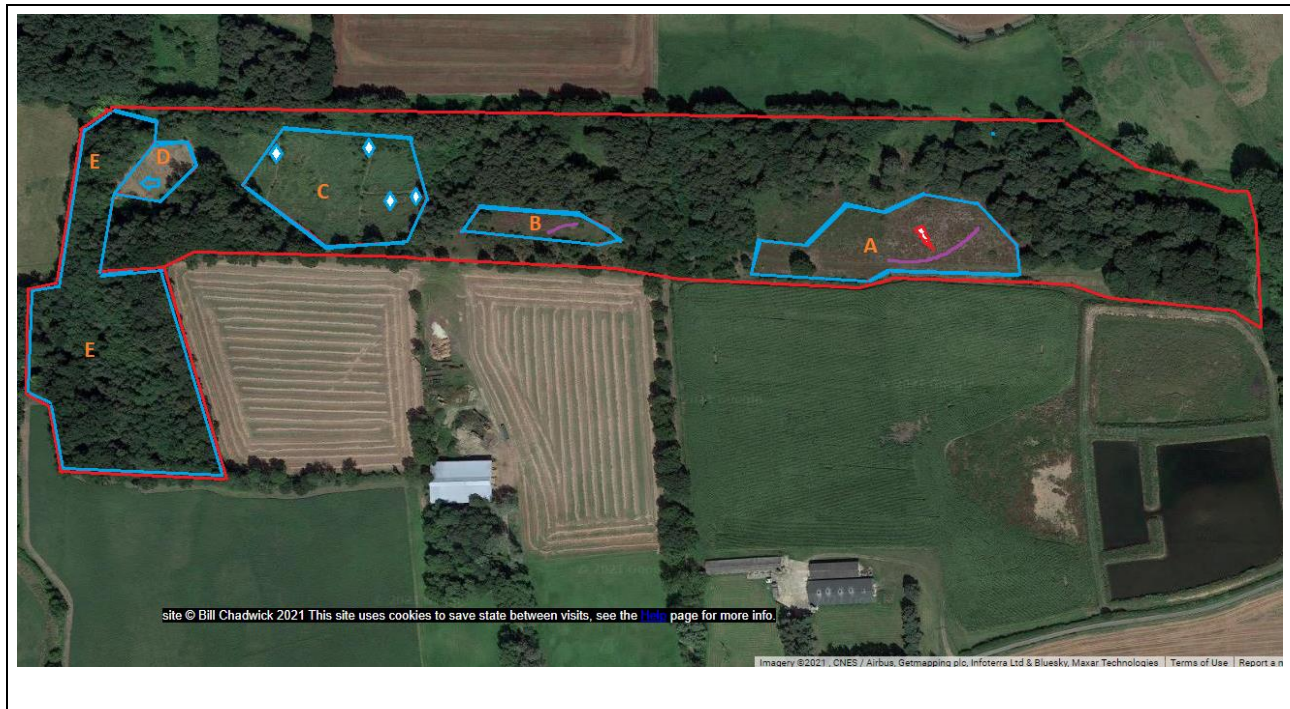


Fig. 1 LOHP sites near Theltenham: Hinderclay Fen Compartments A - E. The scoping survey proposed linear series of pitfall traps highlighted purple. The sites of pools that were surveyed by Geoff Nobes in 2010 are marked as blue diamond targets and areas where the scoping survey proposed siting of MV light traps, marked as a red lightning target. The blue arrow in Compartment D denotes the approximate site of turf pools. (imagery ©2021, CNES/Airbus, Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies). (Infoterra Ltd & Bluesky, Maxar Technologies).

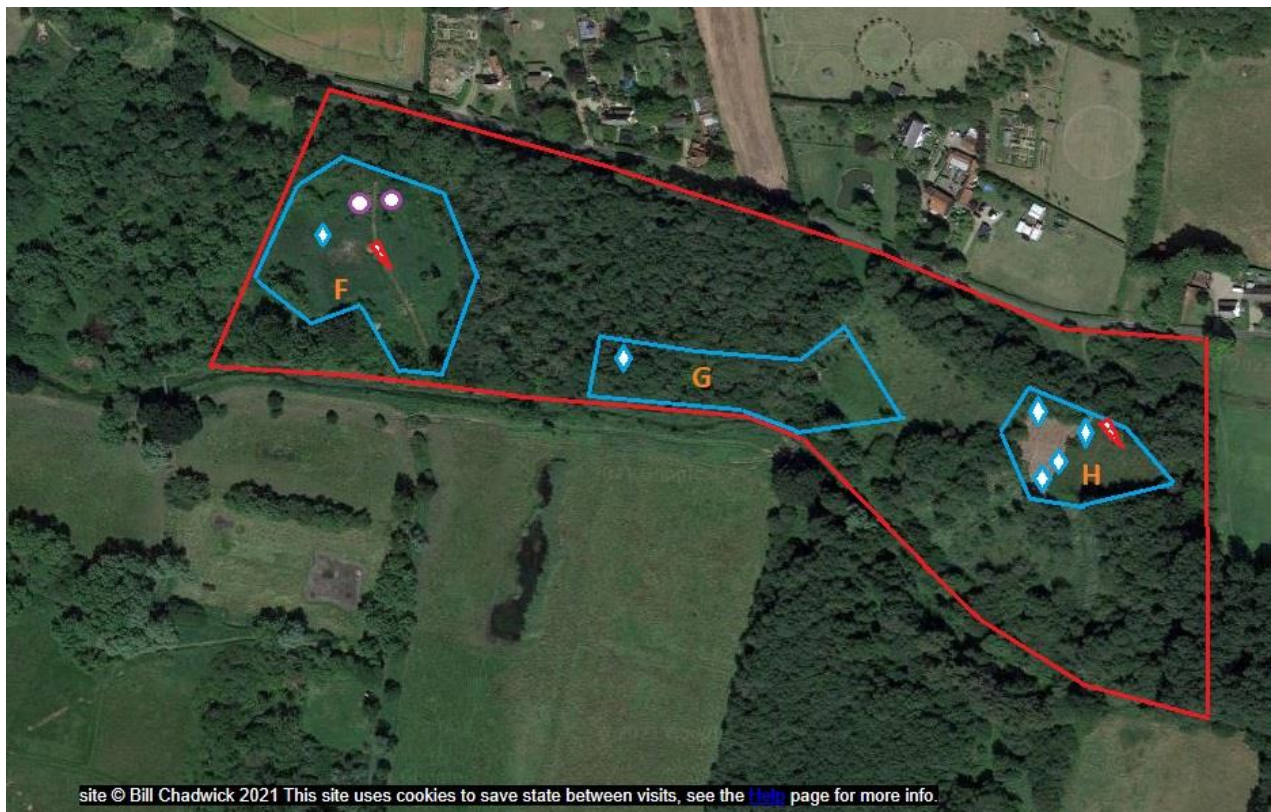


Fig. 2 LOHP sites at Blo’Norton: Betty’s Fen, Compartment F and Blo’ Norton Fen, Compartments G and H. The sites of pools that were surveyed by Geoff Nobes in 2010 are marked as blue diamond targets and areas where the scoping survey proposed the potential siting of MV light traps, are marked as red lightning targets. The approximate areas where Desmoulin’s Whorl Snail has been found formerly by Abrehart Ecology, are indicated by purple circle targets.

(imagery © 2021. CNES/Airbus. Getmapping plc. Infoterra Ltd & Bluesky, Maxar Technologies).

4 Methodology

4.1 Field Survey

The following insect groups were targeted during the survey:

- Coleoptera (beetles; all families)
- Dermaptera (earwigs)
- Diptera (flies; larger Brachycera, Scathophagids (part), Sciomyzids, Syrphids, Tephritids and Tipulids and their allies)
- Hemiptera (true bugs including Auchenorrhyncha and aquatic species, but not psyllids or aphids)
- Hymenoptera (mainly sawflies, but also some ants, bees and wasps)
- Lepidoptera (butterflies and moths)
- Neuroptera (lacewings and their allies)
- Mecoptera (scorpionflies)
- Odonata (dragonflies and damselflies)
- Orthoptera (bush crickets, groundhoppers and grasshoppers)
- Plecoptera (stoneflies; adults)
- Trichoptera (caddisflies; adults)

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The following non-insect groups were targeted during the survey:

- Araneae (spiders)
- Mollusca (aquatic and terrestrial gastropods only)
- Isopoda (woodlice)

The lead surveyor specialises in British beetles and true bugs so these groups are particularly well-represented in the resulting samples. The lead surveyor was accompanied on most visits by Andy Brown, and with additional supporting visits by Martin Collier and James Symonds. Steve Lane (lead surveyor) surveyed mainly for Coleoptera, Hemiptera and Desmoulin's Whorl Snail *Vertigo moulinsiana*, and Andy Brown surveyed primarily for Diptera, Hymenoptera and Desmoulin's Whorl Snail. All other groups were recorded by both surveyors. With regard to casual survey, Martin Collier surveyed for Coleoptera on March 1, 2021 and James Symonds visited and co-ordinated a light-trapping session for moth recording on September 7, 2021.

A variety of field techniques were used in the survey. Sweep-netting was conducted by sweeping vegetation with a large heavy-duty net on a metal frame. Beating employed the use of a collapsible sheet on a frame of wood and plastic, and the use of a pole, to beat branches and dislodge arboreal invertebrates from tree and scrub foliage. Particular attention was paid to any standing dead or dying wood such as old dead boughs as these can support scarce and threatened saproxylic species (i.e. those that require dead wood as a medium in which to develop).

A lightweight butterfly net was used to catch aerial and flower-visiting Diptera and Hymenoptera, and also moths.

Grubbing (searching at ground level) and sieving with a bowl and standard mesh plastic garden sieve, were methods that were regularly employed across the site on most visits. These methods were most useful as a means of sampling invertebrates in decaying vegetation heaps, woodchip piles, wet litter, fungi, moss, leaf litter and under vegetative mats. Rabbit midden dung was sieved to sample the dung fauna on the lichen heath. Natural refugia such as large stones and logs, were lifted and the area beneath them inspected for invertebrates.

Aquatic sampling was carried out using a standard heavy duty fine-mesh water net. This was used both in a sweeping motion through submerged vegetation and also as a skimming device to retrieve floating water beetles from the water surface immediately following their displacement by the use of trampling and puddling activity in shallow water.

Close observation was used as a recording technique. This involved either studying small areas of exposed or sparsely-vegetated ground for invertebrates or looking closely at vegetation and blossom to find invertebrates resting or feeding.

Moth-trapping was carried out by James Symonds, using a small number of Mercury-Vapour and actinic light traps simultaneously. These were operated at Hinderclay Fen, in the lichen heath areas towards the eastern end of the site during the evening of September 7 through to the morning of September 8, 2021.

Photographs were taken of invertebrates and habitats during the survey.

A certain amount of identification was carried out in the field, but where positive identification required the use of microscopic examination and identification literature ('identification keys'), specimens were collected and removed from the site. The bio-catches from each habitat and compartment were retained as separate samples. Representatives of the Nationally Scarce and Nationally Rare species have been retained as vouchers in the surveyor's personal reference collections.

Pitfall trapping was used at selected sampling points across the site. Targeted areas were the short turf rabbit-grazed lichen heaths at Hinderclay Fen which had the potential to support species of insolated (sun-exposed) habitats and breck-type assemblages. Traps were also placed on wet mud in wetland habitats at Hinderclay Fen, so as to sample terrestrial wetland assemblages, and trap lines were also laid in two areas of woodland that are situated at opposite ends of the Hinderclay Fen complex. Pitfall-trapping is a useful method of sampling which utilises plastic beakers sunk into the ground, flush with the ground surface, to passively collect diurnal and nocturnal ground-active species such as ground beetles, rove beetles, ground bugs and ground-active spiders. The beaker holes are dug with a bulb-corer and the beakers dropped neatly into the holes. The beakers are then charged with saturated salt solution or propylene glycol (a harmless semi-viscous food additive) and a coarse-mesh gauze placed over the opening to prevent reptiles, amphibians and small mammals from falling in. The beakers are then left in situ and serviced by emptying the contents after a

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period of normally between one and four weeks. **Fig. 3** shows the locations of pitfall-trapping during the survey and Table 2 details locations of the pitfall trap lines.



Fig. 3. Approximate locations of pitfall traps at Hinderclay Fen (purple = 26.04-05.05.2021, orange = 07.06-14.06.2021, blue = 30.08-07.09.2021)

Table 2 – Pitfall-trapping Locations at Hinderclay Fen (from east to west across the site)

Compartment (Code Letter)	Location Description	Grid Reference	Number of traps employed	Trapping Period
woodland block east (A)	Ground layer beneath oak trees	TM02917873	3	30.08– 07.09.2021
main lichen heath (A)	<i>Calluna</i> heath through short turf lichen heath into open woodland edge	TM02777877	5	30.08– 07.09.2021
main lichen heath (A)	Short turf grassland through lichen heath (rabbit-grazed)	TM02727874 to TM02767874	20	26.04- 05.05.2021
main lichen heath (A)	Heavily rabbit-grazed short turf grassland	TM02767871	15	07-14.06.2021
main lichen heath (A)	Short-turf grassland at edge of gorse <i>Ulex</i> through <i>Molinia</i> tussock grassland	TM02657872	12	30.08– 07.09.2021
lichen heath annexe (B)	Heather through short turf (rabbit-grazed)	TM02467874	8	26.04- 05.05.2021
lichen heath annexe (B)	Short-turf grassland through <i>Molinia</i>	TM02477874	7	07-14.06.2021

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	tussock grassland			
ringing rides reed-bed (C)	<i>Phragmites</i> bed ground layer with extensive reed litter and wet ground at edge of reeds	TM02367875/TM02357875	10	30.08– 07.09.2021
cut fen meadow area (D)	Fen grading from wet grassland through to higher elevation grassland	TM02177874	5	26.04- 05.05.2021
cut fen meadow area (D)	Fen grading from wet grassland through to higher elevation grassland	TM02157874	5	07-14.06.2021
woodland block (south-east corner) (E)	Edge of swamp inundation, wet mud, vegetated	TM02147867	2	26.04- 05.05.2021
woodland block (south-east corner) (E)	Edge of swamp inundation, wet vegetated mud, grading through to drier birch and oak woodland ground layer with leaf litter	TM02147867	5	07-14.06.2021

Due to the sensitivity to disturbance of sites F and H which are both notified within the Blo’Norton and Theltenham Fens SSSI, it was proposed in the scoping survey, that pools in these two compartments be sampled for aquatic invertebrates from strictly designated access points, to minimise disturbance to the vegetation in these two open fen areas. Thus, access to Betty’s Fen open reed-bed area (site F) was limited to the pathway that bisects this habitat and the perimeter of the area highlighted, only. Likewise, access on Blo’Norton Fen in the M13 vegetation community area (the east side of site H) was limited to the narrow slightly raised walkway that runs approximately N-S through this area and the edges of the cut fen area only.

Table 3 below lists the survey sites visited on each date and the people who surveyed. The weather conditions on each date were generally optimal for invertebrate survey and have not been recorded. For site codes and photographs, see Table 1.

Table 3. Survey dates, sites visited and surveyors

Date	Sites Visited	Personnel
July 7, 2017	Hinderclay Fen	SL (Steve Lane)
November 18, 2019	Blo’ Norton Fen	SL, MJC (Martin Collier)
June 1, 2020	Blo’ Norton Fen	SL, AB (Andy Brown)
February 17, 2021	Betty’s Fen, Blo’ Norton Fen	SL
March 1, 2021	Betty’s Fen, Blo’ Norton Fen	SL, MJC
March 29, 2021	All sites	SL, AB
April 26, 2021	Hinderclay Fen	SL, AB
May 5, 2021	All sites	SL
May 10, 2021	All sites	SL, AB
June 7, 2021	All sites	SL, AB

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June 14, 2021	Hinderclay Fen	SL
July 15, 2021	Betty's Fen, Blo' Norton Fen	SL, AB,
July 21, 2021	Hinderclay Fen	SL, AB
August 30, 2021	All sites	SL, AB
September 7, 2021	Hinderclay Fen	SL, RL (Rowena Langston), JS (James Symonds)

The result of any site survey depends both on the amount of effort put into recording at that location and the inherent ecological value of the site which is influenced by its size, geographical location, surrounding landscape and habitat biodiversity. For comparison within and between sites to be most accurate, all locations within a site would have to be surveyed with the same measured effort, using standardised sampling techniques. The preferred methodology adopted for the LOHP baseline survey is to intuitively spend more time on areas that are obviously more diverse and that have the potential to support rare species or assemblages. An 'exhaustive approach' is taken, meaning that sampling is only stopped in a 'productive' area when new species cease to be recorded there. By using these criteria, there is a greater likelihood of finding at least some of the scarcer species on the site, and often many more. A standardised methodology can miss these scarce species and produce a generalised list of nothing but common species.

4.2 Interpretation & Analysis

The software 'ISIS' (Invertebrate Species-habitat Information System) was developed largely by Natural England in 2006 for the purpose of analysing species composition of a surveyed locality, and interpreting this data in terms of habitat/species associations and species richness. Shortfalls in this database tool resulted in the development of a successor; 'Pantheon', in 2018. This was created by The Centre for Ecology & Hydrology in association with Natural England and improves on the ISIS process by adding, amongst other criteria, associated habitats and resources and habitat fidelity scores, against each taxon in a survey list. The Pantheon database deals with around 11,000 invertebrate species, including all of the most familiar and widely surveyed insect Orders.

In common with ISIS, the Pantheon programme is most effectively used where standardised sampling techniques have been employed in survey work. It enables comparison of resulting data from a fixed frequency of site visits over a fixed time period and could indicate whether the ecological value of a site in terms of its invertebrate fauna, is either improving or deteriorating. This interpretation tool is much less useful for the present survey which is based on a 'snapshot' sample taken over a relatively short period and one that is naturally biased towards finding the scarcer invertebrates that the site supports. Even so, it can still be a useful tool for producing a hierarchy of significance in terms of species habitat associations and assemblages at any given site and in particular for comparing habitats which are surveyed at approximately the same time of the year as each other, using approximately the same techniques and with approximately the same amount of effort.

The scoring systems in Pantheon use species richness, threat status, rarity and characteristic species for each broad biotope, habitat and resource. The two Pantheon generated scores used to interpret the survey findings in terms of the habitats and associated invertebrate assemblages, are 'Conservation Status' and the 'SQI' (Species Quality Index) value, defined as:

Conservation Status: threat and rarity status from published reviews. The conservation status is also used to generate the Species Quality Indices (see below). Statuses in square brackets indicates that these are considered out of date and should be used with caution.

SQI: each species recorded from a site list is scored according to its conservation status and the SQI is calculated by dividing this score by the number of species in the sample and multiplying by 100. SQI's for species lists with 15 or fewer species are considered unreliable.

Pantheon, like ISIS, can identify whether a site is in a favourable or unfavourable condition. Thus if a site is considered 'favourable' in the analysis, then it can be loosely construed that the state of the habitat analysed is favourable for the indicator species which are present and for the assemblage for that habitat-type as a whole. The term can indicate if the

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conservation management at a site is favourable for that particular habitat and is particularly useful when recording, for example, SSSI localities, to assess whether the habitat condition is improving or deteriorating.

5 Limitations

There were no material limitations to the present survey. Natural England published guidelines for conducting invertebrate surveys (Drake *et. al.*, 2007) in which they suggest that 'a reasonably thorough survey of a terrestrial habitat can be made through seven visits at monthly intervals between April and October', but that 'four or five visits over this period will capture most species'. The timing and frequency of the 2021 survey visits of the LOHP site complex were ideal for sampling species through all seasons as they have provided visits during the months of February, March, April, May, June, July, August and September, and by at least two surveyors on nine of the twelve visits in that year.

In recent years, the abundance and diversity of Diptera (and possibly also aculeate Hymenoptera) have been noticeably poor in southern and eastern England (author's experience and Steve Falk pers comm, 2019.). There is no specific research known to the author that fully explains the causative factors behind this phenomenon although it may be associated with climate change, particularly with extreme daytime temperatures and also perhaps a direct impact from pesticide use in agriculture. It is the opinion of the authors that the Diptera and Hymenoptera fauna were therefore not adequately sampled during the year due to the decreased abundance and diversity of these groups in the field generally.

6 Results and Interpretation

A total of **1,261** invertebrate species (not including aggregates of species and unresolved species pairs) was recorded during twelve days of field survey in 2021 and the three previous visits. This total includes 621 Coleoptera (beetles), 182 Hemiptera (true bugs), 130 Diptera (flies), 111 Lepidoptera (including 16 butterflies) and 65 Araneae (spiders). A full species list is given in the Table in the **Appendix** of this report.

No species that are afforded full protection under UK or International legislation were recorded during the survey. However, Desmoulin's Whorl Snail *Vertigo moulinsiana*, a NERC Act 2006, Section 41 species of principal conservation importance was recorded at Betty's Fen and Small Heath butterfly *Coenonympha pamphilus*, recently designated as IUCN Vulnerable and also an NERC s.41 species (but the latter designation only in the context of 'research only'), was recorded at Hinderclay Fen. A small number of UK BAP Priority Species (research only) moths were also recorded.

The NERC Act legislation requires that the presence of section 41 'species of principal importance' at a locality, needs to be taken into consideration by a public body (e.g. the planning 'authority') when performing any of its functions (e.g. determining the impact of planning applications) with a view to conserving biodiversity (**but see section 6.3 below**).

6.1 Conservation Status

6.1.1 Nationally Rare and Nationally Scarce Species

Invertebrate surveys conducted between the late 1980s and 2010 relied in their interpretation of species recorded, on published Red Data Books and Lists of Scarce and Threatened Species which created British-specific rarity statuses for individual taxa, based on restricted distribution rather than population threat or risk. At the time, the term 'Nationally Scarce', originally coined for plants, was applied to invertebrate species that were known to occur in 16 to 100 10km squares (hectads).

Early assessments of invertebrate taxa used the term 'Nationally Notable' for these Nationally Scarce species and, for some taxa, this category was further split into 'Notable A' (Na) for species occurring in 16 to 30 hectads of the National Grid and 'Notable B' (Nb) for those occurring in 31 to 100 hectads. A further category used was 'Red Data Book' which equates to 'Nationally Rare'. This category was used for species that occurred in 15 or fewer hectads in Britain. It was

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further subdivided depending on the perceived or actual degree of rarity, e.g. 'RDB3' as Rare, 'RDB2' as Vulnerable, 'RDB1' as Endangered, 'RDBI' as 'Red Data Book Indeterminate' and 'RDBK' as 'Red Data Book Insufficiently Known'.

Recently, since 2010, IUCN Reviews have been produced for many invertebrate groups and these are continuing to be written. These Reviews deal primarily with threat status, but they also re-evaluate existing British Rarity (restricted distribution) statuses to bring them up-to-date. In the recent IUCN Reviews, the restricted distribution categories have now been standardised to 'Nationally Rare' (NR) and 'Nationally Scarce' (NS) without further subdivision. The GB system of assessing rarity based solely on distribution is used alongside IUCN criteria which, although they also use measures of geographical extent, are primarily concerned with assessing National and International Threat in terms of decline of species populations.

In this report, for the taxa found at the site, I have used the newly-adopted GB Rarity categories 'NS' (Nationally Scarce) and 'NR' (Nationally Rare) where these appear in IUCN Reviews. Otherwise, where no such IUCN reviews yet exist for the species recorded, I have resorted to the older categorisations of Nationally Scarce 'Notable Nb', 'Notable Na' and 'Notable' and for Red Data Book species, the 'RDB' categories. The situation is currently complex, but it will eventually become more simple as further invertebrate groups are assessed for IUCN Reviews and the terminology becomes standardised.

A very impressive **82 species of Nationally Scarce** ('Notable A', 'Notable B', 'Notable' or 'NS') status were recorded during the survey, although for 10 of these species, that status is considered to be out-of-date. **13 species of Nationally Rare** status (category 'Red Data Book' or 'NR' status) were also recorded, three of which have expanded their ranges since that designation and are perhaps now only truly Nationally Scarce. The 13 Nationally Rare species are listed in Table 4 below.

6.1.2 Nationally Threatened Species

The main categories in the IUCN Reviews which deal with Threat status are, in order of increasing threat status; 'Least Concern', 'Near Threatened', 'Vulnerable', 'Endangered', 'Critically Endangered' and 'Extinct'. Analysis for each species is based on the area that it occupies and/or population statistics with an emphasis on trends of decline and the magnitude of such trends. On the 2021 survey, **10 species qualify with an IUCN Threat Status** or near threat status. One, Breckland Leatherbug *Arenocoris waltlii* is classed as IUCN Critically Endangered, although in reality, due to range expansion and possible under-recording formerly, it no longer merits this designation and needs to be re-evaluated. Re-evaluation is also required, and, possibly for the same reasons, for the IUCN 'Vulnerable' beetle *Heterocerus fuscus*. Otherwise, six beetle species (five of which are aquatics) are considered IUCN 'Near Threatened'. Designation in the IUCN 'Near Threatened' category indicates that after all available data has been evaluated for a species, it currently fails to qualify as threatened (with extinction), but only narrowly so. Were the British population to deteriorate in England, Wales and Scotland in future years, the species may qualify as being threatened or even endangered, in a future Review. Two species (Desmoulin's Whorl Snail and Small Heath butterfly) qualify as IUCN Vulnerable due to declining range and shrinking populations. The IUCN Threat status species are listed in Table 4 below.

Table 4 Taxa recorded at LOHP sites with Nationally Rare ('Red Data Book' or 'NR') British Rarity status and/or IUCN Threat Status (including Near Threatened). Square brackets indicates a taxon in need of status re-evaluation due to recent range expansion or which was formerly under-recorded.

Taxon	Description	British Rarity Status	IUCN Threat Status	Site; LOHP 2021 survey
<i>Apion rubiginosum</i>	A seed weevil	RDB3	Not yet evaluated	Hinderclay Fen
<i>Arenocoris waltlii</i>	Breckland Leatherbug	NR	[Critically Endangered]	Hinderclay Fen
<i>Atomaria zetterstedti</i>	A silken fungus beetle	RDBK	Not yet evaluated	Blo' Norton Fen
<i>Biblopectus tenebrosus</i>	A pselaphiine rove beetle	RDBK	Not yet evaluated	Hinderclay Fen
<i>Coenonympha pamphilus</i>	Small Heath butterfly	none	Vulnerable	Hinderclay Fen

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Taxon	Description	British Rarity Status	IUCN Threat Status	Site; LOHP 2021 survey
<i>Enochrus nigrinus</i>	A water scavenger beetle	NS	Near Threatened	Hinderclay Fen
<i>Heterocerus fuscus</i>	A variegated mud-loving beetle	[NR]	[Vulnerable]	Hinderclay Fen
<i>Hydrophilus piceus</i>	Great Silver Water Beetle	NS	Near Threatened	Hinderclay Fen
<i>Hydrochus crenatus</i>	A hydrochid beetle	NS	Near Threatened	Blo' Norton Fen
<i>Hydrochus elongatus</i>	A hydrochid beetle	NS	Near Threatened	Blo' Norton Fen
<i>Limnebius aluta</i>	A moss beetle	NS	Near Threatened	Blo' Norton Fen
<i>Malthodes crassicornis</i>	A soldier beetle	NR	Near Threatened	Blo' Norton Fen
<i>Melanapion minimum</i>	Sallow Guest Weevil	RDB3	Not yet evaluated	Betty's and Blo' Norton Fens
<i>Microptilium palustre</i>	A feather-winged beetle	RDBK	Not yet evaluated	Betty's Fen
<i>Nemoura dubitans</i>	A stonefly	NR	Least Concern	Hinderclay and Blo' Norton Fens
<i>Philanthus triangulum</i>	Bee Wolf	[RDB2]	Not yet evaluated	Hinderclay Fen
<i>Podalonia affinis</i>	Mud Wasp	[RDB3]	Not yet evaluated	Hinderclay Fen
<i>Pseudomedon obsoletus</i>	A rove beetle	RDBI	Not yet evaluated	Betty's Fen
<i>Ptilium affine</i>	A feather-winged beetle	RDBK	Not yet evaluated	Betty's Fen
<i>Vertigo moulinsiana</i>	Desmoulin's Whorl Snail	none	Vulnerable	Betty's Fen

6.2 The Species Accounts

Individual accounts are provided below for each Nationally Scarce, Nationally Rare and IUCN Threat status species recorded during the 2021 survey.

Wetland Aquatic/Semi-aquatic Species

Clemnius decoratus – a diving beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This small predatory beetle is found in shallow ponds and drains. Its distribution extends somewhat patchily, from the south coast of England up to Yorkshire, and includes Wales. On the 2021 survey a specimen was netted by SL from the shallow water margin at Betty's Fen on April 26.

Enochrus nigrinus – a water scavenger beetle

Status: Nationally Scarce (NS), IUCN Near Threatened

This is a small brownish water beetle with a very narrow dark longitudinal stripe along the elytral suture. It occurs in mesotrophic and base-rich fens in lowlands. An egg-case is produced, sometimes under water, and larval development may last between one and two months. Adults feed on algae and decaying plants whereas the larvae are predators. Adults are found throughout the year but are most numerous in April, July and September. *E. nigrinus* has been recorded since 1980 from Hampshire, Sussex, Berkshire, Oxfordshire, Suffolk, Norfolk, Cambridgeshire, Huntingdonshire, Herefordshire, Anglesey and Cheshire. The species is particularly well-represented in East Anglian fens. Earlier records

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add Essex, Surrey and Hertfordshire. On the 2021 survey, individuals were netted by SL from the shallow water margin at Betty's Fen on April 26 and collected at an MV light trap at Hinderclay Fen lichen heath annexe on September 7.

Enochrus quadripunctatus – a water scavenger beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This is a slightly larger species than the last, but identical in form. It has a characteristic dark patterning on the thorax consisting of a large central dark area with four small satellite spots. The beetle occurs in lowland, base-rich stagnant water with some exposed mineral substrate and also in mesotrophic fens. An egg-case is produced, sometimes under water, and larval development may last between one and two months. Adults feed on algae and decaying plants whereas the larvae are predators. This species has expanded its range recently. It is found mainly in eastern Britain, in most counties from East Sussex northwards to two sites in Scotland, with most records centred around London and East Anglia. It is also found in Wales. At the LOHP site, the species was recorded in 2021 by netting in the main turf pond at Hinderclay Fen cut reed-bed area on March 29 and another individual was collected at an MV light trap positioned on the lichen heath area at Hinderclay Fen, on September 7.

Hydrochus crenatus – a hydrochid beetle

Status: Nationally Scarce (NS), IUCN Near Threatened

This small brown elongate water beetle occurs mainly at the mossy edges of fluctuating ponds and in rich fens. The life-cycle of this species is unknown but adults are commonest in the spring and autumn. *Hydrochus* species are aquatic as adults and larvae, but do not swim. In Britain, recent records are from Kent, Norfolk, Cambridgeshire, Huntingdonshire, Northamptonshire, Lincolnshire and Yorkshire. The species has strongholds in the Woodwalton Fen area and in Breckland. On the 2021 survey, a single adult was collected from the shallow margins of the main inundation in the cut reed-bed area of Blo' Norton Fen on April 26 by SL.

Hydrochus elongatus – a hydrochid beetle

Status: Nationally Scarce (NS), IUCN Near Threatened

This small elongate water beetle has been recorded very locally in England and Wales where it can be found in lowland fens and marshes, in shallow well-vegetated water. There is possibly a strong association with reed-bed habitats. Adults apparently feed on algae. On the 2021 survey, a single adult was collected from inundated carr at Blo' Norton Fen on May 10 by SL.

Hydrophilus piceus - Great Silver Water Beetle

Status: Nationally Scarce (NS), IUCN Near Threatened

This unmistakable beast of a beetle is most commonly associated with heavily vegetated drains in grazing marshes near the coast. The larvae are predatory on water snails. The presence of the species in a district is usually evidenced by the appearance of adults at light traps, sometimes in numbers. Nationally, the species is well-established in Somerset, the East Anglian Broads and the Kent, Essex and Sussex coastal levels. There is some indication that it may be increasing in range in East Anglia, as, for example, it has recently been turning up regularly at light traps in West Norfolk. On the 2021 survey, at least two individuals visited light traps on September 7 at Hinderclay Fen lichen heath and annexe heath. The immediate habitats in both cases are devoid of water, so the origin of the specimens is unknown, but it seems fair to speculate that they may have come from LOHP pools nearby.

Limnebius aluta – a moss beetle

Status: Nationally Scarce (NS), IUCN Near Threatened

This minute water beetle is associated with high quality relict fen where it can be found by 'puddling' the margins of pools and ditches. It inhabits the shoreline, shallow water and draw-down zones. Its small size makes it easy to overlook, but despite the possibility of under-recording, it appears to be genuinely scarce with a restricted and decidedly patchy distribution in England and Wales (Anglesey only). In East Anglia, its British stronghold, it is well-represented at fen and pingo sites in particular. On the 2021 survey, SL recorded two individuals at the edge of the cut fen inundation at Blo' Norton Fen on March 29.

Nemoura dubitans – a stonefly

Status: Nationally Rare (NR), IUCN Least Concern

This species develops in seepages flowing through well-vegetated wetland habitat. Macadam (2015) upgraded the species' British Rarity status from Nationally Scarce to Nationally Rare on the basis of there being only fourteen modern records, although NBN appears to show more than this and the lead surveyor is familiar with the species from a number of sites. It is distributed very locally in England and has also been recorded from Wales and Scotland. On the 2021 survey, adults were found at various sites within the complex, mainly netted by AB; Hinderclay Fen ringing rides

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and cut reed-bed area, the woodland block at the south-western edge of Hinderclay Fen and Blo' Norton Fen, from visits in March, April and May.

Wetland Terrestrial Species

Allomengea vidua – a money spider

Status: Nationally Scarce (NS), IUCN Least Concern

This is a minute predator of low altitude wetland habitats including marshes and fens. It occurs throughout Britain, but only sparsely in Scotland and in the most southern counties of England. It may have undergone decline in recent decades, although this hasn't been significant enough to warrant a threat status designation under IUCN criteria. Adults have been recorded between July and November. On the 2021 survey, SL recovered two individuals from pitfall traps located in the reed-beds at the bird-ringing site at Hinderclay Fen on September 7.

Acalyptus carpini – a weevil

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated

This small grey weevil is a phytophage on *Salix* and is associated almost exclusively with fen sites across East Anglia, its main area of distribution. It has also been recorded elsewhere in southern England (e.g. south coast, south and east midlands) and Wales, but it is scarce in these regions. Adults overwinter and have been recorded in most months of the year. At the LOHP site in 2021, individuals were beaten off willows at Betty's and Blo'Norton Fens during visits in April, May, June and July.

Aphrophora major – a frog hopper

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated

This is a large brown frog hopper, which in the literature is supposedly associated with bog myrtle *Myrica gale*. However, it has been widely reported from wetland sites where the food-plant is absent. At these localities, the bug has been swept or beaten off willows *Salix*. Many of the records appear to come from bogs or wet heaths. The larvae produce spittle as a protective covering during their development. This insect is widespread but localised in Britain, being found primarily in East Anglia and in localised 'pockets', from north Warwickshire across to Shropshire, in Yorkshire, around Dorset and Hampshire and in Devon and South Wales. Adults have been recorded between June and September. At the LOHP site in 2021, a single adult was swept by SL in the open cut-reed-bed area of Blo' Norton Fen on August 30.

Atomaria zetterstedti – a silken fungus beetle

Status: Nationally Rare (Red Data Book RDBK), IUCN status not yet evaluated

This is a small nondescript orange-yellow beetle which is usually found in association with willows in wetland habitats, including pingo sites, fens, marshes and river margins. The adult beetles are normally recorded between April and August, by beating willow branches, effectively dislodging them from catkins on which they're known to feed. They have also been found by sieving leaf litter at the base of willows. Its British distribution appears to be restricted to the area south of an imaginary line drawn from The Wash in the east to The Severn estuary in the west and within this range, it seems to be largely eastern. In East Anglia it is occasional. On the 2021 survey, SL recorded adults in the carr areas of Blo' Norton Fen, by beating and sweeping willows on June 7 and July 15.

Badister dilatatus – a ground beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This small black ground beetle is found in a variety of habitats at the shaded margins of freshwater, often amongst sedges, bulrush or reed. It is predatory as larva and adult. The beetle is widespread but local in the southern half of England with a distinct bias for East Anglia and the south coastal fringe. At the LOHP sites in 2021, an adult was sieved from vegetation heaps at Blo' Norton Fen cut reed-bed area on February 17 by SL and another was collected at Betty's Fen on April 26.

Biblopectus tenebrosus – a pselaphiine rove beetle

Status: Nationally Rare (Red Data Book RDBK), IUCN status not yet evaluated

This minute beetle is associated with wetland, including fens and marshes, where adults frequent mosses, wet plant litter and heaps of decaying vegetation. The adults are probably predatory on mites. The beetle is highly localised in its distribution in England and Wales. In fact, Hyman (1994) cites very few localities for the species; New Forest, Woodwalton and Holme Fens, Hickling Broad, Crymlyn Bog, Borth Bog and Askham Bog. Undoubtedly there will

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have been further records. SL has recorded the species at two sites: Broadlands Country Park, East Norfolk, April 2021 and on the LOHP 2021 survey, the latter by sieving wet litter at the reed-bed ringing rides at Hinderclay Fen on April 26.

Carpelimus similis – a rove beetle

Status: [Nationally Scarce (Notable), IUCN status not yet evaluated]

This is an elongate rove beetle that is usually found in the draw-down zones of freshwater habitats such as pools and the banks of slow-flowing rivers, streams and ditches. There are also a number of records of the species at MV light traps. Its distribution is very local in England and Wales, although it is likely to be under recorded. The forthcoming (as yet unpublished) IUCN Review of the larger rove beetles relegates this species such that it has no British Rarity status, which indicates that it has either been found since 1990 in more than 100 hectads of the National Grid, or that it is expected to occupy this area (A. Drewitt *pers comm.*). On the 2021 survey, SL collected an adult at one of the light traps at Hinderclay Fen lichen heath on September 7.

Cercyon bifenestratus - a water scavenger beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This is a small rotund and convex beetle which has black wing cases with pale apices. It requires flooded and exposed substrates; usually sand or mud with a small amount of organic debris, and it can be found in a variety of habitats including gravel pits and quarries. The species is recorded throughout much of south and central England, but with a marked bias for central and eastern parts of the country. At LOHP in 2021, SL sieved a specimen from wet litter in the ringing rides at Hinderclay Fen on July 21.

Contacyphon pubescens – a marsh beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This small pale brown, soft-bodied beetle is associated with ponds, bogs and other wetland habitats. Adults occur amongst herbage and have been recorded in most months of the year, hibernating in the adult stage. The larvae are semi-aquatic, living in saturated vegetation in the field ground layer. The species is widely but locally distributed in England and Wales with a range that extends northwards to Easternness in Scotland. At the LOHP site in 2021, an adult female was swept from vegetation on the west side of the most easterly boardwalk at Blo' Norton Fen on May 10.

Cypha discoidea – an aleocharine rove beetle

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated.

This minute rove beetle is typical of wetland habitats such as fens and marshes, where it is perhaps most commonly encountered by sieving wet reed and sedge 'litter' or wet decaying heaps of cut vegetation. Adults are found in most months of the year and it is distributed locally in England and has also been recorded in Wales. On the 2021 survey, the species was recorded from Hinderclay Fen ringing rides in the reed-beds on April 26 by SL.

Dacrila fallax – an aleocharine rove beetle

Status: Nationally Scarce (Notable), IUCN status not yet evaluated

This small brown rove beetle is associated with wetland habitats where it is most often recorded in wet reed-bed litter. It has a wide distribution which extends from southern England north to Yorkshire. It has also been recorded from Wales. On the 2021 survey, a single female was sieved from cut reed heaps at Betty's Fen by SL on March 1.

Dochmonota clancula – an aleocharine rove beetle

Status: Nationally Scarce (Notable), IUCN status not yet evaluated

This minute black rove beetle is sometimes present in numbers in wet litter and vegetation debris at the margins of pools, pingos and other inundations. It has a widespread distribution throughout England and has possibly also been found in Scotland. On the 2021 survey, SL sieved an adult from cut reed heaps at Betty's Fen on February 17 and MJC extracted specimens by Tullgren funnel extraction from a sample of vegetation from the same heap on March 1.

Dorytomus filirostris – a weevil

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated

This is a moderately sized weevil of wetland and fen habitats, where it is associated with black and Italian poplars upon which it feeds. The larvae develop in the catkins. Adults have been recorded from May to September. The species is widespread but local in central and eastern England. At the LOHP site, the species was not recorded during the 2021 survey, but is included here on the basis of a record by the survey team from June 1, 2020 when it was found at Blo' Norton Fen.

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Elodes elongatus – a marsh beetle

Status: Nationally Scarce (NS), IUCN Least Concern

The adults of this wetland species are mainly recorded between May and July when they can be beaten off tree and shrub foliage overhanging or close to water courses. The larvae which have not yet been described, are almost certainly aquatic and probably develop over at least a two year duration whereas the adults, by comparison are very short-lived. The beetle is widespread but locally distributed in suitable habitat throughout Britain. On the 2021 survey SL beat males off riverside and carr vegetation at the south edge of Blo' Norton Fen on May, June and July visits.

Heterocerus fuscus – a variegated mud-loving beetle

Status: [Nationally Rare (NR), IUCN Vulnerable]

Like the other members of this genus, the present species is most easily observed in the field by splashing water onto bare muddy margins of pools, at which point the beetles rapidly emerge from their burrows in the mud and usually take flight. This particular species was until recently, believed to be restricted to the seepages at the base of coastal cliffs on the Isle of Wight until this author and a colleague noticed that they were finding the species in inland counties at actinic light traps. Thus the distribution of the species has been greatly misunderstood and inland records have undoubtedly been passed off by many, as aberrant dark-legged examples of the related *H. fenestratus*. Both the British Rarity and IUCN statuses of *H. fuscus* are therefore in need of re-evaluation and are very likely to be removed. At the LOHP sites in 2021, the only record was of a single individual collected from one of the light traps at Hinderclay Fen lichen heath annexe on September 7 by SL.

Melanapion minimum – Sallow Guest Weevil

Status: Nationally Rare (Red Data Book RDB3), IUCN status not yet evaluated

This small black phytophagous weevil is associated with *Salix* species, both broad and narrow-leaved types, in wetland and fen habitats. The larvae are inquiline in the galls of sawflies of the genus *Pontania*, hence the vernacular name. The weevil is widely distributed but very highly localised in England and Wales. The majority of records are clustered in the fen regions of East Anglia where it can be found with some reliability. At the LOHP site in 2021, individuals were beaten or swept off willows at Betty's Fen on June 7 and at Blo' Norton Fen on May 10 and July 17.

Microptilium palustre – a feather-winged beetle

Status: Nationally Rare (Red Data Book RDBK), IUCN status not yet evaluated

This minute wetland beetle is around 0.7mm in length and easily overlooked. It was added to the British list as recently as 1977 when it was found in sedge litter at Wicken Fen, Cambridgeshire. This was possibly the only known British location until SL sieved specimens from the litter heaps at LOHP Betty's Fen, TM015790, on February 17. Further specimens were found by MJC by the same method and at the same site on March 1 on a return visit with SL. The significance of this discovery is of similar magnitude to that for *Ptilium affine*. The presence of several individuals indicates that the species is well-established at the site, possibly only the second locality known in Britain.

Neophytobius muricatus – a weevil

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated

This small grey weevil is associated with wetland habitats including fens, marshes and wet meadows. There is uncertainty about its food-plant, although marsh cinquefoil *Comarum palustre* and amphibious bistort *Persicaria amphibia* are mentioned in Duff (2016). Nationally the species is very locally distributed in England and Wales, although it is relatively well-represented in East Anglian fen sites. Adults are most frequently recorded between April and September. On the 2021 survey, SL found a single individual at Betty's Fen by sieving wet litter on August 30.

Oodes helopioides – a ground beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This is an unmistakable ground beetle, resembling *Amara* in its ovoid shape, but having a more depressed and purely black appearance. It is unique amongst ground beetles in having an amphibious habit. The adult beetles can forage underwater and are thus semi-aquatic, yet they are most often observed by the recorder through sieving waterside vegetation and tussocks. As a wetland inhabitant, the beetle is most frequently associated with fens, grazing marshes, wet heaths, water meadows and pingos. The species is widespread but very locally distributed in England and Wales, with reports also from Scotland. Adults have been recorded throughout the year. At the LOHP site in 2021, individuals were recorded by SL on April 26 at Blo' Norton Fen, at the edge of the inundation in the cut reed-bed area, and on August 30 at Betty's Fen in similar habitat.

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Oxytelus fulvipes – an oxyteline rove beetle

Status: Nationally Scarce (Notable A), IUCN status not yet evaluated

This small elongate predatory rove beetle is typically found in wetland habitats such as marshes, fens and bogs with carr and shaded ditches, where the habitat is undisturbed and the water levels fluctuate periodically. In Britain it is widely distributed in England and south Wales but is nowhere common. Adults have been recorded in most months of the year. On the 2021 survey, a single adult was found on May 5 at Blo' Norton Fen.

Paralimnus phragmitis – a leafhopper

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated

As its specific name suggests, this small but attractively-marked leafhopper is associated with reed-beds. Adults have been recorded between June and October, mainly by sweeping common reed *Phragmites australis*. Its distribution in England and Wales is decidedly localised, with clusters of records in south Wales and East Anglia (more generally). On the 2021 survey, SL swept several adults from both open cut fen areas of Betty's and Blo' Norton Fens on August 30.

Phylidorea abdominalis – Dimorphic Longtail

Status: Nationally Scarce (Notable), IUCN status not yet evaluated

Though found through Great Britain, this Limoniid crane fly is a very local species, associated with wet fen peat. Records come from Dartmoor, The New Forest, East Anglia, East Yorkshire, Cumbria, west Wales and the Scottish Highlands. It is most often found in the shade of scrub or trees, especially where small patches of bare peat are exposed. A summer species, it flies from June through until September. On the 2021 survey, two males were swept at Blo' Norton Fen in the open cut reed-bed area on May 10 by SL.

Pirata piscatorius – a wolf spider (Fig. 10)

Status: Nationally Scarce, IUCN Least Concern

This relatively large and distinctive semi-aquatic spider is associated with open water where it predated other invertebrates. The females have been observed to ambush prey from a silken vertical tube submerged in water. The species has a highly localised and patchy distribution in England and Wales, and is also recorded from Scotland. In East Anglia, it is regularly recorded in quality fen and pingo sites. On the 2021 survey, adults were observed and photographed at Betty's Fen and Blo' Norton Fen open areas, on April 26 and an adult was also found in the general area of Blo' Norton Fen in an open willow carr pool on May 10.

Pseudomedon obsoletus – a rove beetle

Status: Nationally Rare (Red Data Book RDBI), IUCN status not yet evaluated

This small elongate black rove beetle is a predator of other small invertebrate life stages, in wetland habitats that include fens. Adults have been found in most months from October through winter to April and are perhaps most frequently found by sieving wet litter and heaps of decaying vegetation such as cut reed and sedge. The species is very locally distributed in southern England north to Norfolk. The NBN Gateway shows records also for northern England although it is likely that some or all of the records may be in error for a very similar species with which *P. obsoletus* can be confused. Lott & Anderson (2011) stated that it was in decline. On the 2021 survey, an adult was sieved from a reed heap at Betty's Fen by MJC on March 1.

Ptilium affine – a feather-winged beetle

Status: Nationally Rare (Red Data Book RDBK), IUCN status not yet evaluated

This is a minute species measuring a mere 0.7mm in length. Duff (2012) describes it as being associated with damp litter or possibly dung in fens. He states that adults have been recorded in May, July and August. The classic site for this beetle is Wicken Fen in Cambridgeshire where there is a degree of record continuity, the species having been recorded from here in the 19th Century, and in 1972 and 2007. Other records historically come apparently from East Gloucestershire and, rather vaguely in the literature, 'Norfolk'. Despite the species almost certainly being overlooked to some extent, due to its small size, it is nonetheless evidently a genuine rarity. At the LOHP site in 2021, four specimens (2m2f) were sieved from the litter heaps at Betty's Fen, TM015790 and MJC found further specimens both by sieving the same litter heap at Betty's Fen on March 1 and by Tullgren extraction of a heap sample from that date and location. Clearly the species is well-established at the site. These discoveries collectively represent the second and consecutive county records for West Suffolk, the first being a singleton found at Parker's Piece by MJC in 2019 and documented both in that report and in a published note (Collier, 2020).

Rugilus angustatus – a rove beetle

Status: Nationally Scarce (Notable), IUCN status not yet evaluated

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This is a distinctive and attractively coloured medium-sized rove beetle. It is associated primarily with wetland sites such as fens and marshes, where it can be found by sieving heaps of cut reeds and sedge. However, it is also known from drier situations, for example in farmyard straw and haystack litter. It is almost always found in heaps of decaying vegetation. Adults have most frequently been found from August through to May. Although it is widely distributed in England and Wales, records come predominantly from the East Anglian fens. On the 2021 survey, the species was recorded from cut reed heaps at Betty's Fen on February 17 and March 29, from cut reed heaps at Blo' Norton Fen on February 17 and April 26 and from woodchip piles at Hinderclay Fen at the edge of the lichen heath area also on April 26.

Stenus circularis – a rove beetle

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated

This small black rove beetle is a predator on small soft-bodied invertebrates. Hyman (1994) and Lott & Anderson (2011) state that the beetle has a preference for dry grassland, heathland, quarries and coastal sands, but Denton (2013) describes it as 'Rare in litter amongst seasonally flooded wetlands especially on floodplains. An easily overlooked species possibly best located by sieving fen litter'. In East Anglia, it is known from at least three wetland sites. Its distribution in Britain is southern with a record from Wales and the rest in south and east England. Adults have been found in the field from February to May, July, November and December. At the LOHP site in 2021, a single adult was sieved from cut vegetation heaps at Betty's Fen on March 29 by SL.

Stenus palustris – a rove beetle

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated

This is a small elongate black rove beetle with large eyes and yellow and black legs. It is primarily found in fens but also recorded from marshes and bogs. The beetle is usually found amongst reed and sedge litter and can most often be observed by sieving wet vegetation and cut vegetation heaps. It is widespread but local in England and Wales, with a bias for the Norfolk Broads and the Cambridgeshire Fens. On the 2021 survey, adults were recorded from Betty's Fen cut vegetation heaps on February 17, from Blo' Norton Fen on May 5 and from the Hinderclay Fen ringing rides reed-beds on March 29 and again on April 26.

Temnocerus longiceps – a tooth-nosed snout weevil

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated

This metallic blue-black weevil is a phytophage on willows *Salix sp.* in a variety of habitats, but perhaps most frequently in marshes and fens. The larvae develop inside the leaf buds of the host tree. Adults have been recorded from April to September, but mainly in June and July. The species is widespread but locally distributed in England and southern Scotland. On the 2021 survey, a single adult was beaten off willows at the edge of the open cut fen area at Betty's Fen on July 15 by SL.

Vertigo moulinsiana – Desmoulin's Whorl Snail (**Fig. 4**)

Status: IUCN Vulnerable, BAP NERC s.41 'Species of Principle Importance in England'

This minute snail is associated primarily with open calcareous fen habitats, where it occupies rank vegetation next to areas of inundation. Nationally, it occurs from central southern England north/east to East Anglia with outliers in the Midlands, Wales and Cornwall. Significant declines across its range are the evidence for its designated IUCN status as 'Vulnerable'.

One specific aim of the survey was to rediscover this species at Betty's Fen, where it was last found in a 2012 survey by Abrehart Ecology (Abrehart, 2012). That survey identified the snail from sample sites close to the north edge of the open area, immediately east and west of the central walkway. Abrehart reported that the species occupied an area comprising some 15-20m² of that site and estimated a population density within one specific sample, of 'up to 900 animals per m²'. The survey noted that this result indicated that the population had expanded since 2010 when a similar survey was conducted by the same ecological consultants. His survey suggested that by increasing the water table at the site, the population might be enabled to expand to colonise new areas within immediate vicinity of the areas occupied in 2012.

It is unfortunate to have to report that the intervening years may have witnessed a significant decline in the population as searches were made for the snail on all visits to the site in 2021, but only on the August 30 visit was the team, accompanied by RL, successful in finding the species. Thus, only six individuals were found after three hours of fairly intensive searching, which involved sieving wet litter around turf ponds and inundations in the fen, and sweeping and tapping tall vegetation including *Phragmites* at the edges of the reed-beds. The fact that so few snails were found, when

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conditions were ideal for searching and in the appropriate season for the species, indicates that it has probably declined significantly at the site, but without any immediately obvious reason. There have been no pollution events, nor any change in management regimes and no grazing. However, there have been several significant winter floods across the area, most recently in December 2020, which may have contributed to a decline. This decline is mirrored across many of the species' haunts in England, hence its current IUCN status. Table 5 details the grid references and numbers recorded in the 2021 survey. However, one positive outcome of the 2021 survey was the discovery of the snail some 20 metres SW and 8-10 metres ESE of the formerly occupied areas on the west and east sides of the bund respectively.

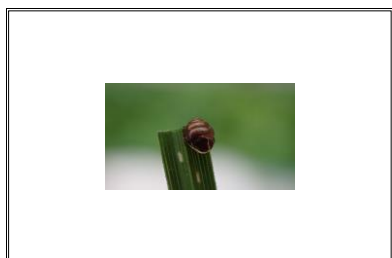


Fig. 4 Desmoulin's Whorl Snail at Betty's Fen

Table 5 Records of *Vertigo moulinsiana*, August 30, 2021, Betty's Fen (all adults)

Grid Reference	Abundance	Circumstance
TM01607908	2	Swept at edge of <i>Phragmites</i> reed-bed
TM01637908	1	Sieved from wet litter at edge of small pool
TM01607906	2	Swept from edge of <i>Phragmites</i> reed-bed
TM01587904	1	Swept from edge of <i>Phragmites</i> reed-bed

It is important that further survey work be carried out on the snail population at Betty's Fen, to monitor population levels and to attempt to understand what factors are influential on population dynamics at the site.

Lichen Heath/Heathland short-turf Species

Alopecosa cuneata – A wolf spider

Status: Nationally Scarce (NS), IUCN Least Concern

This moderately large predator is marked with a relatively distinct white longitudinal banding pattern on the abdomen. It is ground-dwelling and is typically associated with dunes systems and short-turf grassland in England and Wales. Regionally it is perhaps most frequent in the Breckland area of East Anglia. Adults are usually encountered in May, although they have been recorded between April and August. At the LOHP site in 2021, 20 adult males were recovered by SL from pitfall traps located on the lichen heath at Hinderclay Fen, on May 5. Surprisingly none were recorded at the nearby annexe heath location.

Alydus calcaratus – a true bug

Status: Nationally Scarce (NS), IUCN Least Concern

The nymphal stages, which bear a strong resemblance to ants, possibly develop in ant nests. The species is widely distributed through England and Wales, but within its range, it is very much habitat-restricted to areas of high insolation such as heaths, breck grassland and disturbed ground. Adults have been recorded in all months of the year. The bug is well-represented in East Anglia. On the 2021 survey, a single adult was recovered from a pitfall trap at Hinderclay Fen lichen heath by SL on September 7.

Amara lucida – a ground beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This small ovoid bronze ground beetle is most often encountered in coastal regions of England and Wales where it inhabits sandy areas such as dune systems and is also found on coastal shingle. There is however, a cluster of records from the Breckland region and environs in East Anglia and other scattered inland records, mainly in the east of England.

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The larvae are predatory, whereas the adults are phytophagous, feeding on seeds. At the LOHP site in 2021, a single adult was recovered from the Hinderclay lichen heath pitfall traps on June 14 by SL.

Apion rubiginosum – a seed weevil

Status: Nationally Rare (Red Data Book RDB3), IUCN status not yet evaluated

This small red weevil is one of several red species in the genus that inhabit short turf grassland where the food-plant sheep's sorrel *Rumex acetosella* grows. The larvae feed in galls at the roots of the plant whereas the adult stage feeds openly on the plant leaves. Unlike its closely related allies, *A. rubiginosum* is much more restricted in its distribution, being found only in lowland England and Wales and being largely coastal. The main exception is of a significant inland population across the East Anglian breckland region. On the 2021 survey, SL collected a specimen from a mercury vapour light trap at Hinderclay Fen main lichen heath on September 7.

Arenocoris falleni – Fallen's Leatherbug

Status: Nationally Scarce (NS), IUCN Least Concern

This is a ground-dwelling species that feeds on seeds of common stork's-bill *Erodium cicutarium* where the food-plant grows in sandy short turf grassland or on sparsely-vegetated ground on free-draining substrates. The species is most often encountered by searching beneath the basal rosettes of the plant or by pitfall-trapping in suitable habitat. Its distribution centres primarily on East Anglia, the south-east of England and coastal south Wales, although there are odd outlier records elsewhere in England and Wales. At the LOHP site in 2021, adults and nymphs were recorded under basal rosettes of common stork's-bill *Erodium cicutarium* on the Hinderclay Fen lichen heath main track, by SL and AB on July 21.

Arenocoris waltlii – Breckland Leatherbug (Fig. 8)

Status: Nationally Rare (NR), [IUCN Critically Endangered]

This flat brown leatherbug looks similar to a number of other species but can be reliably identified by the shape of the antennae and rugosity of the pronotum. It is found exclusively on sandy soils and sparsely vegetated ground, primarily in Breckland and dune systems. The food-plant is common stork's-bill *Erodium cicutarium*. The adults and nymphs can be found by searching beneath the basal rosettes of the food-plant and by pitfall-trapping. The species was thought to be extinct in Britain in 1964, but it was relatively recently rediscovered at a Breckland site in Suffolk (2011) and has since been found at other sites in the East Anglian Brecks and further afield (in Cambridgeshire for example). An increasing number of recent records indicates that the species is either expanding its range and abundance or that it has largely been overlooked at a number of suitable sites. However, it is true to say that it is still scarce in East Anglia and perhaps particularly so away from the Norfolk/Suffolk Breckland. The lead surveyor has recorded this species elsewhere as follows: West Norfolk; Brandon (2014), East Walton Common (2016), Massingham Heath (2019), Roydon Common (2018), West Acre rewilding site (2021), West Suffolk; Brandon (2014), and Cambridgeshire; Waterbeach barracks (2015). There are very few other recent records, including STANTA, Weeting Heath and Ken Hill rewilding site. On the 2021 survey, six adults were recovered from pitfall traps placed close to the food-plant on the lichen heath at Hinderclay Fen on June 14 and on July 21, the species was found by SL and AB nearby on the main track under leaves of the food-plant and in company with the previous species.

Cardiophorus asellus – a click beetle

Status: Nationally Scarce (Notable Nb), IUCN status not yet evaluated

This small elongate black click beetle inhabits sand dunes and also heathland and sandy areas inland. Adults and larvae possibly feed at the roots of plants, including heather. Its British distribution is in England and Wales where it is primarily coastal and local with a scattered distribution as far north as Anglesey in the west and Humberside in the east. The only inland records are west of the Thames estuary and the Breckland regions of East Anglia. At the LOHP site in 2021, a single adult was recovered from pitfall traps at Hinderclay lichen heath on May 5 and another was swept by AB at the Hinderclay Fen annexe lichen heath on June 7.

Cassida hemisphaerica – a tortoise beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This rounded, flattened green tortoise beetle inhabits grassland and coastal shingle where it feeds on berry catchfly *Cucubalus baccifer*, ragged-robin *Lychnis flos-cuculi* and campion *Silene sp.* Larvae and adults are free-living on the food-plant. It has a scattered distribution throughout England, Wales and into southern Scotland, with the main concentration of records in the south-east and south-west coastal counties of southern England. In East Anglia, it is very locally distributed with records mainly from the Breckland regions, north-west Norfolk and the coast. On the 2021 survey, a single adult was pitfall-trapped on the Hinderclay Fen lichen heath between and June 7 and 14.

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Chrysis illigeri - a cuckoo wasp

Status: Nationally Scarce (Notable Nb), IUCN status not yet evaluated

This is a small but highly attractive metallic pink and green cuckoo wasp or ruby-tailed wasp. It is found in open sandy habitats such as lowland heath, sand dunes, gravel and sand pits. Adults visit umbellifer flowers as well as hemp agrimony. The larvae are parasitoids on *Tachysphex pompiliformis*. The species is distributed south of a line drawn from the Wash to the Bristol Channel with the main clusters of records from the Dorset heaths, the Thames estuary and Surrey heaths and the East Anglian Breckland. On the 2021 survey, three adults were extracted from pitfall traps located at Hinderclay Fen lichen heath on June 14 and on the same date, three were found in traps at the nearby lichen heath annexe also.

Elachista consortella – Field Dwarf

Status: Nationally Scarce (Notable Nb), IUCN status not yet evaluated

The species is found on free-draining substrates; usually calcareous ground, where the larvae feed on leaves of annual meadow grass *Poa annua*. Adults are on the wing from March through to September and are attracted to light. Its British distribution is decidedly patchy away from the English south coast counties and the Thames Gateway, but it has been recorded from England, Wales and Scotland. In East Anglia it is very scarce; for example, there are only five known localities for the species in Norfolk where it was first recorded in 2020. The Hinderclay Fen specimen was collected from a light trap on the evening of September 7 in the main lichen heath area and identified (from a genitalia prep.) by JS.

Hippodamia variegata – Adonis Ladybird

Status: [Nationally Scarce (Notable B), IUCN status not yet evaluated]

This is a medium-sized brick-red ladybird with a varying number of black spots and characteristic black and white patterning on the thorax. Like most ladybirds, it is a predator of aphids. Its distribution extends throughout southern, eastern and central England as far north as Cumbria and Tyne and Wear. In Cornwall, Wales and Scotland it becomes rather more scarce. It was formerly only commonly found on the English coast, but since the 1980s, it turned up increasingly at inland post-industrial sites and other areas of short-turf grassland and disturbed grassland habitat, so although formerly considered Nationally Scarce, it is now so regularly encountered in suitable habitat, that it can only qualify as locally distributed at such time as its British Rarity status is re-evaluated. This beetle was not recorded during 2021, but is included here on the basis of a previous record by SL, from Hinderclay Fen on July 7, 2017.

Homoeosoma nebulella – Large Clouded Knot-horn

Status: Nationally Scarce (Notable Nb), IUCN status not yet evaluated

This is a moth of free-draining habitats including breck heath in East Anglia. The larvae feed on the flowers and seeds of various herbaceous plants which include tansy, spear thistle, ox-eye daisy and ragwort. Adults fly from June to September and are attracted to light. The species is distributed very locally in England as far north as Yorkshire and Lancashire and is also recorded from Wales. Its distribution has an eastern bias and the species is well-represented in East Anglia. At Hinderclay Fen, an adult was collected and identified by JS, from a light trap operated in the heathland annexe area on the evening of September 7.

Mantura chrysanthemii – a flea beetle (Leaf Beetle)

Status: Nationally Scarce (NS), IUCN Least Concern

This small heavily-bronzed flea beetle feeds on sheep's sorrel *Rumex acetosella* and is most frequently found in coastal short turf grassland, breck grassland and heathland and particularly in areas grazed by rabbits. Its distribution extends patchily through England and Wales, northwards into Scotland. In East Anglia, it is particularly well-represented. The species has a single generation each year, with the adults overwintering. On the 2021 survey, adults were pitfall-trapped in May and June on the lichen heath areas of Hinderclay Fen, and also in June, in the annexe lichen heath area.

Megalonotus praetextatus – a groundbug

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated

This is a distinctive medium-sized glossy dark ground bug with pale wing markings. It requires well-drained soils with a warm, sheltered aspect such as those in sand dune systems, gravel pits, sandy grasslands and the East Anglian Brecks. In such situations it is frequently associated with stork's-bill *Erodium*. Adults are active in the field between April and September. The bug is predominantly southern and coastal in south and east England and South Wales, but with inland records from the Breckland and other areas of southern England. At the LOHP site in 2021, four adults were recovered from pitfall traps at Hinderclay Fen main lichen heath on June 14 by SL.

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Megalonotus sabulicola – a groundbug

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated

This is a small nondescript brown ground bug with pale tibiae which is found in sandy habitats on sparsely-vegetated ground, most typically in breck grassland and disturbed sites. The food-plant is probably common stork's-bill *Erodium cicutarium*. The majority of records are from the English south coast, south-east England and East Anglia. On the 2021 survey, two adults were recovered from pitfall traps at Hinderclay Fen main lichen heath on June 14 by SL.

Ocypus nitens – a rove beetle

Status: Nationally Scarce (Notable A), IUCN status not yet evaluated

This large rove beetle is related to the devil's coach-horse, although it is smaller in stature. The species has an obscure ecology and has been recorded from both open and shaded habitats which include woodland, coastal shingle and quarries. A common requirement may be one of free-draining substrates. It is distributed very locally in England and has also been found in Wales and Scotland. On the 2021 survey, a single adult was recovered from a pitfall trap at the Hinderclay Fen annex lichen heath site on May 5.

Ocypus ophthalmicus – Blue Rove Beetle

Status: Nationally Scarce (Notable Na), IUCN status not yet evaluated

This is a very distinctive and large rove beetle with a strong blue reflection. It requires well-drained soils and is typically found in short turf breck grassland and dunes. The species is very locally distributed in England, and apparently is also known from Speyside. Its stronghold is in East Anglia, a region which accounts for the vast majority of British records. On the 2021 survey, a single adult was extracted from a pitfall trap at Hinderclay Fen lichen heath annexe on June 14 by SL.

Philanthus triangulum – The Bee Wolf

Status: [Nationally Rare (RDB2), IUCN status not yet evaluated]

This large wasp was previously a great rarity in Britain, but in the last few decades, it has expanded its range dramatically and is now found in suitable habitats across much of England and Wales. It is certainly no longer Nationally Rare. As its vernacular name implies, the species preys on bees, specifically the European Honey Bee *Apis mellifera* which the wasp stings and paralyzes and then deposits in the burrow egg chamber as a larder for its young. Adults nectar at a wide variety of flowers between early July and mid-September. On the 2021 survey, AB netted at least one individual at the Hinderclay annexe lichen heath site on July 21.

Podalonia affinis – Mud Wasp

Status: [Nationally Rare (RDB3), IUCN status not yet evaluated]

This species like the last, has expanded its range in recent decades, although unlike that species, it is still largely restricted to specific regions of England and Wales and is predominantly coastal, occurring mainly in dune systems. The exception to this pattern of distribution is the presence of a large population in the Breckland and surrounding regions of East Anglia where it can be found on heathland and occasionally in other habitats comprising disturbed ground. The females fly from the end of May until late September and the males, from June to August. The wasp digs a burrow and lays eggs in a chamber which then receives a single paralysed prey item as a food stock for the developing larvae. In this instance, the prey are normally noctuid moth larvae that have first to be dug out of the soil by the wasp. Adults are known to nectar on bramble and willow. At the LOHP site in 2021, a single male was extracted from a pitfall trap at Hinderclay Fen main lichen heath on June 14 by SL.

Saprinus aeneus – Bronze Mirror Clown

Status: Nationally Scarce (NS), IUCN Least Concern

This is a beetle of open habitats on free-draining soils, including sand dunes, breck grassland and heathland. It is almost always associated with carrion and dung. All active stages of the beetle predate the developing stages of other invertebrates in decaying organic material. Adults have been recorded between April and October. It is a widely distributed species Nationally, but has declined historically. Currently, it is most frequent along the coastal fringes of England and Wales, but it also maintains a significant stronghold inland in the Breckland region of East Anglia. On the 2021 survey, the beetle was recorded from the annexe lichen heath at Hinderclay Fen where SL sieved a singleton from a dead rabbit on June 7.

Spathocera dalmanii – Dalman's Leatherbug

Status: Nationally Scarce (NS), IUCN Least Concern

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This distinctive leatherbug is typically found in short turf habitats such as breck heath, grey dunes and sandy, rabbit-grazed acid grassland sites, where the nymphal stages feed on the stems of sheep's sorrel *Rumex acetosella*. The adults are ground-dwelling and are present in the field between mid-August and late May or early June. The species is currently undergoing significant range expansion and though once a rarity in Britain, confined more or less to the south and south-east coastal counties, it has spread northwards and is now present throughout much of East Anglia also. On the 2021 survey, adult singletons were recovered from pitfall traps at Hinderclay Fen main lichen heath and lichen heath annexe on May 5, followed by two adults in pitfall traps on June 14 and one on September 7, the latter two records, from the main lichen heath area.

Thyreocoris scarabaeoides – Scarab Shieldbug

Status: Nationally Scarce (NS), IUCN Least Concern

This very distinctive bronze, convex shield-bug lives in short sward grassland habitats such as quarries, sandpits, fixed dune, chalk downland and breck heath. It is most commonly found by sieving moss and litter or by pitfall-trapping in suitable habitat. The species is associated with violets *Viola sp.* At the LOHP sites in 2021, adults were found at the Hinderclay Fen main lichen heath on June 7 and again on June 14 on which date, four adults were found in pitfall traps. It is probable that the species feeds on Heath Dog Violet *Viola canina* at Hinderclay Fen.

Zelotes electus – a ground spider

Status: Nationally Scarce (NS), IUCN Least Concern

This spider is found at ground level in moss and litter. Its main habitats are dunes, sandy heaths and breck habitat and it is mostly restricted to coastal sites around Britain. Adults of both sexes are found mainly from late spring to mid-summer, but occasionally into the autumn. At the LOHP sites in 2021, the spider was recorded from pitfall traps positioned at Hinderclay Fen main lichen heath and lichen heath annexe on May 5 and June 14. At least 14 individuals were trapped.

Grassland/Verge generalist Species

Attactagenus plumbeus – a weevil

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated

This rotund brown weevil is a species of grassland in various habitats including arable verges, sandpits and coastal dunes. It is perhaps most commonly encountered in sandy districts. The larvae feed on the roots of a variety of herbaceous plants. Adults have been recorded between April and August. The weevil is widely but locally distributed in suitable habitat throughout England and Wales. On the 2021 survey, a single adult was swept in short grassland at Hinderclay Fen annexe lichen heath by SL on June 7 and another individual was recovered from pitfall traps there on June 14.

Coenonympha pamphilius – Small Heath Butterfly

Status: British Rarity – Least Concern, IUCN Vulnerable

The familiar Small Heath butterfly needs no introduction. It inhabits rough dry grassland and heath sites where its larvae feed on grasses, particularly bents and fescues. The adults flight period extends from mid-May to mid-September, with at least two generations produced annually. Small Heath was designated as Near Threatened at the time of the previous LOHP Invertebrate Survey in 2019, but has since been re-evaluated (2021) as Vulnerable, a designation that was predicted in the previous report but which has happened sooner than expected, due to continuing significant decline of the National population. On the 2021 survey, a single adult was recorded by AB at Hinderclay Fen main lichen heath area on June 7.

Oxystoma cerdo – An apionid weevil

Status: [Nationally Scarce (Notable B), IUCN status not yet evaluated]

This small grey-black weevil is distributed locally throughout Great Britain, but is perhaps most commonly encountered in the Midlands and the south-east. It is typically found in grassland, sometimes in tall herb communities within other habitats. The adults and larvae feed on vetches, particularly tufted vetch *Vicia cracca*, the larvae developing in the seed pods. Adults have been found between May and September. This species has increased in the last 20 years or so and it is probably no longer truly Nationally Scarce. At the LOHP site in 2021, adults were swept off the food-plant along the road verge at Blo' Norton Fen on June 7 and July 15 and the species was also recorded from Blo'Norton cut reed-bed site on June 7 and the woodland block in the south-western corner of Hinderclay Fen on May 10.

Phyllotreta cruciferae – a flea beetle (Leaf Beetle)

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Status: Nationally Scarce, IUCN Least Concern

This small, metallic flea beetle is difficult to identify. It is typically found on crucifers on arable margins and other recently disturbed and post-industrial sites. The adults feed openly on the foliage whereas the larvae are associated with the rootstock. The species is widespread if local, throughout England and Wales and has apparently also been recorded from south-west Scotland. At the LOHP sites in 2021, a single adult was swept along the river bank verge adjacent to the Hinderclay Fen ringing reed-beds on May 10.

Rhinocyllus conicus – a weevil

Status: [Nationally Scarce (Notable A), IUCN status not yet evaluated]

This medium-sized elongate grey weevil is found in grassland where it is phytophagous on spear thistle *Cirsium vulgare* and musk thistle *Carduus nutans*. The adults are active from April to September and are known to hibernate in the turf mat and under bark. Until relatively recently, this species was more-or-less confined geographically to the south coast of England, but it has since expanded its range significantly, colonising inland counties in England and is certainly increasing, so its 'Notable A' status is likely to be obsolete and requires re-evaluation. The species is found as far north as Yorkshire and has also been recorded in Wales. The species was not recorded during the 2021 survey, but is included here on the basis of a record by the team from Blo'Norton Fen on June 1, 2020.

Sunius melanocephalus – a rove beetle

Status: [Nationally Scarce (Notable), IUCN status not yet evaluated]

This colourful but small elongate predatory rove beetle is associated with open grassland habitats on damp soils, but is also found in drier short turf habitats in for example 'The Breckland region' of East Anglia. The adult has been recorded all year round. The species is widely distributed throughout central and southern England and Wales. At the LOHP site in 2021, an adult was sieved from cut vegetation heaps at Betty's Fen on February 17.

Syntomus truncatellus – a ground beetle (g)

Status: Nationally Scarce (NS), IUCN Least Concern

This small black predatory ground beetle inhabits open grassland sites such as grass verges, field edges and grey dunes. Its main area of distribution is in eastern England although it is distributed throughout England and Wales with scattered records north to Yorkshire and outliers in Scotland. At the LOHP site in 2021, eight adults were recovered from pitfall traps at Hinderclay Fen main lichen heath area and a single beetle, from pitfall traps at the annexe heath site, all on June 14.

Woodland dead wood and fungi Species

Abdera biflexuosa – a false darkling beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This small elongate and somewhat cylindrical beetle is mainly black, but characteristically patterned with transverse undulating yellow bars on the wing-cases. It is distributed throughout England as far as north-east England and is also found in Wales. The species is an inhabitant of ancient broad-leaved woodland, parkland, hedgerows and isolated trees. The larvae probably develop in twigs, with records from oak, ash and lime. Adults have been recorded from April to August. The species was not recorded during the 2021 survey, but is included here on the basis of a record by the team from Blo'Norton Fen on June 1, 2020.

Anaspis thoracica – a false flower beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This small testaceous beetle has been found increasingly frequently in midland regions and possibly no longer merits the rarity status of Nationally Scarce. Its distribution extends from the southern English counties north to Yorkshire and Lancashire and southern Scotland. It is associated with woodland habitats where the larvae develop in dead wood. Adults are most frequently observed by beating oak and other tree and shrub blossoms and by sweeping beneath trees, between May and September. On the 2021 survey, adults were recorded from an oak along the Blo' Norton Fen road verge on July 15 and another was found by sweeping in the 'oak pasture' at Hinderclay Fen (south-western woodland block) on July 21. The species was also recorded on June 1, 2020 from Blo' Norton Fen.

Diaperis boleti – a darkling beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This is a very distinctive convex black beetle with bright orange marks on the wing cases. It is found in birch woodland where the adults and larvae infest the birch polypore bracket fungus *Piptoporus betulinus*. It is primarily a species of

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east and south-east England, with its stronghold in East Anglia, but there are also isolated records from Nottinghamshire and Cumbria at least. On the 2021 survey, beetles were found in birch polypores in woodland adjacent to the Hinderclay Fen cut reed-bed area on July 21 and the beetle was also found in the south-western end woodland block at Hinderclay Fen on July 21.

Enicmus brevicornis – a minute brown scavenger beetle

Status: Nationally Scarce (Notable), IUCN status not yet evaluated

This dull brown elongate beetle is easily missed in the field because it is very sluggish and small. It occurs locally in England and Wales, where it is primarily found in ancient broad-leaved and pasture woodlands. It is usually encountered beneath bark where it feeds on moulds. In the last few decades, many records have come from sycamores where the beetle feeds on sooty moulds. Adults have been collected between May and August. On the 2021 survey, an adult was beaten off trees in the south-western woodland block at Hinderclay Fen on July 21.

Hallomenus binotatus – a polypore fungus beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This elongate brownish beetle usually inhabits pasture woodland and ancient woodland sites, but it can also be found on isolated trees in other habitats. It develops in bracket fungus on dead wood, and is typically found in *Polyporus*, *Trametes* and *Laetiporus*. The adults, which are active between May and September, can be attracted to light traps. Its distribution extends throughout England, Scotland and Wales. On the 2021 survey, an individual was collected by SL from a light trap at Hinderclay Fen main lichen heath on the evening of September 7.

Magdalis cerasi – a weevil

Status: [Nationally Scarce (Notable B), IUCN status not yet evaluated]

This dull black weevil is distributed locally throughout England and Wales where it occurs in woodland, scrub and hedgerows on oak and also on shrubs of the Rosaceae, particularly hawthorn. The larvae feed inside branches and dead twigs. Adults can be found between May and August. At the LOHP site in 2021, an adult was beaten off hawthorn at the edge of the main lichen heath at Hinderclay Fen on June 7.

Malthodes crassicornis – a soldier beetle

Status: Nationally Rare, IUCN Near Threatened

One of the greatest surprises of the 2021 survey was the discovery of this small dark soldier beetle, at Blo' Norton Fen. The species is usually associated with ancient wood pasture habitats and relict deciduous forests across lowland England. Typical sites are Epping and Windsor Forests and Grimsthorpe, Blenheim and Moccas Parks where the species develops in the heartwood of dead and dying old oaks. Adults are generally found by sweeping below the inhabited trees, from mid-May until late June. The imagos have been recorded away from larval development sites, and these are assumed to be dispersing individuals. Only eleven localities produced records of the species between 1980 and the assessment and evaluation of National data (Alexander, 2014), so this can be considered a genuine rarity, and, due to the continuing loss of habitat of old and ancient trees, its future conservation is of concern. During the 2021 survey, a single adult was beaten off willows along the north edge of the Little Ouse and south perimeter of Blo' Norton Fen, at TM019788 on June 9 by SL. This is the first recorded occurrence in Norfolk. By the time the specimen was identified in late June, it was too late in the species' season, to attempt to find others. It will therefore be important at some future time, to try to find out whether there is a population established at LOHP. The nearest possible habitat that is at all likely to support the beetle is the small area of 'oak pasture' in the furthest south-west corner of Hinderclay Fen.

Mordellistena humeralis – a tumbling flower beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This is a small orange-brown beetle that is characteristically convex with a distinctive elongated terminal abdominal segment and a jumping habit when captured. It is found in broad-leaved and pasture woodland where the larvae develop in dead wood or possibly also in plant stems. Formerly considered a rarity in Britain, it has recently enjoyed something of an expansion in distribution and is regularly encountered in south and south-east England at least, with confirmed records further afield from the southern Midlands and East Anglia. At the LOHP site in 2021, an adult was found by AB in the south-westernmost woodland block at Hinderclay Fen on July 21.

Mordellistena neuwaldeggiana – a tumbling flower beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This is a small orange-brown beetle that is characteristically convex with a distinctive elongated terminal abdominal segment and a jumping habit when captured. It was designated as a Red Data Book species in the 1990s because at that

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time, its distribution based on conclusive records, was restricted to a handful of southern and south Midland counties. It has in the last three decades, become increasingly frequent and is now widely distributed across midland and eastern England with records as far as Yorkshire in the north and into Devon and Wales in the west. The larvae probably develop in woody stems and the adults are often recorded visiting flowers or by general sweeping. In East Anglia, the species is well-represented. On the 2021 survey, the species was recorded from Betty's and Blo' Norton Fens on July 15 and from the main lichen heath at Hinderclay Fen on July 21.

Mordellistena variegata – a tumbling flower beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This is a small tumbling flower beetle that has a typically elongated terminal abdominal segment and a jumping habit when captured or disturbed. The beetle is a fuscous brown colour and is patterned with darker markings. The larvae develop in decaying wood. Adults are most often encountered visiting flowers such as umbellifers in and at the edge of 'wooded' habitats. The species is primarily distributed in midland, south-east and eastern England, being very scarce elsewhere in the country. Adults are active in the field between July and September. At the LOHP site in 2021, a single adult was recorded from Betty's Fen on July 15.

Oligota apicata – an aleocharine rove beetle

Status: Nationally Scarce (Notable), IUCN status not yet evaluated

This is a minute black rove beetle of woodland and pasture woodland habitats, where it is thought to prey on the larvae of minute tree fungus beetles and mites. It occurs on bracket fungi such as *Stereum*, *Trametes* and *Polyporus*. The beetle is widely but locally distributed throughout England and Wales, and has also been recorded from south-east Scotland. At the LOHP sites in 2021, adults were found in a birch polypore *Piptoporus betulinus* close to the woodchip piles at Hinderclay Fen main lichen heath on May 5 by SL.

Orthoperus nigrescens – a corylophid beetle

Status: [Nationally Scarce (Notable B), IUCN status not yet evaluated]

This minute brown beetle is found in woodland, often in association with decaying organic matter, such as fungoid wood. Adults have been recorded in most months of the year. The species is considered to be perhaps the commonest member of the genus with a widespread distribution, so its British rarity status is likely to be invalid (M.G.Telfer pers comm). At the LOHP site in 2021, the beetle was recorded from the woodland block at the south-western edge of Hinderclay Fen, where three adults were beaten off an ivy-covered oak trunk on May 10 and one was beaten off dead pine branches on July 21.

Pityogenes trepanatus – a bark beetle

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated

This small black bark beetle inhabits the bark and smaller branches of conifers, particularly Scot's pine and Norway spruce and fir. Adults have been recorded in February, April, May, July, September and October. Hyman (1992) suggested that the species was probably only truly native to Scotland, but had been found in southern England and East Anglia also. The NBN Atlas indicates that there has been further spread of the species since, west into Wales. On the 2021 survey, SL collected an adult from an MV light trap at Hinderclay Fen main lichen heath on September 7. The origin of the specimen is unknown and is perhaps unlikely to be part of the LOHP site complex as there are no conifers in close proximity to the trap locations on LOHP land. Conifers are however present some 400-500 metres to the south and east of the heath.

Platyrhinus resinosus - Cramp-ball Fungus Weevil

Status: [Nationally Scarce (Notable B), IUCN status not yet evaluated]

This is a large and unmistakable beetle that is cryptically-coloured for camouflage against the bark of stumps and logs. It inhabits broad-leaved woodland, isolated trees and hedgerow habitats where it is associated with *Daldinia* (King Alfred's cakes) fungus on ash. Adults have been found in hibernation beneath bark in the winter. Their main period of activity is between April and July when they are usually noted walking on trunks and logs. Its main distribution occurs in a broad swathe from Somerset eastwards through the Midland counties into Yorkshire, but there are scattered records elsewhere in England and Wales. The species has expanded its range in recent decades and is now thought to occupy more than 100 hectads of the National grid. Thus, its Nationally Scarce status requires re-evaluation (Mark Gurney pers comm.). At the LOHP site, an adult was recorded from Betty's Fen on May 10.

Scaphisoma boleti – a scaphidiine rove beetle

Status: [Nationally Scarce (Notable B), IUCN status not yet evaluated]

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This is a small nondescript beetle of broad-leaved and pasture woodland where it can be found in association with fungi on dead wood. Adults have been recorded in most months of the year. The species is widespread but local in England and Wales, and has also been recorded in Scotland. The forthcoming IUCN Review of the larger rove beetles relegates this species such that it has no British Rarity status, which indicates that it has either been found since 1990 in more than 100 hectads of the National Grid, or that it is expected to occupy this area (A. Drewitt *pers comm.*). On the 2021 survey, an adult was sieved from the cut reed heaps at Betty's Fen on February 17.

Woodland/Arboreal generalist Species

Cosmopterix zieglerella – Hedge Cosmet

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated

This small beautifully coloured micro-moth flies from May to July in hedge, scrub and woodland habitats where the food-plant hop *Humulus lupulus* grows. The larvae mine the leaves of the plant. The distribution of the species is primarily across south-east England and East Anglia, but it extends westwards along the English south coast and there are outlier populations in midland England. At the LOHP site, larval leaf mines were located by JS in the food-plant at Betty's Fen on September 7.

Cypha pulicaria – an aleocharine rove beetle

Status: Nationally Scarce (Notable), IUCN status not yet evaluated

The taxonomy of this species has been much confused. It is a minute dark brown beetle which is almost always found in association with trees. Typically it can be beaten from boughs of oaks, elms, sycamores and others, but its specific requirements are not known. The species is very locally distributed throughout England and Wales, and due to its small size and the difficulties of identification, it is likely to be significantly under-recorded. On the 2021 survey, adults were beaten off dead pine branches in the Hinderclay Fen woodland block at the south-western corner of the site on July 21.

Gonioctena decemnotata – a leaf beetle (Fig. 5)

Status: Nationally Scarce (NS), IUCN Least Concern

This attractively marked red and black leaf beetle is associated primarily with aspen in broad-leaved woodland and scrub habitat. The adults, which are found between April and August, and larvae, feed openly on the foliage. In suitable locations, populations can become quite dense. The distribution of the species extends from south-east England northwards into Wales and as far north as Scotland, although outside its main range in midland and south-east England, it is particularly scarce. In East Anglia it is a particularly scarce species. For example, in Norfolk, where it was last recorded at Lopham Fen, it has not been observed for several decades. On the 2021 survey, a single adult was beaten off aspens by SL next to the pathway at Hinderclay Fen Compartment A, on June 7. The specimen was photographed by AB and returned to the tree. No more were seen despite searching.

Lasius brunneus – Brown Tree Ant

Status: Nationally Scarce (Notable A), IUCN status not yet evaluated

First recorded in Britain in 1923, this small ant is readily identifiable by the pale brown head and trunk contrasting with the darker black-brown gaster (abdomen). It creates nests in old mature trees and also stumps etc in hedgerows. It is perhaps mainly associated with oak. The adults feed on honeydew collected from large tree aphids although they may supplement this with small invertebrates. It has only been recorded from southern and central English counties, from Essex to Shropshire. At the LOHP site in 2021, the ant was found to be frequent in the woodland block at the south-western corner of Hinderclay Fen, where it was recorded on May 10 and July 21.

Magdalis carbonaria – a weevil

Status: Nationally Scarce (Notable B), IUCN status not yet evaluated. This is a medium-sized black weevil of woodland, scrub and commons, where it feeds on birch. The larvae feed internally in branches and dead twigs. Adults have been recorded from April to July. The beetle is distributed locally in England, Wales and Scotland. On the 2021 survey, an adult was tapped off birch in the Hinderclay Fen woodland block Compartment E on June 7 by AB.

Omalius rugatum – an omaliine rove beetle

Status: [Nationally Scarce (Notable), IUCN status not yet evaluated]

This is a small blackish rove beetle that is associated rather loosely with woodland habitats throughout England, Wales and Scotland. It has been recorded in many situations, but is perhaps most commonly found by sieving decaying vegetation heaps and other decaying organic plant and fungal matter. Adults have been recorded in all months of the

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year. The forthcoming (as yet unpublished) IUCN Review of the larger rove beetles relegates this species such that it has no British Rarity status, which indicates that it has either been found since 1990 in more than 100 hectads of the National Grid, or that it is expected to occupy this area (A. Drewitt *pers comm.*). On the 2021 survey, an adult was sieved by SL from woodchip piles at the edge of Hinderclay Fen lichen heath on May 5.

Stathmopoda pedella – Alder Signal

Status: Nationally Scarce (Notable Nb), IUCN status not yet evaluated

This very distinctive micro-moth is found in alder carr, often in marshes and fens. The larvae feed in the cones of alder and also grey alder (in parkland) and produce a characteristic orange frass. Adults are recorded from June to August and predominantly in July. The moth has a patchy distribution throughout England, being more commonly encountered in the south and south-eastern part of its range. It is well-represented in East Anglia. On the 2021 survey, several adults were beaten off alder at Betty's Fen on July 15.

Tipula helvola – Small-tailed Long Palp

Status: Nationally Scarce (Notable), IUCN status not yet evaluated

This relatively small crane-fly of the *Tipula* genus is a yellowish-brown species that is widespread in southern England, northwards to Lincolnshire, through the Midlands and into north Wales. It is generally scarce, though it can occasionally be numerous in areas with dry soils, notably in the Weald and East Anglia, where dry woods on heathland or chalky soils appear to be favoured. It flies in July and August. On the 2021 survey, single adult females were swept from Hinderclay Fen main lichen heath area and from the lichen heath annexe site on July 21 by AB.

Non-habitat Specific Species

Anthocomus fasciatus – a soft-winged flower beetle

Status: Nationally Scarce (NS), IUCN Least Concern

The ecology of this beetle is obscure. It has been found in a variety of habitats including woodland, gardens and fens, between March and September. The likelihood is that, along with other allied species, it develops in the stems of larger plants of rank grassland and verge habitats, but a possible association with dead wood as a saproxylic species, cannot be ruled out. The beetle is locally distributed in central and south-east England and even more-so in south-west England and Wales. At the LOHP sites in 2021, an adult was swept at the Hinderclay Fen main lichen area on June 7.

Dermestes murinus – a hide beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This species plays a vital role in the late-stage decay of carcasses as the larvae (in particular) feed on the dry tissue, skin, feathers and hide. It occurs in the carrion of mammals, birds and fish. The larvae have also been found in nests of predatory birds. The beetle is widespread throughout England and Wales, but is perhaps declining except in East Anglia where it can still be found commonly. On the 2021 survey, the beetle was recorded from the annexe lichen heath at Hinderclay Fen where SL sieved a singleton from a dead rabbit on June 7.

Nicrophorus interruptus – Interrupted Burying Beetle

Status: Nationally Scarce (NS), IUCN Least Concern

Like most of the species in the genus, this is a large and distinctively-marked orange and black-banded beetle that develops in decaying carrion. The adults, which are strong fliers and highly mobile, are most frequent in the field between July and September, although there are records from most months of the year. It appears to be non habitat-specific, although there may be an association with free-draining substrates (the species buries carcasses to provide food for its larvae). The beetle is widely distributed throughout England and Wales, but is most frequent south of an imaginary line drawn from The Wash in the east to The Severn estuary in the west. On the 2021 survey, SL collected a single adult from a mercury vapour light trap at Hinderclay lichen heath on September 7.

Sepedophilus lusitanicus – a tachyporine rove beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This is a mycophagous species found in a variety of habitats at ground level, including woodland, pasture woodland and parkland, fen and other wetland habitats. Adults have been collected specifically from rotten wood, tree-associated bracket fungi, under and in logs, in leaf litter, moss and grass tussocks. It has been recorded also from pitfall traps in coastal shingle, from *Phragmites* litter heaps in fen habitat and dune slacks and from a mouse nest in a sea defence grass bank. The literature associates the species with pine, but its occurrence is clearly not limited to coniferous dead

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wood. Its distribution takes in much of central and southern England and also Wales. Adults have been recorded in all months of the year. On the 2021 survey, SL sieved the species from cut reed heaps at Betty's Fen on February 17.

Tachinus flavolimbatus – a tachyporine rove beetle

Status: Nationally Scarce (NS), IUCN Least Concern

This small blackish rove beetle has a tapered abdomen and bright yellow margins to the fore-body. It is associated with open ground including gardens, fields, coastal habitats and the foreshore where it is found in a variety of decaying organic matter, including dung. Its British distribution is centred on south-east England and East Anglia. There are an increasing number of British records (well over 50), from West Norfolk, West Kent and Cambridgeshire. On the 2021 survey, an adult was sieved from woodchip piles at Hinderclay Fen at the edge of the lichen heath area on May 5.



Fig. 5 The leaf beetle *Goniocтена decemnotata*
Hinderclay Fen



Fig. 6 Notch-wing Button *Acleris emargana*, Betty's Fen



Fig. 7 Golden-haired Robberfly *Choerades marginatus*, Hinderclay Fen



Fig. 8 Breckland Leatherbug *Arenocoris waltlii*, Hinderclay Fen



Fig. 9 Heather Shieldbug *Rhacognathus punctatus*, Hinderclay Fen



Fig. 10 The wolf spider *Pirata piscatorius*, Blo' Norton Fen

6.3 BAP Priority Species (Research Only) Lepidoptera

A number of Lepidoptera species are of National BAP Priority (Research Only) status and as such they fall under the NERC Act 2006, legislation Section 41. Species “of principal importance for the purpose of conserving biodiversity” are covered under section 41, which requires that these species need to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity.

There is sometimes a misconception among Ecological Consultants that these BAP (Research Only) Lepidoptera species are highly significant in a conservation context. However, for the most part, they are not treated Nationally through formal individual Species Action Plans and are not intended to play a role in site protection. There is valid concern however, that these Lepidoptera have declined in the UK in the last 25 to 35 years, despite still being relatively common and widespread, so they are flagged as Priority BAP species to encourage awareness of their presence at sites and to promote recording and monitoring.

At the LOHP sites, in addition to Small Heath butterfly (which in any case merits far greater significance as an IUCN ‘Vulnerable’ species), eight moth species which fall into the BAP Priority (Research Only) category were recorded on the 2021 survey. They are; Blood-vein *Timandra comae*, Centre-barred Sallow *Atethmia centrago*, Dusky Thorn *Ennomos fuscantaria*, Grey Dagger *Acronicta psi*, Hedge Rustic *Tholera cespitis*, Mouse Moth *Amphipyra tragopoginis*, Rosy Rustic *Hydraecia micacea* and White-line Dart *Euxoa tritici*.

6.4 Analysis

Table 6 British Rarity-designated (Nationally Scarce and Nationally Rare) invertebrates recorded on the 2021 Survey, organised by site and compartment. Light trap catches of aquatic and wetland terrestrial species at Hinderclay lichen heath sites are not included.

Site	Aquatic	Wetland Terrestrial	Total Aquatic + Wetland	Short-turf Grassland/ Heathland/ Lichen Heath	Grassland generalist	Dead wood Specialist	Scrub & Arboreal generalist	Total Species recorded (all species)
Betty's Fen	1	16	17	0	1	4	2	408
Blo' Norton Fen M13 area	3	6	9	0	1	0	0	391
Blo' Norton	2	10	12	0	2	4	0	181

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Fen general carr								
Hinderclay main lichen heath	0	0	0	17	1	5	3	480
Hinderclay lichen heath annexe	0	0	0	10	2	0	1	225
Hinderclay ringing ride reed-beds	1	5	6	0	1	0	0	234
Hinderclay cut fen area	1	0	1	0	0	1	0	240
Hinderclay Woodland block	1	0	1	0	1	5	3	260

From Table 6 it is evident by comparing the total numbers of invertebrates with British Rarity status for each site, that the most significant wetland assemblage in terms of rarity is from Betty's Fen, although if we combine the totals for Blo' Norton Fen carr with the open area of Blo' Norton Fen, minus duplicated species in both areas, then a similar total (14) is achieved for that habitat block as a whole. Perhaps, unsurprisingly the wetland areas at Hinderclay were weaker in this respect, indicating that the quality of the fen here is relatively poor for scarce and rare invertebrates by comparison.

The main lichen heath area at Hinderclay Fen produced the highest total number of species recorded of all eight habitat compartments surveyed, and also an impressive 17 Nationally Scarce/Rare species associated with the open rabbit-grazed short turf habitat. The annexe being a much smaller example of this habitat unsurprisingly produced a smaller assemblage of associated rarities. This is an important habitat within the larger LOHP site complex, situated as it is outside the main Breckland region of East Anglia, yet proving to be an outlier of significance for its invertebrate fauna at least.

In terms of numbers, dead wood specialists (saproxylics) were nowhere as well-represented on the survey relative to the wetland and short turf assemblages, but it is worthy of note that Betty's and Blo' Norton Fens and the lichen heath area (due in part to light-trapping) at Hinderclay have totals that are similar to that of the main woodland block that was sampled in the survey (Hinderclay Fen Compartment E).

Table 7 shows the Pantheon analysis for habitat and assemblages

Table 7 Pantheon analysis results for Specific Assemblage Types ('SATs') at the LOHP site complex for Compartments A -H analysed individually, and also for Hinderclay Fen combined sites A-E and Betty's and Blo' Norton Fens combined sites F-H, showing the number of species representing that habitat sub-category as a percentage of that assemblage in the Pantheon database, the calculated SQI value and whether the analysis gives a favourable or unfavourable condition for that specific habitat to support the associated species assemblage.

Compartment	Broad biotope	Habitat	SAT	No. of species	% representation	SQI	Reported condition
A	open habitats		scrub-heath & moorland	18		5 156	Favourable
A	open habitats	short sward & bare ground	bare sand & chalk	17		4 259	Unfavourable
A	open habitats		scrub edge	15		7 120	Favourable
A	open habitats	short sward & bare	open short sward	13		6 123	Favourable

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Compartment	Broad biotope	Habitat	SAT	No. of species	% representation	SQI	Reported condition
		ground					
A	tree-associated	decaying wood	bark & sapwood decay	11		2 250	Unfavourable
A	open habitats		rich flower resource	8		3 100	Unfavourable
A	tree-associated	decaying wood	fungus fruiting bodies	4		4 250	Unfavourable
A	wetland	acid & sedge peats	reed-fen & pools	1 <1		400	Unfavourable
A			epiphyte fauna	1		5 100	Unfavourable
A	wetland	marshland	open water on disturbed mineral sediments	1		2 100	Unfavourable
A	wetland	acid & sedge peats	moss & tussock fen	1		2 400	Unfavourable
A	tree-associated	decaying wood	heartwood decay	1 <1		100	Unfavourable
B	open habitats		scrub-heath & moorland	14		4 121	Favourable
B	open habitats		scrub edge	10		4 100	Unfavourable
B	open habitats	short sward & bare ground	open short sward	8		4 138	Unfavourable
B	open habitats	short sward & bare ground	bare sand & chalk	7		2 229	Unfavourable
B	tree-associated	decaying wood	bark & sapwood decay	2 <1		100	Unfavourable
B	open habitats		rich flower resource	1 <1		100	Unfavourable
C	wetland	marshland	open water on disturbed mineral sediments	1		2 100	Unfavourable
C	wetland	acid & sedge peats	moss & tussock fen	1		2 400	Unfavourable
C	wetland	acid & sedge peats	reed-fen & pools	1 <1		400	Unfavourable
D	wetland	acid & sedge peats	reed-fen & pools	5		4 100	Unfavourable
D	open habitats	short sward & bare ground	open short sward	4		2 100	Unfavourable
D	tree-associated	decaying wood	bark & sapwood decay	3 <1		100	Unfavourable
D	wetland	marshland	undisturbed fluctuating marsh	3		8 100	Unfavourable

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Compartment	Broad biotope	Habitat	SAT	No. of species	% representation	SQI	Reported condition
D	wetland	acid & sedge peats	moss & tussock fen	2		4	250 Unfavourable
D	open habitats		rich flower resource	1	<1		100 Unfavourable
D	wetland	marshland	open water on disturbed mineral sediments	1		2	100 Unfavourable
D	open habitats		scrub edge	1	<1		100 Unfavourable
D	open habitats		scrub-heath & moorland	1	<1		100 Unfavourable
E	tree-associated	decaying wood	bark & sapwood decay	6		1	100 Unfavourable
E	wetland	acid & sedge peats	reed-fen & pools	6		5	100 Unfavourable
E	open habitats		scrub-heath & moorland	4		1	100 Unfavourable
E	open habitats		rich flower resource	4		2	100 Unfavourable
E	open habitats		scrub edge	2	<1		100 Unfavourable
E	open habitats	short sward & bare ground	open short sward	2		1	100 Unfavourable
E	tree-associated	decaying wood	fungal fruiting bodies	1		1	400 Unfavourable
E	wetland	marshland	open water on disturbed mineral sediments	1		2	100 Unfavourable
E	wetland	marshland	undisturbed fluctuating marsh	1		3	100 Unfavourable
E	wetland	acid & sedge peats	moss & tussock fen	1		2	400 Unfavourable
E	open habitats	short sward & bare ground	bare sand & chalk	1	<1		100 Unfavourable
F	tree-associated	decaying wood	bark & sapwood decay	15		3	140 Unfavourable
F	wetland	acid & sedge peats	reed-fen & pools	7		6	267 Unfavourable
F	wetland	acid & sedge peats	moss & tussock fen	5		11	340 Unfavourable
F	open habitats		scrub edge	4		2	100 Unfavourable
F	wetland	marshland	undisturbed fluctuating marsh	4		11	250 Favourable
F	open habitats	short sward & bare	open short sward	3		2	100 Unfavourable

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Compartment	Broad biotope	Habitat	SAT	No. of species	% representation	SQI	Reported condition
		ground					
F	open habitats		rich flower resource	3		1 100	Unfavourable
F	wetland	marshland	open water on disturbed mineral sediments	2		5 100	Unfavourable
F	open habitats		scrub-heath & moorland	2 <1		100	Unfavourable
F	tree-associated	decaying wood	fungal fruiting bodies	1		1 400	Unfavourable
G	tree-associated	decaying wood	bark & sapwood decay	28		6 122	Favourable
G	open habitats		rich flower resource	6		2 100	Unfavourable
G	open habitats		scrub edge	4		2 100	Unfavourable
G	tree-associated	decaying wood	heartwood decay	3		2 433	Unfavourable
G	tree-associated	decaying wood	fungal fruiting bodies	3		3 100	Unfavourable
G	wetland	marshland	undisturbed fluctuating marsh	3		8 300	Unfavourable
G	wetland	acid & sedge peats	reed-fen & pools	3		3 100	Unfavourable
G	open habitats	short sward & bare ground	open short sward	2		1 100	Unfavourable
G	wetland	running water	slow-flowing rivers	1		4 100	Unfavourable
G	wetland	acid & sedge peats	moss & tussock fen	1		2 400	Unfavourable
G	tree-associated	decaying wood	epiphyte fauna	1		5 100	Unfavourable
G	open habitats	short sward & bare ground	bare sand & chalk	1 <1		400	Unfavourable
H	open habitats		scrub edge	5		2 100	Unfavourable
H	wetland	acid & sedge peats	reed-fen & pools	5		4 175	Unfavourable
H	wetland	acid & sedge peats	moss & tussock fen	3		7 300	Unfavourable
H	open habitats		scrub-heath & moorland	3 <1		100	Unfavourable
H	tree-associated	decaying wood	bark & sapwood decay	3 <1		100	Unfavourable
H	wetland	marshland	open water on disturbed mineral	3		8 100	Unfavourable

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Compartment	Broad biotope	Habitat	SAT	No. of species	% representation	SQI	Reported condition
			sediments				
H	tree-associated	decaying wood	heartwood decay	1	<1	100	Unfavourable
H	wetland	marshland	undisturbed fluctuating marsh	1		3 100	Unfavourable
Hinderclay combined A-E	tree-associated	decaying wood	bark & sapwood decay	31		6 180	Favourable
Hinderclay combined A-E	open habitats		scrub-heath & moorland	24		7 142	Favourable
Hinderclay combined A-E	open habitats		scrub edge	21		9 114	Favourable
Hinderclay combined A-E	open habitats	short sward & bare ground	bare sand & chalk	18		4 250	Unfavourable
Hinderclay combined A-E	open habitats	short sward & bare ground	open short sward	16		8 119	Favourable
Hinderclay combined A-E	open habitats		rich flower resource	12		5 100	Unfavourable
Hinderclay combined A-E	wetland	acid & sedge peats	reed-fen & pools	10		9 133	Unfavourable
Hinderclay combined A-E	tree-associated	decaying wood	fungal fruiting bodies	7		8 229	Favourable
Hinderclay combined A-E	wetland	marshland	open water on disturbed mineral sediments	4		10 100	Unfavourable
Hinderclay combined A-E	wetland	acid & sedge peats	moss & tussock fen	4		9 325	Unfavourable
Hinderclay combined A-E	tree-associated	decaying wood	heartwood decay	3		2 300	Unfavourable
Hinderclay combined A-E	wetland	marshland	undisturbed fluctuating marsh	3		8 100	Unfavourable
Hinderclay combined A-E	tree-associated	decaying wood	epiphyte fauna	2		10 100	Unfavourable
Betty's and Blo'Norton combined F-H	tree-associated	decaying wood	bark & sapwood decay	34		7 127	Favourable
Betty's and Blo'Norton combined F-H	wetland	acid & sedge peats	reed-fen & pools	11		10 200	Favourable
Betty's and Blo'Norton combined F-H	open habitats		scrub edge	9		4 100	Unfavourable
Betty's and Blo'Norton combined F-H	wetland	acid & sedge peats	moss & tussock fen	7		15 357	Favourable
Betty's and Blo'Norton combined F-H	wetland	marshland	undisturbed	6		16 250	Favourable

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Compartment	Broad biotope	Habitat	SAT	No. of species	% representation	SQI	Reported condition
Blo’Norton combined F-H			fluctuating marsh				
Betty’s and Blo’Norton combined F-H	open habitats		rich flower resource	6		2 100	Unfavourable
Betty’s and Blo’Norton combined F-H	open habitats		scrub-heath & moorland	5		1 100	Unfavourable
Betty’s and Blo’Norton combined F-H	tree-associated	decaying wood	heartwood decay	4		2 350	Unfavourable
Betty’s and Blo’Norton combined F-H	tree-associated	decaying wood	fungal fruiting bodies	4		4 175	Unfavourable
Betty’s and Blo’Norton combined F-H	wetland	marshland	open water on disturbed mineral sediments	3		8 100	Unfavourable
Betty’s and Blo’Norton combined F-H	open habitats	short sward & bare ground	open short sward	3		2 100	Unfavourable
Betty’s and Blo’Norton combined F-H	tree-associated	decaying wood	epiphyte fauna	1		5 100	Unfavourable
Betty’s and Blo’Norton combined F-H	open habitats	short sward & bare ground	bare sand & chalk	1 <1		400	Unfavourable
Betty’s and Blo’Norton combined F-H	wetland	running water	slow-flowing rivers	1		4 100	Unfavourable

The highlighted rows are those for which **any** reliability can be placed on the resulting statistics. For these data, the number of represented species meets or exceeds the lower threshold of 15. It is suggested by Pantheon that where the number falls below this minimum threshold, the statistical analysis is potentially unreliable.

The SQI score that Pantheon uses is based on the sum of the conservation scores of the British Rarity-designated species in a sample divided by the **total number of species** in that sample multiplied by 100. Generally speaking, on condition that the ‘No. of species’ is 15 or more, then the higher the SQI figure, the higher the value of the site for invertebrate assemblages. Pantheon works best where standardised sampling is employed at a site because in that situation, the statistical comparison between sites is at its most reliable.

The results from the Pantheon analysis for this survey allow for some positive interpretation of the resulting statistical analysis, in contrast with those from the previous survey (Lane, 2020) which delivered disappointing scores on analysis, thought at the time to be due to a dilution of Nationally Scarce and representative species within very high totals achieved in that survey. In the present survey, this speculated dilution factor appears not to have affected the results of the analysis in the same way, although Pantheon analysis still fails to deliver expected targets for some of the sites and their assemblages. It is important to view Pantheon as one of several tools to be used in combination in the process of evaluating a site and not the foremost and/or only route for analysis.

A ‘Favourable’ result for any set of data analysed by Pantheon suggests that the specific habitat is considered to be of a high quality suitable for supporting its associated specialist invertebrate assemblage. Pantheon delivers ‘Favourable’ condition for Hinderclay main lichen heath in the habitat sub-categories of ‘scrub heath and moorland’, ‘scrub edge’ and

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‘open short sward’, although the latter clade has only 13 of the Pantheon representative species in the sample and may not be reliable. ‘Scrub heath and moorland’ is also returned as ‘Favourable’ for the annexe heath area although this time, with only 14 representative species from the Pantheon database included. If all Hinderclay samples are combined in the analysis, Pantheon also delivers a ‘Favourable’ return for ‘bark and sapwood decay’ assemblages. Across the river, Betty’s Fen scores as ‘Favourable’, though with a poor four representative species and therefore not reliably so, for ‘undisturbed fluctuating marsh habitat’ and Blo’ Norton Fen, as reliably ‘Favourable’ for its tree-associated ‘bark and sapwood decay’. When these two fen sites are combined, ‘reed fen and pools’, and ‘moss and tussock fen’ categories, are also considered ‘Favourable’, but these on the basis of representation by only 11 and 7 species respectively, and therefore supposedly unreliably so.

Reliably ‘Unfavourable’ condition is returned in the analysis for Hinderclay main lichen heath, for ‘bare sand and chalk’ habitat, and again for this habitat clade when samples from all Hinderclay Fen sites are combined in the analysis. Betty’s Fen also comes out in the analysis as ‘Unfavourable’ for its ‘bark and sapwood decay’ habitat.

By using Colin Plant Associates (UK Consultant Entomologists) guidelines (Table 8) for assessing the site-significance of invertebrate habitat, the Compartments at the LOHP complex would be ranked as follows:

- Compartments A, B, E, F, G and H – Regional Significance
- Compartment C - County Significance
- Compartment D – within site significance

These rankings are based on the definitions given in Table 8, namely the presence and number of Nationally Scarce/Rare species.

Clearly, this analysis over-simplifies and exaggerates the significance of the quality of the site. This may be because surveys on which Plant Associates devised the analysis, were either casual, or perhaps based on limited standardised sampling methodologies, rather than intensive and exhaustive sampling as used at the LOHP sites. Also, in a regional context, in East Anglia, there are many significant habitats and localities of importance for their invertebrate assemblages and thus, a site, such as Hinderclay Fen, for example, whilst appearing to be, for example, regionally significant in a more impoverished landscape such as e.g. The Midlands, becomes much less significant in context of the richness and density of Breckland sites in Norfolk and Suffolk. For these reasons, I have hesitation in assigning **Regional** significance to so many parts of the site. I suggest a more modest appraisal of the site for its significance for invertebrates as follows, by considering a combination of Table 8 criteria, the Pantheon analyses and my own intuition and experience:

- Compartment F – Regional Significance (mainly on the basis of the presence of Desmoulin’s Whorl Snail)
- Compartments A, G and H – County Significance
- Compartment B, C, D and E – local/within site significance

Table 8 – Colin Plant Associates guidelines for site significance evaluation

Regional	Site with populations of invertebrates or invertebrate habitats considered scarce or rare or threatened in a region of England (i.e. East Anglia)	Habitat that is scarce or threatened in the region or which has, or is reasonably expected to have, the presence of an assemblage of invertebrates including at least ten Nationally Notable species or at least ten species listed as Regionally Notable for the <i>English Nature</i> region in question in the Recorder database or elsewhere or a combination of these categories amounting to ten species in total.
County	Site with populations of invertebrates or invertebrate habitats considered scarce or rare or threatened in the	Habitat that is scarce or threatened in the county and/or which contains or is reasonably expected to contain an assemblage of invertebrates that includes

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	county in question	viable populations of at least five Nationally Notable species or viable populations of at least five species regarded as Regionally Scarce by the county records centres and/or field club.
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7 Discussion and Recommendations

Hinderclay Fen Lichen Heath (Compartment A)

Discussion: This area produced no less than 29 Nationally Scarce or Rare invertebrates (not including ‘aquatics’ at light traps), which constitutes around 30% of all British Rarity category species recorded during the survey. 17 of these are specifically associated with the relatively expansive area of open habitat, which is heavily populated by rabbits as evidenced by the diggings and intensively grazed character of the sward. The short-turf grassland at the west end of the open area grades into lichen-dominated heath towards the east end, and is interspersed with patches of *Calluna* heath. This mosaic supports a significant assemblage of insects, including Breckland and Fallen’s Leatherbugs, the ground bugs *Megalonotus praetextatus* and *sabulicola*, the true bug *Alydus calcaratus*, Mud Wasp *Podalonia affinis*, the wolf spider *Alopecosa cuneata*, the ground spider *Zelotes electus*, the ground beetle *Amara lucida*, the seed weevil *Apion rubiginosum*, the flea beetle *Mantura chrysanthemi* and the tortoise beetle *Cassida hemisphaerica*. Such an assemblage is more typical of high quality Breckland heath sites and grey dune systems in the East Anglian region, so for a breck ‘outlier’ site such as Hinderclay Fen, to support this invertebrate community is impressive by any standard. It is unsurprising that the Pantheon analysis returned a designation of ‘Favourable’ for the main lichen heath area of Hinderclay Fen; specifically for its open short sward habitat (although this based on only 13 representative species) and also for heath and moorland communities.

Recommendations: The main issue confronting the lichen heath area is one of invasive vegetation encroaching on the open area. This threat to habitat comes from gorse scrub, *Molinia* and regenerating birch scrub. It is recommended that the lichen heath should be encouraged to expand by management that focuses on the selective removal of perimeter birch scrub, cutting and removal of up to 40% of the *Molinia* grassland and some careful reduction of gorse scrub. Regular mowing of the track (Angles Way) might appear to be a rather intrusive site management activity, given that both Fallen’s and Breckland Leatherbug are present here under prostrate mats of *Erodium*, but this cutting regime is evidently doing no harm, as presumably the equipment’s blade height setting is such that scarification is avoided. The persistence of rabbits at the site is important to the continuance of short turf and ground disturbance (earthworks) that in combination support so many of the important invertebrate species here. Aspens at the western end of the heath potentially support a population of the Nationally Scarce leaf beetle *Gonioctena decemnotata* along with other associated invertebrates and so these trees should be encouraged to establish further at the site, notwithstanding the requirement to keep adjacent power lines free of branches and foliage. The woodchip piles here provide refugia and also support their own unique invertebrate assemblages, so the creation of these (from the former activity) is to be encouraged. Having continuity of this resource and adding to it on a regular basis means that its biodiversity will be maintained if not enhanced.

Hinderclay Fen Lichen Heath Annexe (Compartment B)

Discussion: In many respects, this small pocket of habitat shares many similarities with the larger area of open lichen heath to the east, and is effectively that habitat mosaic ‘in miniature’ and also with rabbit activity in evidence. It too supports an invertebrate assemblage more typical of breck heath and coastal dune systems, which includes Blue Rove Beetle *Ocypus ophthalmicus*, the rove beetle *Ocypus nitens*, the ground spider *Zelotes electus* and the flea beetle *Mantura chrysanthemi*. Due probably to the relatively smaller area of habitat here, the invertebrate fauna is more impoverished than in the main lichen heath area, but it still accounts for an impressive 14 species (not including ‘aquatics’ at light traps) designated as Nationally Scarce or Rare and in the Pantheon analysis it also qualifies as ‘Favourable’ under the habitat clade of heath/moorland (though only 14 representative species from this habitat clade are present in the sample).

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Recommendations: The site is likely to be subject to invasive gorse scrub as well as *Molinia* grassland and regenerating birch scrub, so the same principles of habitat management that have been suggested for the main Hinderclay Fen lichen heath also hold true for this annexe area. Because of the small size of the site, management perhaps needs to be more selective and sensitive, although a more ruthless clearance of woodland habitat could be adopted to encourage the site habitat to expand northward and eastward. In fact, it may be desirable to create a connecting corridor between this isolated pocket of habitat and the main lichen heath area at Hinderclay, by clearing a linear swathe of woodland/scrub habitat eastward to the main drive that bisects the woodland. The gorse bushes here are known to support nesting Linnet *Linaria cannabina*, so care needs to be taken not to reduce this scrub at the expense of habitat provision for this finch. It is important that the rabbit population continues here in order to maintain the short sward.

Hinderclay Fen Reed-bed ringing rides (Compartment C)

Discussion: Whilst this reed-bed area contains an invertebrate assemblage of modest significance, the presence of the Nationally Rare pselaphiine rove beetle *Biblopectus tenebrosus* stands out as particularly significant, this species being more typical of high quality fen habitat in East Anglia and further afield. The habitat here failed to make much of an impression in the Pantheon analysis, but the sampling during 2021 was possibly hampered by inaccessibility of parts of the site which were heavily waterlogged on most visits, and the difficulty of accessing the old pools in the reed-beds, which were undoubtedly better-defined when Geoff Nobes surveyed the site (Nobes, 2010). Thus, the invertebrate fauna was possibly relatively poorly represented here during the 2021 survey.

Recommendations: The main recommendation here would be to open up and re-dig the old turf ponds and to maintain these by keeping invasive *Phragmites* at bay by annual cuts at the pool edges. Invading willows should be cleared and perhaps the perimeter willow carr could be opened up or cut back somewhat to achieve a more open aspect to the site which is currently quite heavily shaded at points along its perimeters. It is important that water levels are maintained, a recommendation which certainly required no attention in 2021, but which may be an issue during ‘drought summers’.

Hinderclay Cut Fen and immediate environs (Compartment D)

Discussion: Pantheon analysis returned nothing positive about this compartment of Hinderclay Fen, which is not to say that it has poor invertebrate interest. The site is effectively ‘recovering’ fen, and is receiving conservation management and monitoring on an annual basis, but this appears as yet to have had no significantly positive impact on the invertebrate assemblages present which would elevate their significance above average for the habitat.

Recommendations: It is hoped that the management that is ongoing here will eventually result in increased fen vegetation diversity and an associated enhanced invertebrate fauna. The recommendations for the previous site also apply here, although the cut fen expanse is already open so the requirement to cut back perimeter willows is perhaps of less immediate import. The turf ponds could be re-cut/re-defined and perhaps more, or greater sized pools could be created within the reed-bed, to replicate in essence, the habitat on the east side of the open area at Betty’s Fen. The cut vegetation heaps here were for some reason much less populated, and then by far fewer taxa with rarity status, than the vegetation heaps on the north side of the river. This may be a direct result of the relatively more impoverished fauna of the fen here, and/or may be as a result of aspect/sun exposure. It may be worth locating a heap in a much more sun-exposed position than presently occupied by the heaps at the edge of this site, in order to see if this increases its use as a resource for invertebrates.

Hinderclay Fen Alder Carr Swamp and Oak/Birch Woodland (Compartment E)

Discussion: The importance of this compartment within the overall site complex, is as a resource for saproxylic invertebrates (those that utilise dead wood and related processes of decay as either a food-source or a medium in which to find prey). Thus, five Nationally Scarce or Rare saproxylics were recorded here during the survey in addition to three arboreal generalists with British Rarity designation. Of this assemblage, specific mention should be made of the minute brown scavenger beetle *Enicmus brevicornis*, the tumbling flower beetle *Mordellistena humeralis*, the aleocharine rove beetle *Cypha pulicaria* and Brown Tree Ant *Lasius brunneus*. Pantheon analysis disappointingly returned nothing positive about this compartment of Hinderclay Fen but the surveyors recognise the potential for saproxylics in the ‘pasture woodland’ section of the site and oaks here may well be the origin of the Nationally Rare soldier beetle *Malthodes crassicornis* which was encountered on the northern edge of the river on the perimeter of Blo’ Norton Fen.

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Recommendations: There are no recommendations for this area of the site complex, but it is worth noting that the small ‘pasture woodland’ section in the south-westernmost corner of the site has potential to support a small but significant saproxylic assemblage and that standing dead wood is more favourable as a development niche for invertebrate larval stages than stacked logs which have a much shorter ‘shelf-life’ and relatively quickly become wet in their decay. Each of these dead wood resources have the capacity to attract different species, so in truth, having both present is advantageous. As a rule of thumb though, if standing dead wood poses no threat to safety, it should always be left in situ and fallen trees similarly allowed to decay where they fall. The flowering scrub in this area is a valuable resource for flower-visiting adults of species which depend during their larval development on dead wood. It would be desirable to maintain diversity in the scrub layer here, by incorporating a few native flowering shrub species.

Betty’s Fen (Compartment F)

Discussion: This site is already designated as an SSSI, and due to the presence of Desmoulin’s Whorl Snail, it takes on a particular significance regionally. On the strength of the 2021 survey, the snail population appears to be declining, but further monitoring will be required to qualify this suspicion. One of the most important habitats here is provided by the cut vegetation heaps, which support the Nationally Rare feather-winged beetles *Microptilium palustre* and *Ptilium affine*, and the rove beetles *Pseudomedon obsoletus* (more usually associated with fens in The Broads district of East Anglia), *Stenus circularis* and *Dochmonota clancula*, amongst an impressive invertebrate assemblage. The two feather-winged beetles are hardly known outside Wicken Fen in Cambridgeshire and effectively, in this respect, would elevate the significance of Betty’s Fen to National level for Coleoptera, were it not for the likelihood of under-recording of these impossibly minute beetles that are very difficult to identify. Elsewhere in this small open area at Betty’s Fen, the list of significant wetland species is further enhanced by the wolf spider *Pirata piscatorius*, the diving beetle *Clemnius decoratus*, the ground beetle *Oodes helopioides* and the weevil *Neophytobius muricatus*, whilst the willows support the weevils *Acalyptus carpini*, *Melanapion minimum* and *Temnocerus longiceps*. Altogether, the Fen produced 17 wetland/aquatic species of Nationally Scarce or Rare designation during the survey and overall, an impressive 25 so-designated taxa. Pantheon analysis scored Betty’s Fen as ‘Favourable’, though with a poor four representative species and therefore not reliably so, for undisturbed fluctuating marsh habitat. When combined with Blo’ Norton Fen, the shared habitat clades of ‘reed fen and pools’, and ‘moss and tussock fen’ categories, are also considered ‘Favourable’, but these on the basis of representation by only 11 and 7 species respectively, so the Pantheon analysis is strangely inconclusive for Betty’s Fen; a site that appears on the strength of the 2021 survey to support significant terrestrial wetland invertebrate assemblages at the very least.

Recommendations: Until the population dynamics and specific requirements of Desmoulin’s Whorl Snail at Betty’s Fen are better understood, any deviation from current management practices might be ill-advised. Any actions that increase the height of the water table are likely to favour the snail, but this species favours tall vegetation, so removal of tall vegetation to increase levels of inundation would be counter-productive. It goes without saying that willow should be controlled to prevent encroachment on the open fen, and habitat management to enhance plant biodiversity should be maintained. Importantly, the cut vegetation heaps here should be retained and added to so that they retain their long-established character. Having both shaded and more open situation heaps would be advantageous to maximise invertebrate diversity.

Blo’ Norton Fen Carr areas (Compartment G)

Discussion: Blo’ Norton Fen, is analysed by Pantheon as reliably ‘Favourable’ for its tree-associated ‘bark and sapwood decay’ habitat, associated invertebrate species including the false darkling beetle *Abdera biflexuosa*, the false flower beetle *Anaspis thoracica* and the soldier beetle *Malthodes crassicornis* (which possibly originated from a different part of the site complex). When this fen site is combined with Betty’s Fen, the habitat clades of ‘reed fen and pools’, ‘moss and tussock fen’ and ‘undisturbed fluctuating marsh’, are also considered ‘Favourable’ by Pantheon analysis, but these on the basis of representation by only 11, 7 and 6 species respectively, which renders the result potentially unreliable. Unsurprisingly, the carr area supports a number of significant terrestrial wetland and aquatic invertebrates including the Hydrochid beetle *Hydrochus elongatus*, the rove beetle *Oxytelus fulvipes* and the willow-associated silken fungus beetle *Atomaria zetterstedti* along with the willow-feeding weevils *Melanapion minimum* and *Acalyptus carpini*.

Recommendations: Consideration could be given to selective clearance of willow and alder, introducing ‘glade areas’ to the dense carr, in order to open up this habitat and enhance inundation. It may be an idea to create a broad linear connecting corridor from the east edge of Betty’s Fen through to the west edge of the *Phragmites* beds at Blo’ Norton Fen. Otherwise, there is little to be done here other than to maintain variety in the vegetation structure and species

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diversity of the river edge verge tall sward, which, as an example of edge habitat (carr/grassland interface), is noteworthy for its general invertebrate species-richness.

Blo' Norton Fen M13 cut fen open area (Compartment H)

Discussion: From an invertebrate perspective, this open fen area is similar to the cut fen area of Betty's Pools. It shares a similar assemblage that includes a number of Nationally Scarce or Rare species such as the Hydrochid beetle *Hydrochus crenatus*, the moss beetle *Limnebius aluta*, the ground beetle *Oodes helopioides* and the wolf spider *Pirata piscatorius*, all of which occur at the margins of the main area inundation. Also of note here are the froghopper *Aphrophora major* associated probably with willows here, and the crane-fly *Phylidorea abdominalis*. Pantheon analysis was unhelpful in evaluating the strengths of this site for its invertebrates, although when this fen site is combined with Betty's Fen, the habitat clades of 'reed fen and pools', 'moss and tussock fen' and 'undisturbed fluctuating marsh', are also considered 'Favourable' by Pantheon analysis, but these on the basis of representation by only 11, 7 and 6 species respectively, which renders the result potentially unreliable. The cut vegetation heaps were poor here in respect of invertebrate species-richness and rarity. This stark contrast with the heaps at Betty's Fen is difficult to understand but was borne out from several targeted sampling visits. It may be related to aspect, in terms of exposure to sunlight, or the age of the heaps or perhaps, reflecting a relatively impoverished fauna in the immediate vicinity of the heaps compared to the specific heap locations at Betty's Fen.

Recommendations: It goes without saying that willow, gorse and birch should be controlled to prevent encroachment on the open fen, and habitat management to enhance vegetative biodiversity and water levels should be maintained. It might be worthwhile creating one or two cut vegetation heaps in more exposed positions or re-locating existing heaps, to see if their biodiversity can be enhanced. Having both shaded and more open situation heaps would be advantageous to maximise invertebrate diversity.

Recommendations for Future Invertebrate Sampling

Baseline invertebrate surveys could be carried out on other LOHP sites for which invertebrate data is entirely lacking or is deficient for informing management proposals.

Now that an exhaustive baseline survey has been carried out at the LOHP Thelnetham complex and also at Hinderclay Fen, future sampling using standardised methodologies could be employed on site to further compare areas within the site complex. In particular, this kind of survey protocol might be useful to sample future-created habitats or managed vs unmanaged areas within the same site.

The baseline survey has identified assemblages and specific Nationally Rare and IUCN-threatened taxa which may make suitable subjects for future targeted research.

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Addendum: In the 2020 LOHP Survey report I omitted to include a species account for the stonefly *Nemoura dubitans* and that species entry was also incorrectly assigned to 'Nationally Scarce' British Rarity status category in the Appendix, whereas it should have been entered as 'Nationally Rare'.

9 Appendix: Species List

The common names have been taken from a number of different literature and internet sources, as well as from ‘MapMate’.

Species name entries in italics relate to indeterminate species, species complexes *etc.*

A ‘YES’ in the ‘voucher retained?’ column indicates that a voucher specimen has been retained (usually by Steve Lane, but occasionally this may have been donated to another person)

Nationally Rare (Red Data Book) and Nationally Scarce (NS, Na/Nb Notable) species are highlighted in orange.

For definitions of British Rarity codes, see section 6.1.1

National Status column; ‘LC’ = IUCN Classification ‘Least Concern’ – for interpretation see e.g. Lane (2019). Where a species has a British Rarity status, but no IUCN status in this column, it means that the taxon has not yet been evaluated under IUCN criteria.

National Statuses in brackets are those for which the true status of that species has changed since designation, and is no longer valid. The species is not currently considered to be Nationally Rare or Nationally Scarce and is awaiting re-evaluation.

Associated Habitat Codes Key:

a = aquatic species

g = grassland/verge species

h = short turf lichen heath/heathland species

s = woodland species, including saproxylics

w = wetland species

The ‘Association’ column lists plant associations where these are known and are few, and also dung, carrion etc

Site Code Key:

A = Hinderclay Fen lichen heath

B = Hinderclay Fen lichen heath annexe

C = Hinderclay Fen bird-ringing rides reed-beds

D = Hinderclay Fen cut fen meadow area

E = Hinderclay Fen woodland block at west end of site

F = Betty’s Fen

G = Blo’ Norton Fen general area

H = Blo’ Norton Fen cut fen area near east edge of site

Months - number refers to number of month e.g. ‘5’ = May, ‘7’ = July

A datasheet of raw data has been given to Rowena Langston (LOHP) prior to this report

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Amphipoda	Crangonyctidae	<i>Crangonyx pseudogracilis</i>		None	Least Concern		a		DF	34

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Araneae – Spiders	Agelenidae – Funnelweb Spiders	Agelena labyrinthica	Labyrinth Spider	None	Least Concern		h		BF	7
Araneae	Anyphaenidae – Buzzing Spiders	Anyphaena accentuata	Buzzing Spider	None	Least Concern		s		G	6
Araneae	Araneidae – Orbweb Spiders	Araneus diadematus	Garden Spider	None	Least Concern				AH	89
Araneae	Araneidae	Araneus marmoreus		None	Least Concern				DF	8
Araneae	Araneidae	Araniella cucurbitina	Common Cucumber Spider	None	Least Concern				F	6
Araneae	Araneidae	Araniella opisthographa		None	Least Concern				A	6
Araneae	Araneidae	Nuctenea umbratica	Walnut Orbweb Spider	None	Least Concern		s		B	9
Araneae	Araneidae	Zilla diodia		None	Least Concern	YES	s		EG	57
Araneae	Clubionidae – Sac Spiders	Clubiona lutescens		None	Least Concern				G	6
Araneae	Clubionidae	Clubiona phragmitis		None	Least Concern		w		DFH	578
Araneae	Clubionidae	Clubiona reclusa		None	Least Concern				F	6
Araneae	Clubionidae	Clubiona terrestris		None	Least Concern				A	9
Araneae	Dictynidae – Meshweb Spiders	Dictyna arundinacea		None	Least Concern				E	5
Araneae	Dictynidae	Dictyna uncinata		None	Least Concern		s		F	5
Araneae	Gnaphosidae – Ground Spiders	Drassodes cupreus		None	Least Concern		h		B	56
Araneae	Gnaphosidae	Drassyllus pusillus		None	Least Concern		g		AB	56
Araneae	Gnaphosidae	Haplodrassus signifer		None	Least Concern		g		AB	56
Araneae	Gnaphosidae	Trachyzelotes pedestris		None	Least Concern		h		ABE	6

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Araneae	Gnaphosidae	Zelotes electus		NS	Least Concern		h		AB	56
Araneae	Gnaphosidae	Zelotes latreillei		None	Least Concern		g		ABD	569
Araneae	Linyphiidae – Money Spiders	Allomengea vidua		NS	Least Concern		w		C	9
Araneae	Linyphiidae	Diplocephalus picinus		None	Least Concern		s		E	6
Araneae	Linyphiidae	Erigone dentipalpis		None	Least Concern				A	5
Araneae	Linyphiidae	Gonatium rubens		None	Least Concern		h		B	7
Araneae	Linyphiidae	Hypomma bituberculatum		None	Least Concern		w		G	5
Araneae	Linyphiidae	Linyphia triangularis		None	Least Concern				D	5
Araneae	Linyphiidae	Microlinyphia pusilla		None	Least Concern				D	5
Araneae	Linyphiidae	Oedothorax gibbosus		None	Least Concern		w		E	5
Araneae	Linyphiidae	Peponocranium ludicrum		None	Least Concern		h		A	5
Araneae	Liocranidae – Ant- like Sac Spiders	Agroeca brunnea		None	Least Concern		s		A	5
Araneae	Lycosidae – Wolf Spiders	Alopecosa barbipes		None	Least Concern		h		A	59
Araneae	Lycosidae	Alopecosa cuneata		NS	Least Concern		h		A	5
Araneae	Lycosidae	Alopecosa pulverulenta		None	Least Concern		g		ABD	56
Araneae	Lycosidae	Pardosa monticola		None	Least Concern				AB	56
Araneae	Lycosidae	Pardosa nigriceps		None	Least Concern				AB	5
Araneae	Lycosidae	Pardosa palustris		None	Least Concern		g		AD	56
Araneae	Lycosidae	Pardosa prativaga		None	Least Concern				BD	6

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Araneae	Lycosidae	Pardosa pullata		None	Least Concern				AB	56
Araneae	Lycosidae	Pardosa saltans		None	Least Concern		s		BDE	56
Araneae	Lycosidae	Pirata piscatorius		NS	Least Concern		w		FGH	45
Araneae	Lycosidae	Piratula hygrophila	formerly Pirata hygrophilus	None	Least Concern		w		DE	6
Araneae	Lycosidae	Piratula latitans	formerly Pirata latitans	None	Least Concern		w		BD	6
Araneae	Lycosidae	Trochosa ruricola		None	Least Concern		w		A	5
Araneae	Lycosidae	Trochosa terricola		None	Least Concern				AB	56
Araneae	Philodromidae – Running Crab Spiders	Philodromus dispar		None	Least Concern		s		G	6
Araneae	Philodromidae	Tibellus oblongus		None	Least Concern		g		A	6
Araneae	Pisauridae – Nurseryweb Spiders	Pisaura mirabilis	Nurseryweb Spider	None	Least Concern				BDFGH	24578
Araneae	Salticidae – Jumping Spiders	Evarcha falcata		None	Least Concern		s/h		B	78
Araneae	Salticidae	Heliophanus flavipes		None	Least Concern				A	6
Araneae	Tetragnathidae – Long-jawed Orbweb Spiders	Metellina menzei		None	Least Concern				G	5
Araneae	Tetragnathidae	Pachygnatha degeeri		None	Least Concern				ABDF	568
Araneae	Tetragnathidae	Tetragnatha montana		None	Least Concern		w		DFG	67
Araneae	Tetragnathidae	Tetragnatha nigrata		None	Least Concern				A	7
Araneae	Theridiidae – Comb- footed Spiders	Anelosimus vittatus		None	Least Concern		s		E	5

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Araneae	Theridiidae	Asagena phalerata	formerly Steatoda phalerata	None	Least Concern		h		AB	568
Araneae	Theridiidae	Enoplognatha ovata		None	Least Concern		s		A	7
Araneae	Theridiidae	Enoplognatha thoracica		None	Least Concern				AB	5
Araneae	Theridiidae	Paidiscura pallens		None	Least Concern		s		GH	5
Araneae	Thomisidae – Crab Spiders	Ozyptila atomaria		None	Least Concern		h		A	9
Araneae	Thomisidae	Ozyptila praticola		None	Least Concern				E	6
Araneae	Thomisidae	Ozyptila trux		None	Least Concern				D	6
Araneae	Thomisidae	Xysticus cristatus		None	Least Concern				AB	5
Araneae	Thomisidae	Xysticus kochi		None	Least Concern		h		AB	56
Araneae	Thomisidae	Xysticus ulmi		None	Least Concern		w		CFH	45
Araneae	Zoridae – Ghost Spiders	Zora spinimana		None	Least Concern		g		B	6
Coleoptera – Beetles	Anthicidae – Ant Beetles	Anthicus antherinus		None	Least Concern	YES	g		FG	35
Coleoptera	Anthicidae	Notoxus monoceros	Monoceros Beetle	None	Least Concern		h		AB	67
Coleoptera	Anthribidae – Fungus Weevils	Platyrhinus resinosus	Cramp-ball Fungus Weevil	[Nb]	<i>not evaluated</i>		s	cramp-ball fungus on ash	F	5
Coleoptera	Apionidae – Seed Weevils	Apion haematodes		None	<i>not evaluated</i>		h	sheep's sorrel	A	69
Coleoptera	Apionidae	Apion rubens		None	<i>not evaluated</i>	YES	h	sheep's sorrel	A	9
Coleoptera	Apionidae	Apion rubiginosum		RDB3	<i>not evaluated</i>	YES	h	sheep's sorrel	A	9
Coleoptera	Apionidae	Betulapion simile		None	<i>not evaluated</i>		s	birch	C	5

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Apionidae	Ceratapion onopordi		None	<i>not evaluated</i>		g	thistles	F	6
Coleoptera	Apionidae	Eutrichapion viciae		None	<i>not evaluated</i>		g	vetches	G	6
Coleoptera	Apionidae	Exapion ulicis	Gorse Weevil	None	<i>not evaluated</i>		h	gorse	ABH	3457
Coleoptera	Apionidae	Melanapion minimum		RDB3	<i>not evaluated</i>	YES	w	willows	FG	567
Coleoptera	Apionidae	Oxystoma cerdo		[Nb]	<i>not evaluated</i>		g	vetches	EGH	567
Coleoptera	Apionidae	Perapion curtirostre		None	<i>not evaluated</i>		h	sheep's sorrel	A	6
Coleoptera	Apionidae	Perapion hydrolapathi		None	<i>not evaluated</i>		g	docks	A	6
Coleoptera	Apionidae	Perapion marchicum		None	<i>not evaluated</i>		h	sheep's sorrel	A	569
Coleoptera	Apionidae	Protapion apricans		None	<i>not evaluated</i>		g	red clover	DG	45
Coleoptera	Apionidae	Protapion assimile		None	<i>not evaluated</i>		g	clovers	CE	3457
Coleoptera	Apionidae	Protapion nigritarse		None	<i>not evaluated</i>		g	clovers	G	5
Coleoptera	Apionidae	Protapion trifolii		None	<i>not evaluated</i>		g	clovers	ABCDEF GH	4567
Coleoptera	Apionidae	Pseudapion rufirostre		None	<i>not evaluated</i>		g	mallow	G	5
Coleoptera	Apionidae	Stenopterapion tenue		None	<i>not evaluated</i>		g	medicks	E	7
Coleoptera	Apionidae	Taeniapion urticarium		None	<i>not evaluated</i>		g	nettles	ACDF	456
Coleoptera	Buprestidae – Jewel Beetles	Agrilus laticornis		None	Least Concern		s	deadwood, oaks etc	AE	67
Coleoptera	Byrrhidae – Pill Beetles	Byrrhus fasciatus	Banded Pill Beetle	None	Least Concern	YES	h		AB	56
Coleoptera	Byrrhidae	Byrrhus pilula	Common Pill Beetle	None	Least Concern		h		A	5
Coleoptera	Byrrhidae	Cytilus sericeus		None	Least Concern				AD	6

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Byturidae	Byturus tomentosus	Raspberry Beetle	None	<i>not evaluated</i>		s	brambles	AG	67
Coleoptera	Cantharidae – Soldier Beetles	Cantharis cryptica		None	Least Concern				AEG	67
Coleoptera	Cantharidae	Cantharis decipiens		None	Least Concern		s		G	5
Coleoptera	Cantharidae	Cantharis figurata		None	Least Concern		w		F	6
Coleoptera	Cantharidae	Cantharis lateralis		None	Least Concern		g		ACD	67
Coleoptera	Cantharidae	Cantharis nigra (was thoracica)		None	Least Concern		w		CDFG	7
Coleoptera	Cantharidae	Cantharis nigricans		None	Least Concern				CEFG	6
Coleoptera	Cantharidae	Cantharis pallida		None	Least Concern		w		DEF	67
Coleoptera	Cantharidae	Cantharis pellucida		None	Least Concern		s		CDFG	6
Coleoptera	Cantharidae	Cantharis rustica		None	Least Concern		g		ABCDE	6
Coleoptera	Cantharidae	Malthinus flaveolus		None	Least Concern		s		FG	7
Coleoptera	Cantharidae	Malthodes crassicornis		NR	NEAR THREATENED	YES	s		G	6
Coleoptera	Cantharidae	Malthodes dispar		None	Least Concern		w		G	7
Coleoptera	Cantharidae	Malthodes marginatus		None	Least Concern		s		EFG	6
Coleoptera	Cantharidae	Malthodes minimus		None	Least Concern		g		F	7
Coleoptera	Cantharidae	Rhagonycha fulva	Common Red Soldier Beetle	None	Least Concern		g		ABCDEFGH	7
Coleoptera	Cantharidae	Rhagonycha lignosa		None	Least Concern		s		G	6
Coleoptera	Cantharidae	Rhagonycha testacea		None	Least Concern		w		CF	6
Coleoptera	Cantharidae	Silis ruficollis		None	Least Concern		w		CG	7

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Carabidae – Ground Beetles	Acupalpus dubius		None	Least Concern		w		CEF	234
Coleoptera	Carabidae	Agonum emarginatum		None	Least Concern		w		DFH	345
Coleoptera	Carabidae	Agonum fuliginosum		None	Least Concern		w		CEFG	2349
Coleoptera	Carabidae	Agonum thoreyi		None	Least Concern		w		CF	3489
Coleoptera	Carabidae	Agonum viduum		None	Least Concern		w		D	6
Coleoptera	Carabidae	Amara aenea		None	Least Concern		h		A	256
Coleoptera	Carabidae	Amara convexior		None	Least Concern		h		AB	56
Coleoptera	Carabidae	Amara familiaris		None	Least Concern		g		A	5
Coleoptera	Carabidae	Amara lucida		NS	Least Concern		h		A	6
Coleoptera	Carabidae	Amara ovata		None	Least Concern		g		BDFG	23567
Coleoptera	Carabidae	Amara plebeja		None	Least Concern				AD	36
Coleoptera	Carabidae	Amara similata		None	Least Concern		g		AB	56
Coleoptera	Carabidae	Amara tibialis		None	Least Concern		h		A	56
Coleoptera	Carabidae	Anisodactylus binotatus		None	Least Concern		g		AD	56
Coleoptera	Carabidae	Badister bullatus		None	Least Concern				EG	6
Coleoptera	Carabidae	Badister dilatatus		NS	Least Concern		w		FG	24(11)
Coleoptera	Carabidae	Bembidion assimile		None	Least Concern		w		CFG	2345
Coleoptera	Carabidae	Bembidion biguttatum		None	Least Concern		w		F	2
Coleoptera	Carabidae	Bembidion clarkii		None	Least Concern		w		C	4

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Carabidae	Bembidion doris		None	Least Concern		w		CF	4
Coleoptera	Carabidae	Bembidion guttula		None	Least Concern				B	6
Coleoptera	Carabidae	Bembidion lampros		None	Least Concern				BC	46
Coleoptera	Carabidae	Bembidion lunulatum		None	Least Concern		w		CE	57
Coleoptera	Carabidae	Bembidion mannerheimii		None	Least Concern				F	23
Coleoptera	Carabidae	Bembidion obtusum		None	Least Concern		g		B	5
Coleoptera	Carabidae	Bembidion properans		None	Least Concern		g		G	6
Coleoptera	Carabidae	Bembidion quadrimaculatum		None	Least Concern		g		AC	39
Coleoptera	Carabidae	Bradycellus verbasci		None	Least Concern		g		B	9
Coleoptera	Carabidae	Calathus fuscipes		None	Least Concern		g		A	69
Coleoptera	Carabidae	Calathus rotundicollis		None	Least Concern		s		AE	59
Coleoptera	Carabidae	Curtonotus aulicus		None	Least Concern		g		F	8
Coleoptera	Carabidae	Cychrus caraboides		None	Least Concern		s		AC	9
Coleoptera	Carabidae	Demetrias atricapillus		None	Least Concern		g		CDFGH	23478
Coleoptera	Carabidae	Demetrias imperialis		None	Least Concern		w		CDFH	56
Coleoptera	Carabidae	Dromius quadrimaculatus		None	Least Concern		s		AEG	679
Coleoptera	Carabidae	Elaphrus cupreus		None	Least Concern		w		CEG	245679
Coleoptera	Carabidae	Harpalus affinis		None	Least Concern		g/h		A	569
Coleoptera	Carabidae	Harpalus rubripes		None	Least Concern		h		B	6

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Carabidae	Harpalus rufipalpis		None	Least Concern		h		AB	569
Coleoptera	Carabidae	Harpalus rufipes		None	Least Concern		g		ABDE	69
Coleoptera	Carabidae	Harpalus tardus		None	Least Concern		h		AB	56
Coleoptera	Carabidae	Leistus ferrugineus		None	Least Concern		g		G	59
Coleoptera	Carabidae	Loricera pilicornis		None	Least Concern				ACDE	59
Coleoptera	Carabidae	Microlestes minutulus		None	Least Concern		h		AE	56
Coleoptera	Carabidae	Nebria brevicollis		None	Least Concern				ADE	69
Coleoptera	Carabidae	Nebria salina		None	Least Concern		h		ABDE	56
Coleoptera	Carabidae	Notiophilus aquaticus		None	Least Concern		h		B	6
Coleoptera	Carabidae	Notiophilus biguttatus		None	Least Concern				EFGH	346
Coleoptera	Carabidae	Notiophilus palustris		None	Least Concern				C	9
Coleoptera	Carabidae	Notiophilus rufipes		None	Least Concern		s		E	6
Coleoptera	Carabidae	Oodes helopioides		NS	Least Concern		w		FH	48
Coleoptera	Carabidae	Oxypselaphus obscurus		None	Least Concern				F	23
Coleoptera	Carabidae	Paradromius linearis		None	Least Concern		g		BCDFGH	25678
Coleoptera	Carabidae	Philorhizus melanocephalus		None	Least Concern		g		CEG	2367
Coleoptera	Carabidae	Poecilus cupreus		None	Least Concern		g		AB	59
Coleoptera	Carabidae	Poecilus versicolor		None	Least Concern		g		AD	6
Coleoptera	Carabidae	Pterostichus diligens		None	Least Concern		w		CF	234

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Carabidae	Pterostichus madidus	Black Clock	None	Least Concern				A	9
Coleoptera	Carabidae	Pterostichus minor		None	Least Concern		w		CEFG	234569
Coleoptera	Carabidae	Pterostichus niger		None	Least Concern				C	9
Coleoptera	Carabidae	Pterostichus nigrita		None	Least Concern		w		CDEF	23567
Coleoptera	Carabidae	Pterostichus strenuus		None	Least Concern				ABCEGH	34569
Coleoptera	Carabidae	Pterostichus vernalis		None	Least Concern				G	2
Coleoptera	Carabidae	Stenolophus mixtus		None	Least Concern		w		CFG	3579
Coleoptera	Carabidae	Stomis pumicatus		None	Least Concern				BEF	346
Coleoptera	Carabidae	Syntomus foveatus		None	Least Concern		h		ABDE	56
Coleoptera	Carabidae	Syntomus truncatellus		NS	Least Concern		g		AB	6
Coleoptera	Carabidae	Trechus quadristriatus		None	Least Concern				AH	68
Coleoptera	Cerambycidae – Longhorn Beetles	Agapanthia villosoviridescens	Golden-bloomed Grey Longhorn	None	Least Concern		g	umbellifers	CGH	67
Coleoptera	Cerambycidae	Clytus arietis	Wasp Beetle	None	Least Concern		s	dead wood	AEG	6
Coleoptera	Cerambycidae	Grammoptera ruficornis	Common Grammoptera	None	Least Concern		s	dead wood	DEG	567
Coleoptera	Cerambycidae	Leptura quadrifasciata	Four-banded Longhorn Beetle	None	Least Concern		s	dead wood	CG	7
Coleoptera	Cerambycidae	Pseudovadonia livida	Fairy-ring Longhorn Beetle	None	Least Concern		g	<i>Marasmius oreades</i>	G	6
Coleoptera	Cerambycidae	Rutpela maculata	Black-and-yellow Longhorn Beetle	None	Least Concern		s	dead wood	DEFG	67
Coleoptera	Cerambycidae	Tetrops praeustus	Plum Longhorn Beetle	None	Least Concern		s	dead wood	CG	6

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Chrysomelidae – Leaf Beetles	Altica lythri		None	Least Concern		w	willowherbs	D	267
Coleoptera	Chrysomelidae	Aphthona euphorbiae		None	Least Concern				AEFG	5679
Coleoptera	Chrysomelidae	Aphthona nonstriata		None	Least Concern		w	yellow flag	FG	567
Coleoptera	Chrysomelidae	Bruchidius varius		None	Least Concern		g	red clover	AEFG	4569
Coleoptera	Chrysomelidae	Bruchus rufimanus	Bean Beetle	None	Least Concern			Fabaceae	G	5
Coleoptera	Chrysomelidae	Bruchus rufipes		None	Least Concern		g	vetches	G	5
Coleoptera	Chrysomelidae	Cassida hemisphaerica		NS	Least Concern	YES	h	Caryophyllaceae including Silene sp	A	6
Coleoptera	Chrysomelidae	Cassida rubiginosa	Thistle Tortoise Beetle	None	Least Concern		g	thistles	F	7
Coleoptera	Chrysomelidae	Chaetocnema arida		None	Least Concern		g	sedges and rushes?	A	6
Coleoptera	Chrysomelidae	Chaetocnema hortensis		None	Least Concern			Poaceae	ABE	5679
Coleoptera	Chrysomelidae	Chrysolina fastuosa	Dead-nettle Leaf Beetle	None	Least Concern		g	white dead-nettle, hemp nettle	G	7
Coleoptera	Chrysomelidae	Chrysolina oricalcia		None	Least Concern		g	cow parsley, hogweed	G	5
Coleoptera	Chrysomelidae	Chrysolina polita		None	Least Concern			ground ivy, mints	F	8
Coleoptera	Chrysomelidae	Crepidodera aurata	Willow Flea Beetle	None	Least Concern			willows	ACFG	567
Coleoptera	Chrysomelidae	Crepidodera aurea		None	Least Concern			poplars, aspen	AG	57
Coleoptera	Chrysomelidae	Crepidodera fulvicornis		None	Least Concern			willows	FG	56
Coleoptera	Chrysomelidae	Crepidodera plutus		None	Least Concern			willows	F	567

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Chrysomelidae	Cryptocephalus fulvus		None	Least Concern		h	sheep's sorrel, st john's worts	B	7
Coleoptera	Chrysomelidae	Cryptocephalus pusillus		None	Least Concern		s		EFG	78
Coleoptera	Chrysomelidae	Donacia simplex		None	Least Concern		w/a	bur-reeds	F	6
Coleoptera	Chrysomelidae	Epitrix pubescens		None	Least Concern			woody nightshade	CDEFG	2567
Coleoptera	Chrysomelidae	Galeruca tanacetii		None	Least Concern		g		A	9
Coleoptera	Chrysomelidae	Gonioctena decemnotata		NS	Least Concern		s	aspen	A	6
Coleoptera	Chrysomelidae	Lochmaea caprea	Willow Leaf Beetle	None	Least Concern		s	willows, birches	C	67
Coleoptera	Chrysomelidae	Lochmaea crataegi	Hawthorn Leaf Beetle	None	Least Concern		s	hawthorn	B	45
Coleoptera	Chrysomelidae	Lochmaea suturalis	Heather Beetle	None	Least Concern		h	heather	AB	3456789
Coleoptera	Chrysomelidae	Longitarsus parvulus		None	Least Concern				ACDFGH	234567
Coleoptera	Chrysomelidae	Longitarsus rubiginosus		None	Least Concern			<i>Calystegia</i> mainly	F	8
Coleoptera	Chrysomelidae	Luperus longicornis		None	Least Concern		s		ABC	67
Coleoptera	Chrysomelidae	Mantura chrysanthemii		NS	Least Concern		h	sheep's sorrel	AB	56
Coleoptera	Chrysomelidae	Neocrepidodera transversa		None	Least Concern				ACDF	78
Coleoptera	Chrysomelidae	Oulema melanopus sens. str.	Cereal Leaf Beetle	None	Least Concern		g	Poaceae	CF	23
Coleoptera	Chrysomelidae	Phaedon tumidulus		None	Least Concern		g	cow parsley, hogweed	G	5
Coleoptera	Chrysomelidae	Phratora vulgatissima	Blue Willow Beetle	None	Least Concern			willows	FG	567
Coleoptera	Chrysomelidae	Phyllotreta astrachanica		None	Least Concern		g	Brassicaceae	C	5

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Chrysomelidae	Phyllotreta atra		None	Least Concern		g	Brassicaceae	D	5
Coleoptera	Chrysomelidae	Phyllotreta cruciferae		NS	Least Concern	YES	g	Brassicaceae	C	5
Coleoptera	Chrysomelidae	Phyllotreta exclamationis		None	Least Concern		w	Brassicaceae	F	3
Coleoptera	Chrysomelidae	Phyllotreta nigripes		None	Least Concern		g	Brassicaceae	ACFG	56
Coleoptera	Chrysomelidae	Phyllotreta nodicornis		None	Least Concern		g	weld	H	5
Coleoptera	Chrysomelidae	Phyllotreta tetrastigma		None	Least Concern			Brassicaceae	F	3
Coleoptera	Chrysomelidae	Phyllotreta undulata	Lesser Striped Flea Beetle	None	Least Concern			Brassicaceae	CFG	45
Coleoptera	Chrysomelidae	Phyllotreta vittula		None	Least Concern			Poaceae and Brassicaceae	ACDG	37
Coleoptera	Chrysomelidae	Plagioderia versicolora		None	Least Concern	YES	w	willows	FG	567
Coleoptera	Chrysomelidae	Prasocuris junci	Brooklime Leaf Beetle	None	Least Concern		w	brooklime and water speedwells	F	6
Coleoptera	Chrysomelidae	Prasocuris phellandrii		None	Least Concern		w	marsh marigold	F	4
Coleoptera	Chrysomelidae	Psylliodes affinis		None	Least Concern			woody nightshade	CEFG	567
Coleoptera	Chrysomelidae	Psylliodes chrysocephala		None	Least Concern			Brassicaceae	ACEGH	45679
Coleoptera	Chrysomelidae	Psylliodes dulcamarae		None	Least Concern			woody nightshade	G	567
Coleoptera	Chrysomelidae	Psylliodes napi		None	Least Concern			Brassicaceae	F	7
Coleoptera	Chrysomelidae	Psylliodes picina		None	Least Concern		w	purple loosestrife	CG	57
Coleoptera	Chrysomelidae	Sermylassa halensis		None	Least Concern		h	lady's bedstraw, heath	A	7

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
								bedstraw		
Coleoptera	Ciidae – Minute Tree-fungus Beetles	Cis bidentatus		None	<i>not evaluated</i>		s	fungi on dead wood	A	5
Coleoptera	Ciidae	Cis bilamellatus		None	<i>not evaluated</i>		s	fungi on dead wood	E	7
Coleoptera	Ciidae	Cis boleti		None	<i>not evaluated</i>		s	fungi on dead wood	G	7
Coleoptera	Ciidae	Cis castaneus		None	<i>not evaluated</i>		s	fungi on dead wood	AE	57
Coleoptera	Ciidae	Cis pygmaeus		None	<i>not evaluated</i>		s	fungi on dead wood	G	6
Coleoptera	Ciidae	Ennearthron cornutum		None	<i>not evaluated</i>		s	fungi on dead wood	E	7
Coleoptera	Clambidae – Fringe- winged Beetles	Clambus simsoni		None	Least Concern	YES			FG	35
Coleoptera	Coccinellidae – Ladybirds	Adalia decempunctata	10-spot Ladybird	None	<i>not evaluated</i>		s		CEGH	3567
Coleoptera	Coccinellidae	Aphidecta oblitterata	Larch Ladybird	None	<i>not evaluated</i>		s	On larch mainly	G	6
Coleoptera	Coccinellidae	Calvia quattuordecimguttata	Cream-spot Ladybird	None	<i>not evaluated</i>		s		AFGH	57
Coleoptera	Coccinellidae	Chilocorus renipustulatus	Kidney-spot Ladybird	None	<i>not evaluated</i>		s	On willows mainly	EG	56
Coleoptera	Coccinellidae	Coccidula rufa		None	<i>not evaluated</i>		w		H	8
Coleoptera	Coccinellidae	Coccinella septempunctata	7-spot Ladybird	None	<i>not evaluated</i>				ABCDEF GH	2345678
Coleoptera	Coccinellidae	Exochomus quadripustulatus	Pine Ladybird	None	<i>not evaluated</i>		s		AE	45678
Coleoptera	Coccinellidae	Harmonia axyridis	Harlequin Ladybird	None	<i>not evaluated</i>				ABCDEF GH	5678
Coleoptera	Coccinellidae	Harmonia quadripunctata	Cream-streaked Ladybird	None	<i>not evaluated</i>		s	On pines	E	5

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Coccinellidae	Hippodamia variegata	Adonis' Ladybird	[Nb]	<i>not evaluated</i>		h		A	7
Coleoptera	Coccinellidae	Propylea quattuordecimpunctata	14-spot Ladybird	None	<i>not evaluated</i>				BCDEFG H	5678
Coleoptera	Coccinellidae	Psyllobora vigintiduopunctata	22-spot Ladybird	None	<i>not evaluated</i>		g	mildews on hogweed, ragwort etc	ABEG	567
Coleoptera	Coccinellidae	Scymnus auritus		None	<i>not evaluated</i>		s	On oaks	E	7
Coleoptera	Coccinellidae	Scymnus frontalis		None	<i>not evaluated</i>		h		A	6
Coleoptera	Coccinellidae	Scymnus haemorrhoidalis		None	<i>not evaluated</i>		w		F	3
Coleoptera	Coccinellidae	Scymnus suturalis		None	<i>not evaluated</i>		s	On pines	E	5
Coleoptera	Coccinellidae	Stethorus pusillus		None	<i>not evaluated</i>		s		E	5
Coleoptera	Coccinellidae	Subcoccinella vigintiquatuordecimpunctata	24-spot Ladybird	None	<i>not evaluated</i>		g		ACDEFG	2678
Coleoptera	Coccinellidae	Tytthaspis sedecimpunctata	16-spot Ladybird	None	<i>not evaluated</i>		g		ACEFG	467
Coleoptera	Corylophidae	Corylophus cassidoides		None	<i>not evaluated</i>		w		CF	35
Coleoptera	Corylophidae	Orthoperus atomus		None	<i>not evaluated</i>	YES	s	Usually on pines	E	7
Coleoptera	Corylophidae	Orthoperus nigrescens		[Nb]	<i>not evaluated</i>	YES	s	dead wood	E	57
Coleoptera	Cryptophagidae – Silken Fungus Beetles	Antherophagus pallens (formerly nigricornis)		None	<i>not evaluated</i>				G	7
Coleoptera	Cryptophagidae	Atomaria atricapilla		None	<i>not evaluated</i>				A	9
Coleoptera	Cryptophagidae	Atomaria basalis		None	<i>not evaluated</i>		w		C	4
Coleoptera	Cryptophagidae	Atomaria fuscata		None	<i>not evaluated</i>				DF	35

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Cryptophagidae	Atomaria lewisi		None	<i>not evaluated</i>			piles of decaying vegetation	DFH	23
Coleoptera	Cryptophagidae	Atomaria testacea		None	<i>not evaluated</i>		g		C	4
Coleoptera	Cryptophagidae	Atomaria zetterstedti		RDBK	<i>not evaluated</i>	YES	w	willows	G	67
Coleoptera	Cryptophagidae	Cryptophagus denticulatus		None	<i>not evaluated</i>			piles of decaying vegetation	F	5
Coleoptera	Cryptophagidae	Cryptophagus lycoperdi		None	<i>not evaluated</i>			puffballs	B	68
Coleoptera	Cryptophagidae	Ephistemus globulus		None	<i>not evaluated</i>				F	3
Coleoptera	Cryptophagidae	Micrambe ulicis		None	<i>not evaluated</i>		h	gorse	ABEH	347
Coleoptera	Curculionidae – Weevils	Acalles misellus		None	<i>not evaluated</i>		s	dead wood	E	57
Coleoptera	Curculionidae	Acalyptus carpini		Nb	<i>not evaluated</i>		w	willows	FG	4567
Coleoptera	Curculionidae	Andrion regensteinense		None	<i>not evaluated</i>		s	gorse and broom	B	4
Coleoptera	Curculionidae	Anthonomus rubi	Strawberry Blossom Weevil	None	<i>not evaluated</i>		g	cinquefoils etc	A	67
Coleoptera	Curculionidae	Archarius salicivorus	Willow Gall Weevil	None	<i>not evaluated</i>			willows	AFG	567
Coleoptera	Curculionidae	Attactagenus plumbeus		Nb	<i>not evaluated</i>		g		B	6
Coleoptera	Curculionidae	Ceutorhynchus alliariae		None	<i>not evaluated</i>		g	garlic mustard	G	6
Coleoptera	Curculionidae	Ceutorhynchus inaeffectatus		None	<i>not evaluated</i>		g	dame's violet	G	6
Coleoptera	Curculionidae	Ceutorhynchus obstrictus		None	<i>not evaluated</i>			Brassicaceae	CDG	5
Coleoptera	Curculionidae	Ceutorhynchus pallidactylus	Cabbage Stem Weevil	None	<i>not evaluated</i>			Brassicaceae	DE	67

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Curculionidae	Ceutorhynchus picitarsis		None	<i>not evaluated</i>		g	Brassicaceae	F	6
Coleoptera	Curculionidae	Cionus hortulanus		None	<i>not evaluated</i>		g	figworts	A	6
Coleoptera	Curculionidae	Curculio glandium	Acorn Weevil	None	<i>not evaluated</i>		s	oaks	G	5
Coleoptera	Curculionidae	Dorytomus dejeani		None	<i>not evaluated</i>		s	poplars, aspen	AG	6
Coleoptera	Curculionidae	Dorytomus filirostris		Nb	<i>not evaluated</i>		s	poplars	G	6
Coleoptera	Curculionidae	Dorytomus melanophthalmus		None	<i>not evaluated</i>		s	willows	G	6
Coleoptera	Curculionidae	Dorytomus taeniatus		None	<i>not evaluated</i>		s	willows	G	3567
Coleoptera	Curculionidae	Dorytomus tortrix		None	<i>not evaluated</i>		s	poplars, aspen	AEF	6
Coleoptera	Curculionidae	Euophryum confine		None	<i>not evaluated</i>		s	dead wood	E	6
Coleoptera	Curculionidae	Exomias pellucidus		None	<i>not evaluated</i>				E	456
Coleoptera	Curculionidae	Hypera conmaculata		None	<i>not evaluated</i>		w	Apiaceae	F	8
Coleoptera	Curculionidae	Limnobaris t-album		None	<i>not evaluated</i>	YES	w	sedges	D	4567
Coleoptera	Curculionidae	Liophloeus tessulatus		None	<i>not evaluated</i>		s	ivy and Apiaceae	G	6
Coleoptera	Curculionidae	Magdalis carbonaria		Nb	<i>not evaluated</i>		s	birch	E	6
Coleoptera	Curculionidae	Magdalis cerasi		[Nb]	<i>not evaluated</i>		s	Rosaceae	A	6
Coleoptera	Curculionidae	Mecinus pascuorum		None	<i>not evaluated</i>		g	ribwort plantain	A	6
Coleoptera	Curculionidae	Mecinus pyraster		None	<i>not evaluated</i>		g	ribwort plantain	E	7
Coleoptera	Curculionidae	Micrelus ericae	Small Heather Weevil	None	<i>not evaluated</i>		h	heather	A	7
Coleoptera	Curculionidae	Nedyus quadrimaculatus	Small Nettle Weevil	None	<i>not evaluated</i>		g	nettles	ACDEFG	4567

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Curculionidae	Neophytobius muricatus		Na	<i>not evaluated</i>	YES	w	marsh cinquefoil, amphibious bistort	F	8
Coleoptera	Curculionidae	Orchestes rusci		None	<i>not evaluated</i>		s	birch	B	9
Coleoptera	Curculionidae	Otiorhynchus ovatus		None	<i>not evaluated</i>		h		AB	9
Coleoptera	Curculionidae	Otiorhynchus singularis	Raspberry Weevil	None	<i>not evaluated</i>		s		G	6
Coleoptera	Curculionidae	Pachyrhinus lethierryi		None	<i>not evaluated</i>		s	cypresses	C	6
Coleoptera	Curculionidae	Parethelcus pollinarius		None	<i>not evaluated</i>		g	nettles	DFG	4568
Coleoptera	Curculionidae	Philopeton plagiatum	Marram Weevil	None	<i>not evaluated</i>	YES	h		A	56
Coleoptera	Curculionidae	Phyllobius argentatus	Silver-green Leaf Weevil	None	<i>not evaluated</i>		s		CE	5
Coleoptera	Curculionidae	Phyllobius glaucus		None	<i>not evaluated</i>		s		CEG	456
Coleoptera	Curculionidae	Phyllobius maculicornis	Green Leaf Weevil	None	<i>not evaluated</i>		s		AD	6
Coleoptera	Curculionidae	Phyllobius pomaceus		None	<i>not evaluated</i>		g	nettles	G	6
Coleoptera	Curculionidae	Phyllobius pyri	Common Leaf Weevil	None	<i>not evaluated</i>		s		DG	56
Coleoptera	Curculionidae	Phyllobius roboretanus	Small Green Nettle Weevil	None	<i>not evaluated</i>		g		DG	6
Coleoptera	Curculionidae	Phyllobius viridearis	Green Nettle Weevil	None	<i>not evaluated</i>		g		A	6
Coleoptera	Curculionidae	Pityogenes trepanatus		Na	<i>not evaluated</i>	YES	s	pin	A	9
Coleoptera	Curculionidae	Pityophthorus pubescens		None	<i>not evaluated</i>		s	pin	E	7
Coleoptera	Curculionidae	Polydrusus cervinus		None	<i>not evaluated</i>		s		ABE	567
Coleoptera	Curculionidae	Rhinocyllus conicus		[Na]	<i>not evaluated</i>		g	thistles	G	6

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Curculionidae	Rhinoncus castor		None	<i>not evaluated</i>		h	sheep's sorrel	AB	25679
Coleoptera	Curculionidae	Romualdius angustisetulus		None	<i>not evaluated</i>	YES	h		AB	2569
Coleoptera	Curculionidae	Scolytus multistriatus	Small Elm Bark Beetle	None	<i>not evaluated</i>		s	elms, dead wood	G	7
Coleoptera	Curculionidae	Scolytus rugulosus	Fruit Bark Beetle	None	<i>not evaluated</i>		s	Rosaceae, dead wood	E	7
Coleoptera	Curculionidae	Sitona humeralis		None	<i>not evaluated</i>		h	Fabaceae	A	9
Coleoptera	Curculionidae	Sitona lineatus	Pea-leaf Weevil	None	<i>not evaluated</i>		g	Fabaceae	ABCEFG H	2456789
Coleoptera	Curculionidae	Strophosoma melanogrammum	Nut Leaf Weevil	None	<i>not evaluated</i>				AE	5679
Coleoptera	Curculionidae	Tachyerges salicis		None	<i>not evaluated</i>		s	willows	G	57
Coleoptera	Curculionidae	Trichosirocalus troglodytes		None	<i>not evaluated</i>		g	ribwort plantain	A	6
Coleoptera	Curculionidae	Trypodendron domesticum		None	<i>not evaluated</i>	YES	s	dead wood	G	5
Coleoptera	Curculionidae	Tychius picirostris		None	<i>not evaluated</i>		g	clovers	ACDEFG	56
Coleoptera	Dermestidae – Hide Beetles	Anthrenus fuscus		None	Least Concern			dried plant and animal debris	FG	7
Coleoptera	Dermestidae	Anthrenus verbasci	Varied Carpet Beetle	None	Least Concern			dried plant and animal debris	FG	7
Coleoptera	Dermestidae	Dermestes murinus		NS	Least Concern			carrion	B	6
Coleoptera	Dryopidae – Long-toed Water Beetles	Dryops ernesti		None	Least Concern		a		F	3
Coleoptera	Dytiscidae – Diving Beetles	Agabus bipustulatus		None	Least Concern		a		F	4
Coleoptera	Dytiscidae	Agabus sturmii		None	Least Concern		a		C	4

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Dytiscidae	Clemnius decoratus		NS	Least Concern		a		F	4
Coleoptera	Dytiscidae	Dytiscus marginalis	Great Diving Beetle	None	Least Concern		a		A	9
Coleoptera	Dytiscidae	Graptodytes granularis		None	Least Concern		a		FH	4
Coleoptera	Dytiscidae	Hydroglyphus geminus		None	Least Concern		a		H	4
Coleoptera	Dytiscidae	Hydroporus angustatus		None	Least Concern		a		BCDFGH	349
Coleoptera	Dytiscidae	Hydroporus incognitus		None	Least Concern		a		D	3
Coleoptera	Dytiscidae	Hydroporus striola		None	Least Concern		a		G	4
Coleoptera	Dytiscidae	Hygrotus impressopunctatus		None	Least Concern		a		F	5
Coleoptera	Dytiscidae	Hygrotus inaequalis		None	Least Concern		a		C	9
Coleoptera	Dytiscidae	Ilybius fuliginosus		None	Least Concern		a		D	4
Coleoptera	Dytiscidae	Ilybius quadriguttatus		None	Least Concern	YES	a		H	4
Coleoptera	Dytiscidae	Liopterus haemorrhoidalis	Piles Beetle	None	Least Concern		a		DFH	34
Coleoptera	Dytiscidae	Rhantus suturalis	Supertramp	None	Least Concern		a		B	9
Coleoptera	Elateridae – Click Beetles	Actenicerus sjaelandicus	Marsh Click Beetle	None	<i>not evaluated</i>		w		H	5
Coleoptera	Elateridae	Adrastus pallens		None	<i>not evaluated</i>				CDEFG	7
Coleoptera	Elateridae	Agriotes obscurus		None	<i>not evaluated</i>		g		A	6
Coleoptera	Elateridae	Agriotes pallidulus		None	<i>not evaluated</i>				BDEG	56
Coleoptera	Elateridae	Agriotes sputator		None	<i>not evaluated</i>		g		AF	567
Coleoptera	Elateridae	Athous haemorrhoidalis		None	<i>not evaluated</i>		s		ABCDEF G	67

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Elateridae	Cardiophorus asellus		Nb	<i>not evaluated</i>	YES	h		AB	56
Coleoptera	Elateridae	Dalopius marginatus		None	<i>not evaluated</i>				ACEFG	456
Coleoptera	Elateridae	Denticollis linearis		None	<i>not evaluated</i>		s	dead wood	BCE	6
Coleoptera	Elateridae	Hemicrepidius hirtus		None	<i>not evaluated</i>				FG	7
Coleoptera	Elateridae	Limonius poneli		None	<i>not evaluated</i>		g		ACEF	567
Coleoptera	Elateridae	Melanotus castanipes		None	<i>not evaluated</i>		s	dead wood	AF	6
Coleoptera	Elateridae	Prosternon tessellatum	Chequered Click Beetle	None	<i>not evaluated</i>				ABD	567
Coleoptera	Endomychidae – Handsome Fungus Beetles	Endomychus coccineus	False Ladybird	None	<i>not evaluated</i>		s	fungi on dead wood	G	35
Coleoptera	Endomychidae	Mycetaea subterranea	Hairy Cellar Beetle	None	<i>not evaluated</i>	YES		decaying vegetation heaps	F	3
Coleoptera	Eirrhinidae – Wetland Weevils	Notaris acridulus		None	<i>not evaluated</i>		w	<i>Glyceria</i>	F	8
Coleoptera	Geotrupidae – Dor Beetles	Geotrupes spiniger		None	Least Concern		g	dung	B	8
Coleoptera	Gyrinidae – Whirligig Beetles	Gyrinus substriatus		None	Least Concern		a		F	4
Coleoptera	Heteroceridae – Variegated Mud-loving Beetles	Heterocerus fenestratus		None	Least Concern		w		AB	9
Coleoptera	Heteroceridae	Heterocerus fuscus		[NR]	[VULNERABLE]		w		B	9
Coleoptera	Histeridae – Clown Beetles	Carcinops pumilio		None	Least Concern				G	6
Coleoptera	Histeridae	Abraeus perpusillus	Tiny Bark Clown	None	Least Concern			dead wood	H	3

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Histeridae	Kissister minimus	Little Clown	None	Least Concern	YES	h		A	6
Coleoptera	Histeridae	Margarinotus purpurascens	Blushing Clown	None	Least Concern		h		AE	6
Coleoptera	Histeridae	Saprinus aeneus	Bronze Mirror Clown	NS	Least Concern		h	In carrion and dung	B	6
Coleoptera	Hydraenidae – Moss Beetles	Limnebius aluta		NS	NEAR THREATENED	YES	a		H	3
Coleoptera	Hydraenidae	Ochthebius minimus		None	Least Concern		a		ADF	3479
Coleoptera	Hydrochidae	Hydrochus crenatus		NS	NEAR THREATENED	YES	a		H	4
Coleoptera	Hydrochidae	Hydrochus elongatus		NS	NEAR THREATENED		a		H	5
Coleoptera	Hydrophilidae – Water Scavenger Beetles	Anacaena bipustulata		None	Least Concern	YES	a		CFH	34
Coleoptera	Hydrophilidae	Anacaena globulus		None	Least Concern		w		CDEF	45679
Coleoptera	Hydrophilidae	Anacaena limbata		None	Least Concern		a		CDFGH	34569
Coleoptera	Hydrophilidae	Anacaena lutescens		None	Least Concern		a		F	7
Coleoptera	Hydrophilidae	Cercyon analis		None	Least Concern			decaying vegetation heaps	AF	39
Coleoptera	Hydrophilidae	Cercyon bifenestratus		NS	Least Concern		w		C	7
Coleoptera	Hydrophilidae	Cercyon convexiusculus		None	Least Concern		w		C	9
Coleoptera	Hydrophilidae	Cercyon lateralis		None	Least Concern			dung	A	9
Coleoptera	Hydrophilidae	Cercyon marinus		None	Least Concern		w		A	9
Coleoptera	Hydrophilidae	Cercyon sternalis		None	Least Concern		w		CFG	234579

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Hydrophilidae	Cercyon tristis		None	Least Concern		w		C	7
Coleoptera	Hydrophilidae	Coelostoma orbiculare		None	Least Concern		a		DH	3
Coleoptera	Hydrophilidae	Cymbiodyta marginella		None	Least Concern		a		CDH	3479
Coleoptera	Hydrophilidae	Enochrus coarctatus		None	Least Concern		a		CDH	34
Coleoptera	Hydrophilidae	Enochrus melanocephalus		None	Least Concern		a		A	9
Coleoptera	Hydrophilidae	Enochrus nigritus		NS	NEAR THREATENED		a		BF	49
Coleoptera	Hydrophilidae	Enochrus ochropterus		None	Least Concern	YES	a		D	36
Coleoptera	Hydrophilidae	Enochrus quadripunctatus		NS	Least Concern		a		AD	39
Coleoptera	Hydrophilidae	Enochrus testaceus		None	Least Concern		a		C	9
Coleoptera	Hydrophilidae	Helochares lividus		None	Least Concern		a		DFH	34
Coleoptera	Hydrophilidae	Hydrobius fuscipes sens. str.		<i>not evaluated</i>	<i>not evaluated</i>		a		C	9
Coleoptera	Hydrophilidae	Hydrobius subrotundus		<i>not evaluated</i>	<i>not evaluated</i>		a		CDEH	346
Coleoptera	Hydrophilidae	Hydrophilus piceus	Great Silver Water Beetle	NS	NEAR THREATENED		a		AB	9
Coleoptera	Hydrophilidae	Laccobius bipunctatus		None	Least Concern		a		DH	3
Coleoptera	Hydrophilidae	Megasternum concinnum		None	Least Concern				CF	39
Coleoptera	Hydrophilidae	Sphaeridium marginatum		None	Least Concern			dung	F	2
Coleoptera	Kateretidae – Short- winged Flower Beetles	Brachypterus glaber		None	<i>not evaluated</i>		g	nettles	AF	7
Coleoptera	Kateretidae	Brachypterus urticae	Nettle Pollen Beetle	None	<i>not evaluated</i>		g	nettles	AEFG	67

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Kateretidae	Kateretes pusillus		None	<i>not evaluated</i>		w	sedges	DFGH	345
Coleoptera	Lampyridae – Glow Worms	Lampyris noctiluca	Glow-worm	None	Least Concern			snails	ABCDEFGH G	2345689
Coleoptera	Latridiidae – Minute Brown Scavenger Beetles	Cartodere bifasciata		None	<i>not evaluated</i>				CE	7
Coleoptera	Latridiidae	Cartodere nodifer		None	<i>not evaluated</i>				DG	235
Coleoptera	Latridiidae	Corticaria serrata		None	<i>not evaluated</i>				F	2
Coleoptera	Latridiidae	Corticarina minuta		None	<i>not evaluated</i>				C	6
Coleoptera	Latridiidae	Corticarina similata		None	<i>not evaluated</i>		s		E	7
Coleoptera	Latridiidae	Corticinica gibbosa		None	<i>not evaluated</i>				ACEFGH	4578
Coleoptera	Latridiidae	Enicmus brevicornis		Notable	<i>not evaluated</i>	YES	s	under bark with powdery fungi	E	7
Coleoptera	Leiodidae – Round Fungus Beetles	Agathidium varians		None	<i>not evaluated</i>				A	5
Coleoptera	Leiodidae	Anisotoma humeralis		None	<i>not evaluated</i>		s		E	6
Coleoptera	Leiodidae	Catops grandicollis		None	<i>not evaluated</i>				A	5
Coleoptera	Leiodidae	Catops morio		None	<i>not evaluated</i>				CG	9 (11)
Coleoptera	Leiodidae	Nargus velox		None	<i>not evaluated</i>		s		E	6
Coleoptera	Leiodidae	Ptomaphagus subvillosus		None	<i>not evaluated</i>				A	5
Coleoptera	Megalopodidae – Megalopodid Leaf Beetles	Zeugophora subspinosa		None	Least Concern		s	aspens, poplars	A	7
Coleoptera	Melandryidae – False Darkling	Abdera biflexuosa		NS	Least Concern		s	dead wood	G	6

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
	Beetles									
Coleoptera	Melyridae – Soft-winged Flower Beetles	Anthocomus fasciatus		NS	Least Concern				A	6
Coleoptera	Melyridae	Anthocomus rufus		None	Least Concern		w	reed-beds (<i>Phragmites</i>)	DFH	8
Coleoptera	Melyridae	Cordylepherus viridis		None	Least Concern				AC	6
Coleoptera	Melyridae	Malachius bipustulatus	Malachite Beetle	None	Least Concern				ABDFGH	6
Coleoptera	Monotomidae – Root-eating Beetles	Monotoma brevicollis		None	Least Concern				F	3
Coleoptera	Monotomidae	Monotoma picipes		None	Least Concern				A	9
Coleoptera	Monotomidae	Rhizophagus perforatus		None	Least Concern	YES	s		G	6
Coleoptera	Mordellidae – Tumbling Flower Beetles	Mordellistena humeralis		NS	Least Concern	YES	s		E	7
Coleoptera	Mordellidae	Mordellistena neuwaldeggiana		NS	Least Concern		s		AFG	7
Coleoptera	Mordellidae	Mordellistena pumila		None	Least Concern		g		A	6
Coleoptera	Mordellidae	Mordellistena variegata		NS	Least Concern		s		F	7
Coleoptera	Mordellidae	Mordellochroa abdominalis		None	Least Concern		s		G	7
Coleoptera	Nanophyidae – Nanophyid Weevils	Nanophyes marmoratus	Loosestrife Weevil	None	<i>not evaluated</i>		w	purple loosestrife	DG	7
Coleoptera	Nitidulidae – Sap and Pollen Beetles	Epuraea aestiva		None	<i>not evaluated</i>				FG	45
Coleoptera	Nitidulidae	Epuraea pallescens		None	<i>not evaluated</i>				G	5
Coleoptera	Nitidulidae	Epuraea unicolor		None	<i>not evaluated</i>				H	3

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Nitidulidae	Glischrochilus hortensis		None	<i>not evaluated</i>				ABDF	3567
Coleoptera	Nitidulidae	Meligethes aeneus	Common Pollen Beetle	None	<i>not evaluated</i>			Brassicaceae	ACDEFG H	234567
Coleoptera	Nitidulidae	Meligethes carinulatus		None	<i>not evaluated</i>		g	trefoils	C	5
Coleoptera	Nitidulidae	Meligethes matronalis		None	<i>not evaluated</i>		g	dame's violet	CG	67
Coleoptera	Nitidulidae	Meligethes ovatus		None	<i>not evaluated</i>		g	ground ivy	B	7
Coleoptera	Nitidulidae	Meligethes ruficornis		None	<i>not evaluated</i>		g	black horehound	E	5
Coleoptera	Oedemeridae – False Blister Beetles	Oedemera lurida		None	Least Concern		g		A	67
Coleoptera	Oedemeridae	Oedemera nobilis	Swollen-thighed Beetle	None	Least Concern		g		ABCDEFG GH	67
Coleoptera	Phalacridae – Shining Flower Beetles	Olibrus corticalis		None	Least Concern		g	ragworts, fleabanes	AE	379
Coleoptera	Phalacridae	Olibrus liquidus		None	Least Concern		g		A	6
Coleoptera	Phalacridae	Stilbus oblongus		None	Least Concern		w	reed-beds (<i>Phragmites</i>)	CF	4678
Coleoptera	Phalacridae	Stilbus testaceus		None	Least Concern		g		ACFH	2368
Coleoptera	Ptiliidae – Feather- winged Beetles	Microptilium palustre		RDBK	<i>not evaluated</i>	YES	w		F	23
Coleoptera	Ptiliidae	Ptenidium fuscicorne		None	<i>not evaluated</i>		w		F	3
Coleoptera	Ptiliidae	Ptenidium intermedium		None	<i>not evaluated</i>				FH	3
Coleoptera	Ptiliidae	Ptenidium nitidum		None	<i>not evaluated</i>				FH	3
Coleoptera	Ptiliidae	Ptenidium pusillum		None	<i>not evaluated</i>				FH	23
Coleoptera	Ptiliidae	Ptiliolium fuscum		None	<i>not evaluated</i>	YES			F	3

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Ptiliidae	Ptilium affine		RDBK	<i>not evaluated</i>	YES	w		F	23
Coleoptera	Ptinidae – Wood-borer Beetles	Anobium inexpectatum		None	Least Concern		s	ivy dead wood	G	7
Coleoptera	Ptinidae	Anobium punctatum	Woodworm	None	Least Concern		s	dead wood	E	7
Coleoptera	Ptinidae	Hemicoelus fulvicornis		None	Least Concern		s	dead wood	EG	7
Coleoptera	Ptinidae	Ochina ptinoides	Ivy Boring Beetle	None	Least Concern		s	ivy dead wood	FG	67
Coleoptera	Ptinidae	Ptilinus pectinicornis	Fan-bearing Wood-borer	None	Least Concern		s	dead wood	G	67
Coleoptera	Pyrochroidae – Cardinal Beetles	Pyrochroa serraticornis	Common Cardinal Beetle	None	Least Concern		s	dead wood	CEFG	56
Coleoptera	Rhynchitidae – Tooth-nosed Snout Weevils	Tatianaerhynchites aequatus	Apple Fruit Rhynchites	None	<i>not evaluated</i>		s	hawthorn	BG	5
Coleoptera	Rhynchitidae	Temnocerus longiceps		Nb	<i>not evaluated</i>		s	willows	F	7
Coleoptera	Salpingidae – Narrow-waisted Bark Beetles	Salpingus planirostris		None	Least Concern		s	dead wood	E	67
Coleoptera	Salpingidae	Vincenzellus ruficollis		None	Least Concern		s	dead wood	G	6
Coleoptera	Scarabaeidae – Dung Beetles and Chafers	Acrossus rufipes		None	Least Concern			dung	A	9
Coleoptera	Scarabaeidae	Agrilinus ater		None	Least Concern			dung	G	6
Coleoptera	Scarabaeidae	Calamosternus granarius		None	Least Concern			dung	AB	5
Coleoptera	Scarabaeidae	Melinopterus prodromus		None	Least Concern			dung	A	4
Coleoptera	Scarabaeidae	Onthophagus similis		None	Least Concern			dung	ABF	569
Coleoptera	Scarabaeidae	Oxyomus sylvestris		None	Least Concern			Dung and organic debris	F	3

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Scarabaeidae	Phyllopertha horticola	Bracken Chafer	None	Least Concern		g		ABD	6
Coleoptera	Scirtidae – Marsh Beetles	Contacyphon coarctatus		None	Least Concern		a/w		DEFG	4567
Coleoptera	Scirtidae	Contacyphon hilaris		None	Least Concern		a/w		H	67
Coleoptera	Scirtidae	Contacyphon laevipennis		None	Least Concern		a/w	reed-beds	CFG	2357
Coleoptera	Scirtidae	Contacyphon ochraceus		None	Least Concern		a/w		DEFG	7
Coleoptera	Scirtidae	Contacyphon padi		None	Least Concern		a/w		ACDEFG H	2345678 9
Coleoptera	Scirtidae	Contacyphon palustris		None	Least Concern		a/w		FG	56
Coleoptera	Scirtidae	Contacyphon pubescens		NS	Least Concern	YES	a/w		H	5
Coleoptera	Scirtidae	Elodes elongatus		NS	Least Concern		a/w		G	567
Coleoptera	Scirtidae	Microcara testacea		None	Least Concern		a/s		EFG	567
Coleoptera	Scirtidae	Scirtes hemisphaericus		None	Least Concern		w		CDH	67
Coleoptera	Scraptiidae – False Flower Beetles	Anaspis fasciata		None	Least Concern		s	dead wood	GH	5
Coleoptera	Scraptiidae	Anaspis frontalis		None	Least Concern		s	dead wood	FG	456
Coleoptera	Scraptiidae	Anaspis garneysi		None	Least Concern		s	dead wood	F	5
Coleoptera	Scraptiidae	Anaspis maculata		None	Least Concern		s	dead wood	ADFG	567
Coleoptera	Scraptiidae	Anaspis pulicaria		None	Least Concern				EG	67
Coleoptera	Scraptiidae	Anaspis rufilabris		None	Least Concern		s	dead wood	E	6
Coleoptera	Scraptiidae	Anaspis thoracica		NS	Least Concern		s	dead wood	EG	67
Coleoptera	Silphidae – Carrion	Ablattaria laevigata	Smooth Snail-hunter	None	Least Concern		h	snails	A	6

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
	Beetles									
Coleoptera	Silphidae	Necrodes littoralis	Shore Sexton Beetle	None	Least Concern			carrion	A	9
Coleoptera	Silphidae	Nicrophorus humator	The Undertaker	None	Least Concern			carrion	B	9
Coleoptera	Silphidae	Nicrophorus interruptus	Interrupted Burying Beetle	NS	Least Concern	YES		carrion	A	9
Coleoptera	Silphidae	Nicrophorus investigator	Banded Burying Beetle	None	Least Concern			carrion	A	9
Coleoptera	Silphidae	Nicrophorus vespillo	Bent-legged Burying Beetle	None	Least Concern			carrion	A	6
Coleoptera	Silphidae	Phosphuga atrata	Common Snail-hunter	None	Least Concern			snails	AEF	689
Coleoptera	Silphidae	Silpha tristis	Grassland Carrion Beetle	None	Least Concern		g	slugs?	A (near)	9
Coleoptera	Silvanidae	Psammoecus bipunctatus		None	<i>not evaluated</i>		w		CDFGH	234578
Coleoptera	Staphylinidae – Rove Beetles	Acrotona muscorum		None	<i>not evaluated</i>				H	3
Coleoptera	Staphylinidae	Agaricochara latissima		None	<i>not evaluated</i>			fungi (brackets etc)	G	(11)
Coleoptera	Staphylinidae	Aleochara bilineata		None	<i>not evaluated</i>				A	6
Coleoptera	Staphylinidae	Aleochara bipustulata		None	<i>not evaluated</i>	YES			A	56
Coleoptera	Staphylinidae	Aleochara lanuginosa		None	<i>not evaluated</i>			dung	G	3
Coleoptera	Staphylinidae	Aloconota gregaria		None	<i>not evaluated</i>	YES			DFG	236(11)
Coleoptera	Staphylinidae	Amischa decipiens		None	<i>not evaluated</i>				CG	45
Coleoptera	Staphylinidae	Amischa nigrofusca		None	<i>not evaluated</i>				A	3
Coleoptera	Staphylinidae	Anotylus nitidulus		None	<i>not evaluated</i>				B	9

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Staphylinidae	Anotylus rugosus		None	<i>not evaluated</i>				ACDEFG H	235689
Coleoptera	Staphylinidae	Anthobium unicolor		None	<i>not evaluated</i>				ACDEG	345
Coleoptera	Staphylinidae	Astenus lyonessius		None	<i>not evaluated</i>		g		A	9
Coleoptera	Staphylinidae	Atheta aquatica		None	<i>not evaluated</i>				GH	38
Coleoptera	Staphylinidae	Atheta crassicornis		None	<i>not evaluated</i>				DG	3(11)
Coleoptera	Staphylinidae	Atheta graminicola		None	<i>not evaluated</i>		w		C	4
Coleoptera	Staphylinidae	Atheta (Alaobia) pallidicornis		None	<i>not evaluated</i>	YES	s		F	3
Coleoptera	Staphylinidae	Atheta (Alaobia) trinotata		None	<i>not evaluated</i>				G	3
Coleoptera	Staphylinidae	Atheta (Datomicra) nigra		None	<i>not evaluated</i>				G	(11)
Coleoptera	Staphylinidae	Atheta (Dimetrotina) laticollis		None	<i>not evaluated</i>				AFG	35
Coleoptera	Staphylinidae	Atheta (Mocyta) fungi		None	<i>not evaluated</i>				H	3
Coleoptera	Staphylinidae	Atheta (Mocyta) fungi agg.		None	<i>not evaluated</i>				ACEFG	23568(1 1)
Coleoptera	Staphylinidae	Atheta (Philhygra) elongatula		None	<i>not evaluated</i>		w		C	7
Coleoptera	Staphylinidae	Atheta (Philhygra) palustris		None	<i>not evaluated</i>				A	5
Coleoptera	Staphylinidae	Biblopectus tenebrosus		RDBK	<i>not evaluated</i>	YES	w		C	4
Coleoptera	Staphylinidae	Bisnius fimetarius		None	<i>not evaluated</i>				AFG	34
Coleoptera	Staphylinidae	Bledius gallicus		None	<i>not evaluated</i>				ABC	79
Coleoptera	Staphylinidae	Bryaxis bulbifer		None	<i>not evaluated</i>				CF	23
Coleoptera	Staphylinidae	Bryaxis puncticollis		None	<i>not evaluated</i>				F	23

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Staphylinidae	Callicerus obscurus		None	<i>not evaluated</i>				F	3
Coleoptera	Staphylinidae	Callicerus rigidicornis		None	<i>not evaluated</i>				B	5
Coleoptera	Staphylinidae	Carpelimus elongatulus		None	<i>not evaluated</i>		w		FG	235(11)
Coleoptera	Staphylinidae	Carpelimus pusillus		None	<i>not evaluated</i>				A	9
Coleoptera	Staphylinidae	Carpelimus rivularis		None	<i>not evaluated</i>		w		CF	37
Coleoptera	Staphylinidae	Carpelimus similis		[Notable]	<i>not evaluated</i>	YES	w		A	9
Coleoptera	Staphylinidae	Cephennium gallicum		None	<i>not evaluated</i>				E	4
Coleoptera	Staphylinidae	Cordalia obscura		None	<i>not evaluated</i>				FG	35
Coleoptera	Staphylinidae	Cypha discoidea		Nb	<i>not evaluated</i>		w		C	4
Coleoptera	Staphylinidae	Cypha longicornis		None	<i>not evaluated</i>				F	2
Coleoptera	Staphylinidae	Cypha pulicaria		Notable	<i>not evaluated</i>	YES			E	7
Coleoptera	Staphylinidae	Dacrila fallax		Notable	<i>not evaluated</i>		w		F	3
Coleoptera	Staphylinidae	Dilacra vilis		None	<i>not evaluated</i>		w		FH	235
Coleoptera	Staphylinidae	Dinaraea aequata		None	<i>not evaluated</i>		s	dead wood	DF	3
Coleoptera	Staphylinidae	Dinaraea angustula		None	<i>not evaluated</i>				AC	45
Coleoptera	Staphylinidae	Dochmonota clancula		Notable	<i>not evaluated</i>	YES	w		F	23
Coleoptera	Staphylinidae	Drusilla canaliculata		None	<i>not evaluated</i>		g	often with ants	ABD	569
Coleoptera	Staphylinidae	Erichsonius cinerascens		None	<i>not evaluated</i>		w		CFG	23(11)
Coleoptera	Staphylinidae	Euaesthetus ruficapillus		None	<i>not evaluated</i>		w		C	3

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Staphylinidae	Euplectus karstenii		None	<i>not evaluated</i>	YES		decaying vegetation heaps	F	3
Coleoptera	Staphylinidae	Gabrius trossulus		None	<i>not evaluated</i>		w		DG	25
Coleoptera	Staphylinidae	Geostiba circellaris		None	<i>not evaluated</i>				EF	236
Coleoptera	Staphylinidae	Gyrophypnus fracticornis		None	<i>not evaluated</i>			dung	F	2
Coleoptera	Staphylinidae	Gyrophypnus wagneri		None	<i>not evaluated</i>		w		F	3
Coleoptera	Staphylinidae	Habrocerus capillaricornis		None	Least Concern				DFG	2345
Coleoptera	Staphylinidae	Hapalareoa pygmaea		None	<i>not evaluated</i>		s		FG	6
Coleoptera	Staphylinidae	Heterothops minutus		None	<i>not evaluated</i>			decaying vegetation heaps	A	4
Coleoptera	Staphylinidae	Hygronoma dimidiata		None	<i>not evaluated</i>		w		DFG	3678
Coleoptera	Staphylinidae	Ischnosoma splendidum		None	Least Concern				AF	35
Coleoptera	Staphylinidae	Lamprinodes saginatus		None	Least Concern		g	with ants? In moss	B	6
Coleoptera	Staphylinidae	Lathrobium brunnipes		None	<i>not evaluated</i>				ABCEFG H	23456
Coleoptera	Staphylinidae	Lathrobium elongatum		None	<i>not evaluated</i>		w		GH	24
Coleoptera	Staphylinidae	Lathrobium geminum		None	<i>not evaluated</i>				G	2
Coleoptera	Staphylinidae	Lathrobium longulum		None	<i>not evaluated</i>				F	23
Coleoptera	Staphylinidae	Lesteva sicula		None	<i>not evaluated</i>		w		CDG	456
Coleoptera	Staphylinidae	Liogluta longiuscula		None	<i>not evaluated</i>				E	6

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Staphylinidae	Lithocharis nigriceps		None	<i>not evaluated</i>			decaying vegetation heaps	ADF	234
Coleoptera	Staphylinidae	Lithocharis ochracea		None	<i>not evaluated</i>			decaying vegetation heaps	A	9
Coleoptera	Staphylinidae	Lobrathium multipunctum		None	<i>not evaluated</i>				A	5
Coleoptera	Staphylinidae	Meotica exilis		None	<i>not evaluated</i>	YES	w		F	3
Coleoptera	Staphylinidae	Metopsia clypeata		None	<i>not evaluated</i>				A	6
Coleoptera	Staphylinidae	Micropeplus fulvus		None	<i>not evaluated</i>			decaying vegetation heaps	AGH	35(11)
Coleoptera	Staphylinidae	Mycetoporus lepidus		None	Least Concern				AC	349
Coleoptera	Staphylinidae	Mycetoporus rufescens		None	Least Concern	YES			D	3
Coleoptera	Staphylinidae	Myllaena infuscata		None	<i>not evaluated</i>		w		CF	24
Coleoptera	Staphylinidae	Myllaena intermedia		None	<i>not evaluated</i>		w		G	3
Coleoptera	Staphylinidae	Myllaena minuta		None	<i>not evaluated</i>		w		F	23
Coleoptera	Staphylinidae	Nehemitropia lividipennis		None	<i>not evaluated</i>			decaying vegetation heaps in particular	A	4
Coleoptera	Staphylinidae	Neuraphes angulatus		None	<i>not evaluated</i>				F	3
Coleoptera	Staphylinidae	Ochtheophilum fracticorne		None	<i>not evaluated</i>				C	3
Coleoptera	Staphylinidae	Ocypus brunnipes		None	<i>not evaluated</i>				E	6
Coleoptera	Staphylinidae	Ocypus nitens		Na	<i>not evaluated</i>	YES			B	5

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Staphylinidae	Ocypus olens	Devil's Coach-horse	None	<i>not evaluated</i>				A	9
Coleoptera	Staphylinidae	Ocypus ophthalmicus	Blue Rove-beetle	Na	<i>not evaluated</i>		h		B	6
Coleoptera	Staphylinidae	Ocyusa maura		None	<i>not evaluated</i>		w		CF	2379
Coleoptera	Staphylinidae	Ocyusa picina		None	<i>not evaluated</i>		w		CG	347
Coleoptera	Staphylinidae	Oligota apicata		Notable	<i>not evaluated</i>	YES	s	bracket fungi on dead wood	A	5
Coleoptera	Staphylinidae	Oligota pumilio		None	<i>not evaluated</i>			decaying vegetation heaps	H	3
Coleoptera	Staphylinidae	Olophrum piceum		None	<i>not evaluated</i>				B	5
Coleoptera	Staphylinidae	Omalium caesum		None	<i>not evaluated</i>				C	4
Coleoptera	Staphylinidae	Omalium excavatum		None	<i>not evaluated</i>				G	(11)
Coleoptera	Staphylinidae	Omalium rivulare		None	<i>not evaluated</i>				G	5
Coleoptera	Staphylinidae	Omalium rugatum		[Notable]	<i>not evaluated</i>		s		A	5
Coleoptera	Staphylinidae	Othius punctulatus		None	<i>not evaluated</i>				E	46
Coleoptera	Staphylinidae	Othius subuliformis		None	<i>not evaluated</i>				A (near)	9
Coleoptera	Staphylinidae	Oxypoda acuminata		None	<i>not evaluated</i>				AC	45
Coleoptera	Staphylinidae	Oxypoda elongatula		None	<i>not evaluated</i>		w		CF	234
Coleoptera	Staphylinidae	Oxytelus fulvipes		Na	<i>not evaluated</i>	YES	w		G	5
Coleoptera	Staphylinidae	Oxytelus laqueatus		None	<i>not evaluated</i>			dung	F	5
Coleoptera	Staphylinidae	Pachnida nigella		None	<i>not evaluated</i>		w	reedmace stems	CF	346

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Staphylinidae	Paederus riparius		None	<i>not evaluated</i>		w		CDFG	2345678
Coleoptera	Staphylinidae	Pella limbata		None	<i>not evaluated</i>		g	with ants?	AB	5
Coleoptera	Staphylinidae	Philonthus albipes		None	<i>not evaluated</i>			dung mainly	G	3
Coleoptera	Staphylinidae	Philonthus carbonarius		None	<i>not evaluated</i>				B	5
Coleoptera	Staphylinidae	Philonthus cognatus		None	<i>not evaluated</i>				AF	23
Coleoptera	Staphylinidae	Philonthus debilis		None	<i>not evaluated</i>			decaying vegetation heaps mainly	AF	34
Coleoptera	Staphylinidae	Philonthus decorus		None	<i>not evaluated</i>		s		A (near), E	69
Coleoptera	Staphylinidae	Philonthus laminatus		None	<i>not evaluated</i>				EF	36
Coleoptera	Staphylinidae	Philonthus sanguinolentus		None	<i>not evaluated</i>				F	3
Coleoptera	Staphylinidae	Philonthus tenuicornis		None	<i>not evaluated</i>				A	4
Coleoptera	Staphylinidae	Philonthus varians		None	<i>not evaluated</i>				A	3
Coleoptera	Staphylinidae	Philorinum sordidum		None	<i>not evaluated</i>		h	gorse	A	4
Coleoptera	Staphylinidae	Phyllodrepa floralis		None	<i>not evaluated</i>	YES	s		G	3
Coleoptera	Staphylinidae	Plataraea brunnea		None	<i>not evaluated</i>				B	6
Coleoptera	Staphylinidae	Platydracus stercorarius		None	<i>not evaluated</i>				A	9
Coleoptera	Staphylinidae	Proteinus brachypterus		None	<i>not evaluated</i>				F	2
Coleoptera	Staphylinidae	Pseudomedon obsoletus		RDBI	<i>not evaluated</i>		w		F	3
Coleoptera	Staphylinidae	Quedius curtipennis		None	<i>not evaluated</i>				E	5

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Staphylinidae	Quedius fuliginosus		None	<i>not evaluated</i>				FG	23
Coleoptera	Staphylinidae	Quedius fumatus		None	<i>not evaluated</i>		s		A (near) CDFGH	349(11)
Coleoptera	Staphylinidae	Quedius lateralis		None	<i>not evaluated</i>				H	3
Coleoptera	Staphylinidae	Quedius levicollis		None	<i>not evaluated</i>		h		ACG	9 (11)
Coleoptera	Staphylinidae	Quedius maurorufus		None	<i>not evaluated</i>		w		F	4
Coleoptera	Staphylinidae	Quedius molochinus		None	<i>not evaluated</i>				C	9
Coleoptera	Staphylinidae	Quedius persimilis		None	<i>not evaluated</i>		h		A	9
Coleoptera	Staphylinidae	Quedius picipes		None	<i>not evaluated</i>				CF	29
Coleoptera	Staphylinidae	Rugilus angustatus		Notable	<i>not evaluated</i>			decaying vegetation heaps	AFGH	234(11)
Coleoptera	Staphylinidae	Rugilus erichsonii		None	<i>not evaluated</i>				ACDF	2469
Coleoptera	Staphylinidae	Rugilus rufipes		None	<i>not evaluated</i>				CDEF	346
Coleoptera	Staphylinidae	Rybaxis longicornis		None	<i>not evaluated</i>		w		F	23
Coleoptera	Staphylinidae	Scaphidium quadrimaculatum		None	<i>not evaluated</i>		s	dead wood	D	3
Coleoptera	Staphylinidae	Scaphisoma boleti		[Nb]	<i>not evaluated</i>	YES	s	dead wood with fungi	F	2
Coleoptera	Staphylinidae	Scydmaenus tarsatus		None	<i>not evaluated</i>			decaying vegetation heaps	F	3
Coleoptera	Staphylinidae	Sepedophilus lusitanicus		NS	Least Concern			decaying vegetation heaps often	F	2
Coleoptera	Staphylinidae	Sepedophilus nigripennis		None	Least Concern				C	7

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Staphylinidae	Sepedophilus testaceus		None	Least Concern		s	dead wood	E	6
Coleoptera	Staphylinidae	Stenichnus collaris sensu stricto		None	<i>not evaluated</i>	YES			F	2
Coleoptera	Staphylinidae	Stenus aceris		None	<i>not evaluated</i>		g		A	3
Coleoptera	Staphylinidae	Stenus bifoveolatus		None	<i>not evaluated</i>		w		F	5
Coleoptera	Staphylinidae	Stenus bimaculatus		None	<i>not evaluated</i>		w		CFG	23457
Coleoptera	Staphylinidae	Stenus binotatus		None	<i>not evaluated</i>		w		G	5
Coleoptera	Staphylinidae	Stenus cicindeloides		None	<i>not evaluated</i>		w		FG	6
Coleoptera	Staphylinidae	Stenus circularis		Nb	<i>not evaluated</i>	YES	w		F	3
Coleoptera	Staphylinidae	Stenus clavicornis		None	<i>not evaluated</i>				AD	6
Coleoptera	Staphylinidae	Stenus flavipes		None	<i>not evaluated</i>		g		DFH	57
Coleoptera	Staphylinidae	Stenus fulvicornis		None	<i>not evaluated</i>		g		G	6
Coleoptera	Staphylinidae	Stenus impressus		None	<i>not evaluated</i>				A	3
Coleoptera	Staphylinidae	Stenus junco		None	<i>not evaluated</i>		w		CFG	349
Coleoptera	Staphylinidae	Stenus nitens		None	<i>not evaluated</i>		w		C	4
Coleoptera	Staphylinidae	Stenus nitidiusculus		None	<i>not evaluated</i>				DG	67
Coleoptera	Staphylinidae	Stenus ossium		None	<i>not evaluated</i>		g		G	2
Coleoptera	Staphylinidae	Stenus palustris		Nb	<i>not evaluated</i>		w		CFG	2345
Coleoptera	Staphylinidae	Stenus picipes		None	<i>not evaluated</i>				F	8
Coleoptera	Staphylinidae	Stenus providus		None	<i>not evaluated</i>				G	(11)

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Coleoptera	Staphylinidae	Stenus pusillus		None	<i>not evaluated</i>		w		FG	245
Coleoptera	Staphylinidae	Stenus solutus		None	<i>not evaluated</i>		w		CH	35
Coleoptera	Staphylinidae	Sunius melanocephalus		[Notable]	<i>not evaluated</i>		g		F	2
Coleoptera	Staphylinidae	Tachinus flavolimbatus		NS	Least Concern			decaying vegetation heaps mainly	A	5
Coleoptera	Staphylinidae	Tachinus laticollis		None	Least Concern				F	3
Coleoptera	Staphylinidae	Tachinus rufipes		None	Least Concern				DEFG	36
Coleoptera	Staphylinidae	Tachyporus chrysomelinus		None	Least Concern				AC	24
Coleoptera	Staphylinidae	Tachyporus dispar		None	Least Concern				A	3
Coleoptera	Staphylinidae	Tachyporus hypnorum		None	Least Concern				ACFGH	2345678
Coleoptera	Staphylinidae	Tachyporus nitidulus		None	Least Concern				DF	3
Coleoptera	Staphylinidae	Tachyporus obtusus		None	Least Concern		w		D	5
Coleoptera	Staphylinidae	Tachyporus pallidus		None	Least Concern		w		CF	234
Coleoptera	Staphylinidae	Tachyporus pusillus		None	Least Concern				A	56
Coleoptera	Staphylinidae	Tachyporus solutus		None	Least Concern				E	7
Coleoptera	Staphylinidae	Tasgius ater		None	<i>not evaluated</i>				A	9
Coleoptera	Staphylinidae	Tasgius melanarius		None	<i>not evaluated</i>				B	5
Coleoptera	Staphylinidae	Tasgius morsitans		None	<i>not evaluated</i>		g		A	9
Coleoptera	Staphylinidae	Xantholinus gallicus		None	<i>not evaluated</i>		h		B	5

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Coleoptera	Staphylinidae	Xantholinus linearis		None	<i>not evaluated</i>				ADEF	3569
Coleoptera	Staphylinidae	Xantholinus longiventris		None	<i>not evaluated</i>	YES			BDF	356
Coleoptera	Tenebrionidae – Darkling Beetles	Diaperis boleti		NS	Least Concern		s	birch polypores, occasionally other brackets	DE	37
Coleoptera	Tenebrionidae	Eledona agricola		None	Least Concern		s	chicken of the woods fungus	A	9
Coleoptera	Tenebrionidae	Gonodera luperus		NS	Least Concern		s		BE	56
Coleoptera	Tenebrionidae	Isomira murina		None	Least Concern		h		ABE	6
Coleoptera	Tenebrionidae	Lagria hirta		None	Least Concern				FG	7
Coleoptera	Tetratomidae – Polypore Fungus Beetles	Hallomenus binotatus		NS	Least Concern	YES	s	dead wood	A	9
Coleoptera	Throscidae – Small False Click Beetles	Trixagus dermestoides		None	<i>not evaluated</i>		s		EG	67
Coleoptera	Throscidae	Trixagus obtusus		None	<i>not evaluated</i>				C	7
Coleoptera	Zopheridae	Aulonium trisulcus		None	Least Concern	YES	s		A	9
Dermaptera – Earwigs	Forficulidae	Forficula auricularia	Common Earwig	None	Least Concern				ABCDEG	356789
Dermaptera	Labiidae	Labia minor	Lesser Earwig	None	Least Concern			manure heaps	A	9
Diptera – True Flies	Asilidae – Robberflies	Choerades marginatus	Golden-haired Robberfly	None	Least Concern		s		A	6
Diptera	Asilidae	Dioctria atricapilla	Violet Black-legged Robberfly	None	Least Concern		g		A	6
Diptera	Asilidae	Dioctria rufipes	Common Red-legged Robberfly	None	Least Concern		g		AGH	6

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Diptera	Asilidae	Dysmachus trigonus	Fan-bristled Robberfly	None	Least Concern		h		A	6
Diptera	Asilidae	Leptogaster cylindrica		None	Least Concern		g		G	7
Diptera	Asilidae	Machimus atricapillus	Kite-tailed Robberfly	None	Least Concern				B	78
Diptera	Asilidae	Neoitamus cyanurus	Common Awl Robberfly	None	Least Concern		s		BD	67
Diptera	Bibionidae – St Mark’s Flies	Bibio anglicus		None	<i>not evaluated</i>				FG	5
Diptera	Bibionidae	Bibio johannis		None	<i>not evaluated</i>				AFG	4
Diptera	Bibionidae	Bibio lanigerus		None	<i>not evaluated</i>				ACD	45
Diptera	Bibionidae	Bibio leucopterus		None	<i>not evaluated</i>				G	5
Diptera	Bibionidae	Bibio marci	St Marks Fly	None	<i>not evaluated</i>				ABCDEF G	45
Diptera	Bibionidae	Dilophus femoratus		None	<i>not evaluated</i>				G	3
Diptera	Bombyliidae – Beeflies	Bombylius major	Dark-edged Bee-fly	None	Least Concern				CDFG	345
Diptera	Conopidae – Thick-headed Flies	Myopa testacea	Plain-winged Spring Beegrabber	None	<i>not evaluated</i>		s		E	5
Diptera	Conopidae	Sicus ferrugineus		None	<i>not evaluated</i>				FG	7
Diptera	Dolichopodidae – Long-legged Flies	Argyra diaphana		None	Least Concern				F	5
Diptera	Dolichopodidae	Dolichopus picipes		None	Least Concern		w/s		DF	56
Diptera	Dolichopodidae	Dolichopus unguulatus		None	Least Concern				F	7
Diptera	Dolichopodidae	Hercostomus nanus		None	Least Concern		w		F	7
Diptera	Dolichopodidae	Poecilobothrus nobilitatus		None	Least Concern		w		F	7

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Diptera	Empididae – Dagger Flies	Empis chioptera		None	Least Concern				G	5
Diptera	Empididae	Empis livida		None	Least Concern				H	7
Diptera	Empididae	Empis trigramma		None	Least Concern				EG	5
Diptera	Empididae	Rhamphomyia tarsata		None	Least Concern				CE	5
Diptera	Empididae	Rhamphomyia tibiella		None	Least Concern	YES			F	5
Diptera	Hybotidae – Dance Flies	Hybos femoratus		None	Least Concern				F	7
Diptera	Hybotidae	Hybos grossipes		None	Least Concern				G	7
Diptera	Lauxaniidae	Trigonometopus frontalis		None	<i>not evaluated</i>		w		F	7
Diptera	Limoniidae	Limnophila schranki		None	<i>not evaluated</i>		w/s		G	3
Diptera	Limoniidae – Limonid Craneflies	Austrolimnophila ochracea		None	<i>not evaluated</i>		s		D	6
Diptera	Limoniidae	Ellipteroides lateralis		None	<i>not evaluated</i>		w		FGH	67
Diptera	Limoniidae	Erioconopa trivialis		None	<i>not evaluated</i>				FG	45
Diptera	Limoniidae	Euphylidorea dispar		None	<i>not evaluated</i>		s		G	6
Diptera	Limoniidae	Limonia nigropunctata		None	<i>not evaluated</i>				CEG	5
Diptera	Limoniidae	Limonia nubeculosa		None	<i>not evaluated</i>		s		CF	5
Diptera	Limoniidae	Limonia phragmitidis		None	<i>not evaluated</i>		w		EG	56
Diptera	Limoniidae	Molophilus obscurus		None	<i>not evaluated</i>		w		G	4
Diptera	Limoniidae	Ormosia hederæ		None	<i>not evaluated</i>		w/s		CGH	45
Diptera	Limoniidae	Paradelphomyia senilis		None	<i>not evaluated</i>		w/s		G	4

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Diptera	Limoniidae	Phylidorea abdominalis	Dimorphic Longtail	Notable	<i>not evaluated</i>		w/s		H	5
Diptera	Limoniidae	Phylidorea ferruginea		None	<i>not evaluated</i>		w		CDEGH	458
Diptera	Limoniidae	Pilaria discicollis		None	<i>not evaluated</i>		w		E	7
Diptera	Limoniidae	Pseudolimnophila sepium		None	<i>not evaluated</i>		w		E	7
Diptera	Limoniidae	Rhipidia maculata		None	<i>not evaluated</i>		w/s		A	9
Diptera	Muscidae – ‘House’ Flies	Mesembrina meridiana	Noon Fly	None	<i>not evaluated</i>				EG	45
Diptera	Opomyzidae	Opomyza florum		None	<i>not evaluated</i>				DFH	78
Diptera	Pediciidae – Hairy-eyed Craneflies	Tricyphona immaculata		None	<i>not evaluated</i>		w		CDEFG	456
Diptera	Platystomatidae – Signal Flies	Platystoma seminationis		None	<i>not evaluated</i>				G	7
Diptera	Platystomatidae	Rivellia syngenesiae		None	<i>not evaluated</i>		w		H	7
Diptera	Ptychopteridae – Phantom Craneflies	Ptychoptera albimana		None	<i>not evaluated</i>		w/s		DEGH	578
Diptera	Ptychopteridae	Ptychoptera minuta		None	<i>not evaluated</i>		w		DEH	57
Diptera	Ptychopteridae	Ptychoptera scutellaris		None	<i>not evaluated</i>		w		D	4
Diptera	Rhagionidae – Snipe Flies	Chrysopilus asiliformis	Little Snipefly	None	Least Concern				FGH	7
Diptera	Rhagionidae	Chrysopilus cristatus	Black Snipefly	None	Least Concern		g		CDFGH	67
Diptera	Rhagionidae	Rhagio lineola	Small Fleck-winged Snipefly	None	Least Concern		s		ADEFG	7
Diptera	Rhagionidae	Rhagio scolopaceus	Downlooker Snipefly	None	Least Concern		s		FG	6
Diptera	Rhagionidae	Rhagio tringarius	Marsh Snipefly	None	Least Concern		w		G	7

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Diptera	Scathophagidae – Dung Flies	Cleigastra apicalis		None	<i>not evaluated</i>		w		F	58
Diptera	Scathophagidae	Cordilura impudica		None	<i>not evaluated</i>		w		G	7
Diptera	Scathophagidae	Scathophaga stercoraria		None	<i>not evaluated</i>			dung	FG	48
Diptera	Sciaridae – Dark-winged Fungus Gnats	Sciara hemerobioides		None	<i>not evaluated</i>				CGH	7
Diptera	Sciomyzidae – Snail-killing Flies	Coremacera marginata		None	<i>not evaluated</i>				AF	78
Diptera	Sciomyzidae	Elgiva cucularia	Grey S-veined Snailkiller	None	<i>not evaluated</i>		w		F	5
Diptera	Sciomyzidae	Elgiva sollicita	Brown S-veined Snailkiller	None	<i>not evaluated</i>		w		H	8
Diptera	Sciomyzidae	Ilione albiseta		None	<i>not evaluated</i>		w		F	8
Diptera	Sciomyzidae	Pherbina coryleti		None	<i>not evaluated</i>		w		H	6
Diptera	Sciomyzidae	Psacadina verbekei	Verbeke's Spotwing Snailkiller	None	<i>not evaluated</i>		w/s		DFH	578
Diptera	Sciomyzidae	Sepedon sphegea		None	<i>not evaluated</i>		w		FH	7
Diptera	Sciomyzidae	Sepedon spinipes		None	<i>not evaluated</i>		w		F	8
Diptera	Sciomyzidae	Tetanocera arrogans	Two-spined Buff Snailkiller	None	<i>not evaluated</i>		w		D	5
Diptera	Sciomyzidae	Tetanocera ferruginea	Common Buff Snailkiller	None	<i>not evaluated</i>		w		GH	58
Diptera	Simuliidae – Blackflies	Simuliidae sp					a		D	3
Diptera	Stratiomyidae – Soldierflies	Beris chalybata	Murky-legged Black Legionnaire	None	Least Concern		s		CEFG	56
Diptera	Stratiomyidae	Beris fuscipes	Short-horned Black Legionnaire	None	Least Concern		w/s		G	7

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Diptera	Stratiomyidae	Beris vallata	Common Orange Legionnaire	None	Least Concern		s		FGH	7
Diptera	Stratiomyidae	Chloromyia formosa	Broad Centurion	None	Least Concern		g	dung	ADEFH	67
Diptera	Stratiomyidae	Chorisops nagatomii	Bright Four-spined Legionnaire	None	Least Concern		s		A	8
Diptera	Stratiomyidae	Chorisops tibialis	Dull Four-spined Legionnaire	None	Least Concern		s		AEG	78
Diptera	Stratiomyidae	Oxycera nigricornis	Delicate Soldier	None	Least Concern		w/s		FGH	67
Diptera	Stratiomyidae	Pachygaster atra	Dark-winged Black	None	Least Concern		s		AFGH	7
Diptera	Stratiomyidae	Pachygaster leachii	Yellow-legged Black	None	Least Concern		s		EFGH	7
Diptera	Syrphidae – Hoverflies	Cheilosia impressa		None	Least Concern		w/s		D	8
Diptera	Syrphidae	Cheilosia variabilis		None	Least Concern				F	5
Diptera	Syrphidae	Epistrophe eligans		None	Least Concern		s		AB	4
Diptera	Syrphidae	Episyrphus balteatus	Marmalade Hoverfly	None	Least Concern				ABCDEF GH	78
Diptera	Syrphidae	Eristalis intricarius		None	Least Concern				F	5
Diptera	Syrphidae	Eristalis pertinax		None	Least Concern				ACDEGH	4578
Diptera	Syrphidae	Eristalis tenax		None	Least Concern				FH	57
Diptera	Syrphidae	Eumerus strigatus	Lesser Bulb-Fly	None	Least Concern				F	5
Diptera	Syrphidae	Eupeodes luniger		None	Least Concern				F	5
Diptera	Syrphidae	Helophilus hybridus		None	Least Concern				G	5
Diptera	Syrphidae	Helophilus pendulus		None	Least Concern				DFGH	578

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Diptera	Syrphidae	Melanostoma mellinum		None	Least Concern				ADEFH	4578
Diptera	Syrphidae	Melanostoma scalare		None	Least Concern				DH	78
Diptera	Syrphidae	Neoascia tenur		None	Least Concern		w		CDFGH	4578
Diptera	Syrphidae	Pipiza noctiluca		None	Least Concern		s		G	5
Diptera	Syrphidae	Platycheirus albimanus		None	Least Concern				CEF	45
Diptera	Syrphidae	Platycheirus angustatus		None	Least Concern				AG	56
Diptera	Syrphidae	Platycheirus peltatus agg.		None	Least Concern				F	8
Diptera	Syrphidae	Rhingia campestris		None	Least Concern			dung	F	4
Diptera	Syrphidae	Sphaerophoria scripta		None	Least Concern		g		ABF	578
Diptera	Syrphidae	Syritta pipiens		None	Least Concern		g		BD	8
Diptera	Syrphidae	Tropidia scita		None	Least Concern		w		AFH	67
Diptera	Syrphidae	Volucella bombylans		None	Least Concern				FH	7
Diptera	Syrphidae	Volucella inanis		None	Least Concern				F	7
Diptera	Syrphidae	Volucella pellucens	Pied Hoverfly	None	Least Concern				DEF	67
Diptera	Syrphidae	Volucella zonaria	Hornet Hoverfly	None	Least Concern				E	7
Diptera	Syrphidae	Xanthogramma pedissequum		None	Least Concern				F	8
Diptera	Syrphidae	Xylota segnis		None	Least Concern		s		F	58
Diptera	Tabanidae – Horseflies and Clegs	Chrysops caecutiens	Splayed Deerfly	None	Least Concern		w/s	mammals	BEFG	7
Diptera	Tabanidae	Chrysops viduatus	Twin-lobed Deerfly	None	Least Concern		w/s	mammals	G	7

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Diptera	Tabanidae	Haematopota pluvialis	Notch-horned Cleg	None	Least Concern			mammals	ADGH	7
Diptera	Tachinidae	Eriothrix rufomaculata		None	<i>not evaluated</i>				D	8
Diptera	Tachinidae	Gymnocheta viridis		None	<i>not evaluated</i>		s		EH	34
Diptera	Tephritidae – Picture-winged Flies	Tephritis formosa		None	<i>not evaluated</i>		g	hawk's-beard, cat's-ear, sow- thistle	G	3
Diptera	Therevidae – Stiletto Flies	Thereva nobilitata	Common Stiletto	None	Least Concern		g		AE	7
Diptera	Therevidae	Thereva plebeja	Crochet-hooked Stiletto	None	Least Concern		h		AB	67
Diptera	Tipulidae – Craneflies	Nephrotoma appendiculata		None	<i>not evaluated</i>		g		ADF	56
Diptera	Tipulidae	Nephrotoma flavescens		None	<i>not evaluated</i>		g		E	7
Diptera	Tipulidae	Nephrotoma quadrifaria		None	<i>not evaluated</i>		s		G	7
Diptera	Tipulidae	Tipula helvola	Small-tailed Long Palp	Notable	<i>not evaluated</i>		s		AB	7
Diptera	Tipulidae	Tipula lateralis		None	<i>not evaluated</i>		w		E	7
Diptera	Tipulidae	Tipula luna		None	<i>not evaluated</i>		w		CDEFGH	456
Diptera	Tipulidae	Tipula lunata		None	<i>not evaluated</i>				BCDEG	56
Diptera	Tipulidae	Tipula oleracea		None	<i>not evaluated</i>				ABCF	569
Diptera	Tipulidae	Tipula paludosa		None	<i>not evaluated</i>		w		B	8
Diptera	Tipulidae	Tipula submarmorata		None	<i>not evaluated</i>		w		G	5
Diptera	Tipulidae	Tipula varipennis		None	<i>not evaluated</i>		s		FG	5
Diptera	Tipulidae	Tipula vernalis		None	<i>not evaluated</i>		g		AF	56

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Diptera	Tipulidae	Tipula vittata		None	<i>not evaluated</i>		w/s		CH	46
Entomobryomorph – Springtails (part)	Entomobryidae – Slender Springtails	Orchesella villosa		None	<i>not evaluated</i>				C	4
<i>Ephemeroptera – Mayflies</i>	?	<i>ephemeroptera nymphs</i>							D	3
Geophilomorph a – Soil Centipedes	Geophilidae	Geophilus easoni		None	Least Concern				AB	5
Geophilomorph a	Geophilidae	Geophilus flavus		None	Least Concern				F	5
Glomerida – Pill Millipedes	Glomeridae	Glomeris marginata	Pill Millipede	None	Least Concern		s		ABCDE	3569
Hemiptera – True Bugs	Acanthosomatidae – Shieldbugs (part)	Acanthosoma haemorrhoidale	Hawthorn Shieldbug	None	Least Concern		s	hawthorn	A	8
Hemiptera	Acanthosomatidae	Elasmostethus interstinctus	Birch Shieldbug	None	Least Concern		s	birch	ABE	5789
Hemiptera	Acanthosomatidae	Elasmucha grisea	Parent Bug	None	Least Concern		s	birch	ABG	4568
Hemiptera	Alydidae – Broad-headed Bugs	Alydus calcaratus		NS	Least Concern		h		A	9
Hemiptera	Anthocoridae – Flower Bugs	Acompocoris alpinus		None	<i>not evaluated</i>		s	pinus	E	7
Hemiptera	Anthocoridae	Anthocoris confusus		None	<i>not evaluated</i>		s		G	5
Hemiptera	Anthocoridae	Anthocoris limbatus		None	<i>not evaluated</i>		s	willows	F	5
Hemiptera	Anthocoridae	Anthocoris nemoralis		None	<i>not evaluated</i>		s		DFG	57
Hemiptera	Anthocoridae	Anthocoris nemorum		None	<i>not evaluated</i>				ACDEFG H	34567
Hemiptera	Anthocoridae	Buchananiella continua		None	<i>not evaluated</i>		s		E	7

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Hemiptera	Anthocoridae	Cardiastethus fasciiventris		None	<i>not evaluated</i>		s		EG	56
Hemiptera	Anthocoridae	Temnostethus gracilis		None	<i>not evaluated</i>		s		DEFG	7
Hemiptera	Anthocoridae	Xylocoris galactinus		None	<i>not evaluated</i>			decaying vegetation heaps	A	5
Hemiptera	Aphrophoridae – Froghoppers	Aphrophora alni		None	<i>not evaluated</i>		s		DFGH	78
Hemiptera	Aphrophoridae	Aphrophora major		Nb	<i>not evaluated</i>		w/s		H	8
Hemiptera	Aphrophoridae	Neophilaenus lineatus		None	<i>not evaluated</i>		g		H	8
Hemiptera	Aphrophoridae	Philaenus spumarius		None	<i>not evaluated</i>		g		DFGH	78
Hemiptera	Aradidae – Flatbugs	Aneurus avenius		None	<i>not evaluated</i>		s	dead wood	FG	25
Hemiptera	Ceratocombidae	Ceratocombus coleoptratus		None	<i>not evaluated</i>				CF	9
Hemiptera	Cercopidae – Cercopid Froghoppers	Cercopis vulnerata	Red-and-black Froghopper	None	<i>not evaluated</i>				DH	6
Hemiptera	Cicadellidae – Leafhoppers	Acericerus heydenii		None	<i>not evaluated</i>		s	sycamore	E	5
Hemiptera	Cicadellidae	Alebra albostriella		None	<i>not evaluated</i>		s	oaks	G	7
Hemiptera	Cicadellidae	Allygus mixtus		None	<i>not evaluated</i>		s		BEF	79
Hemiptera	Cicadellidae	Allygus modestus		None	<i>not evaluated</i>		s		E	7
Hemiptera	Cicadellidae	Anoscopus albifrons		None	<i>not evaluated</i>		g		D	6
Hemiptera	Cicadellidae	Aphrodes bicincta		None	<i>not evaluated</i>		g		AB	7
Hemiptera	Cicadellidae	Aphrodes makarovi		None	<i>not evaluated</i>				G	7

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Hemiptera	Cicadellidae	Arthaldeus pascuellus		None	<i>not evaluated</i>		g		F	8
Hemiptera	Cicadellidae	Cicadella viridis		None	<i>not evaluated</i>		w		H	78
Hemiptera	Cicadellidae	Cicadula quadrinotata		None	<i>not evaluated</i>		w	rushes and sedges	D	7
Hemiptera	Cicadellidae	Conosanus obsoletus		None	<i>not evaluated</i>		w	rushes	DH	78
Hemiptera	Cicadellidae	Deltocephalus pulicaris		None	<i>not evaluated</i>		g		B	7
Hemiptera	Cicadellidae	Doratura stylata		None	<i>not evaluated</i>		g		B	7
Hemiptera	Cicadellidae	Errastunus ocellaris		None	<i>not evaluated</i>		g		C	7
Hemiptera	Cicadellidae	Erzaleus metrius		None	<i>not evaluated</i>		w	reed canary grass	F	8
Hemiptera	Cicadellidae	Eupterycyba jucunda		None	<i>not evaluated</i>		s	alders	DEG	7
Hemiptera	Cicadellidae	Eupteryx aurata		None	<i>not evaluated</i>			nettles	FG	78
Hemiptera	Cicadellidae	Eupteryx urticae		None	<i>not evaluated</i>			nettles	F	8
Hemiptera	Cicadellidae	Eupteryx vittata		None	<i>not evaluated</i>				G	7
Hemiptera	Cicadellidae	Eurhadina pulchella		None	<i>not evaluated</i>		s	oaks	A	9
Hemiptera	Cicadellidae	Euscelis incisus		None	<i>not evaluated</i>		g		EF	7
Hemiptera	Cicadellidae	Evacanthus interruptus		None	<i>not evaluated</i>				DG	78
Hemiptera	Cicadellidae	Iassus lanio		None	<i>not evaluated</i>		s	oaks	AEGH	7
Hemiptera	Cicadellidae	Idiocerus similis		None	<i>not evaluated</i>		s	willows (normally <i>S. purpurea</i>)	G	7
Hemiptera	Cicadellidae	Idiocerus stigmatalis		None	<i>not evaluated</i>		s	willows	FG	7

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Hemiptera	Cicadellidae	Macropsis cerea		None	<i>not evaluated</i>		s	willows	FG	7
Hemiptera	Cicadellidae	Macrosteles variatus		None	<i>not evaluated</i>		s	nettles	G	7
Hemiptera	Cicadellidae	Megophthalmus scanicus		None	<i>not evaluated</i>		g	Poaceae	F	7
Hemiptera	Cicadellidae	Metidiocerus elegans		None	<i>not evaluated</i>		s	willows	G	7
Hemiptera	Cicadellidae	Notus flavipennis		None	<i>not evaluated</i>		w	sedges	H	8
Hemiptera	Cicadellidae	Oncopsis alni		None	<i>not evaluated</i>		s	alders	F	7
Hemiptera	Cicadellidae	Oncopsis flavicollis		None	<i>not evaluated</i>		s	birch	AEH	67
Hemiptera	Cicadellidae	Oncopsis tristis		None	<i>not evaluated</i>		s	birch	G	7
Hemiptera	Cicadellidae	Paralimnus phragmitis		Nb	<i>not evaluated</i>		w	common reed	FH	8
Hemiptera	Cicadellidae	Populicerus confusus		None	<i>not evaluated</i>		s	willows	AG	7
Hemiptera	Cicadellidae	Populicerus populi		None	<i>not evaluated</i>		s	aspen, poplars	A	78
Hemiptera	Cicadellidae	Psammotettix confinis		None	<i>not evaluated</i>		g		A	7
Hemiptera	Cicadellidae	Psammotettix nodosus		None	<i>not evaluated</i>		g		A	9
Hemiptera	Cicadellidae	Ulopa reticulata		None	<i>not evaluated</i>		h	heather	AB	467
Hemiptera	Cixiidae – Lacehoppers	Cixius nervosus		None	<i>not evaluated</i>		s		DFGH	678
Hemiptera	Coreidae – Leatherbugs	Arenocoris falleni	Fallen's Leatherbug	NS	Least Concern		h	common stork's-bill	A	7
Hemiptera	Coreidae	Arenocoris waltlii	Breckland Leatherbug	NR	[CRITICALLY ENDANGERED]	YES	h	common stork's-bill	A	67
Hemiptera	Coreidae	Gonocerus acuteangulatus	Box Bug	None	Least Concern		s		A	6

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Hemiptera	Coreidae	Spathocera dalmanii	Dalman's Leatherbug	NS	Least Concern		h	sheep's sorrel	AB	569
Hemiptera	Corixidae	Hesperocorixa sahlbergi		None	Least Concern		a		FG	47
Hemiptera	Corixidae	Sigara falleni		None	Least Concern		a		A	9
Hemiptera	Cydnidae	Legnotus limbosus	Bordered Shieldbug	None	Least Concern		g	bedstraws	ACFG	6
Hemiptera	Delphacidae – Planthoppers	Anakelisia fasciata		None	<i>not evaluated</i>		w	sedges	F	8
Hemiptera	Delphacidae	Chloriona smaragdula		None	<i>not evaluated</i>		w	common reed	DFH	67
Hemiptera	Delphacidae	Conomelus anceps		None	<i>not evaluated</i>		w	rushes	C	7
Hemiptera	Delphacidae	Delphax pulchellus		None	<i>not evaluated</i>		w	common reed	CH	7
Hemiptera	Delphacidae	Euides basilinea		None	<i>not evaluated</i>		w	common reed	D	6
Hemiptera	Delphacidae	Javesella pellucida		None	<i>not evaluated</i>		g	Poaceae	E	7
Hemiptera	Delphacidae	Stenocranus major		None	<i>not evaluated</i>		w	reed canary grass	F	8
Hemiptera	Hebridae – Velvet Water Bugs	Hebrus ruficeps		None	Least Concern		a		H	3
Hemiptera	Lygaeidae – Groundbugs	Chilacis typhae	Reedmace Bug	None	<i>not evaluated</i>		w	reedmace	H	7
Hemiptera	Lygaeidae	Cymus glandicolor		None	<i>not evaluated</i>		w	sedges	E	5
Hemiptera	Lygaeidae	Drymus brunneus		None	<i>not evaluated</i>		s		A (near) B	79
Hemiptera	Lygaeidae	Drymus ryei		None	<i>not evaluated</i>				ABCD	34569
Hemiptera	Lygaeidae	Drymus sylvaticus		None	<i>not evaluated</i>				ADEH	349
Hemiptera	Lygaeidae	Eremocoris podagricus		None	<i>not evaluated</i>		h		E	6

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Hemiptera	Lygaeidae	Gastrodes grossipes		None	<i>not evaluated</i>		s	pinetrees	E	5
Hemiptera	Lygaeidae	Heterogaster urticae	Nettle Groundbug	None	<i>not evaluated</i>			nettles	AF	7
Hemiptera	Lygaeidae	Ischnodemus sabuleti	European Cinchbug	None	<i>not evaluated</i>		g/w	grasses and reeds	FG	4567
Hemiptera	Lygaeidae	Kleidocerys resedae	Birch Catkin Bug	None	<i>not evaluated</i>		s	birch	ABCDEF GH	2345678 9
Hemiptera	Lygaeidae	Megalonotus praetextatus		Nb	<i>not evaluated</i>		h		A	6
Hemiptera	Lygaeidae	Megalonotus sabulicola		Nb	<i>not evaluated</i>		h		A	6
Hemiptera	Lygaeidae	Metopoplax ditomoides		None	<i>not evaluated</i>		h		A	6
Hemiptera	Lygaeidae	Pachybrachius fracticollis		None	<i>not evaluated</i>		w		DH	6
Hemiptera	Lygaeidae	Peritrechus geniculatus		None	<i>not evaluated</i>		g		A	7
Hemiptera	Lygaeidae	Peritrechus lundii		None	<i>not evaluated</i>		h		A	67
Hemiptera	Lygaeidae	Plinthisus brevipennis		None	<i>not evaluated</i>		h		B	6
Hemiptera	Lygaeidae	Scolopostethus affinis		None	<i>not evaluated</i>				AE	679
Hemiptera	Lygaeidae	Scolopostethus decoratus		None	<i>not evaluated</i>		h	heather	A	379
Hemiptera	Lygaeidae	Scolopostethus puberulus		None	<i>not evaluated</i>		g/w		CDG	3456
Hemiptera	Lygaeidae	Scolopostethus thomsoni		None	<i>not evaluated</i>				CG	457
Hemiptera	Lygaeidae	Stygnocoris fuliginosus		None	<i>not evaluated</i>		g		BC	69
Hemiptera	Lygaeidae	Stygnocoris sabulosus		None	<i>not evaluated</i>		g		AC	9
Hemiptera	Lygaeidae	Taphropeltus contractus		None	<i>not evaluated</i>		h		A	9
Hemiptera	Lygaeidae	Trapezonotus desertus		None	<i>not evaluated</i>		h		AB	56

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Hemiptera	Microphysidae – Minute Bladder Bugs	Loricula elegantula		None	<i>not evaluated</i>		s	lichens on trees	EG	7
Hemiptera	Microphysidae	Loricula pselaphiformis		None	<i>not evaluated</i>		s	lichens	E	7
Hemiptera	Miridae – Plant or Capsid Bugs	Apolygus lucorum		None	<i>not evaluated</i>				GH	7
Hemiptera	Miridae	Apolygus spinolae		None	<i>not evaluated</i>				A	7
Hemiptera	Miridae	Atractotomus mali		None	<i>not evaluated</i>		s	hawthorn, apple	G	7
Hemiptera	Miridae	Blepharidopterus angulatus	Black-kneed Capsid	None	<i>not evaluated</i>		s		F	8
Hemiptera	Miridae	Bryocoris pteridis		None	<i>not evaluated</i>			ferns	E	7
Hemiptera	Miridae	Campyloneura virgula		None	<i>not evaluated</i>		s		EFG	7
Hemiptera	Miridae	Capsus ater		None	<i>not evaluated</i>		g		DEF	67
Hemiptera	Miridae	Closterotomus norwegicus		None	<i>not evaluated</i>		g		DEH	7
Hemiptera	Miridae	Cyllecoris histrionius		None	<i>not evaluated</i>		s	oaks	E	6
Hemiptera	Miridae	Deraeocoris flavilinea		None	<i>not evaluated</i>		s		G	7
Hemiptera	Miridae	Deraeocoris lutescens		None	<i>not evaluated</i>		s	oaks mainly	EG	345
Hemiptera	Miridae	Deraeocoris ruber		None	<i>not evaluated</i>				ACDEFGH	78
Hemiptera	Miridae	Dicyphus epilobii		None	<i>not evaluated</i>		g	hairy willowherb	G	7
Hemiptera	Miridae	Dryophilocoris flavoquadrimaculatus		None	<i>not evaluated</i>		s	oaks	EF	6
Hemiptera	Miridae	Grypocoris stysi		None	<i>not evaluated</i>		s	nettles etc	FG	7
Hemiptera	Miridae	Halticus luteicollis		None	<i>not evaluated</i>			bedstraws, white bryony	CDFG	7

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Hemiptera	Miridae	Harpocera thoracica		None	<i>not evaluated</i>		s	oaks	EF	6
Hemiptera	Miridae	Heterotoma planicornis		None	<i>not evaluated</i>				ACDEFG	7
Hemiptera	Miridae	Leptopterna dolabrata		None	<i>not evaluated</i>		g	Poaceae	DFH	67
Hemiptera	Miridae	Leptopterna ferrugata		None	<i>not evaluated</i>		h	Poaceae	A	7
Hemiptera	Miridae	Liocoris tripustulatus		None	<i>not evaluated</i>			nettles	ACEFG	4567
Hemiptera	Miridae	Lygocoris pabulinus		None	<i>not evaluated</i>				DEFGH	678
Hemiptera	Miridae	Lygus rugulipennis		None	<i>not evaluated</i>				AF	35
Hemiptera	Miridae	Megacoelum infusum		None	<i>not evaluated</i>		s	oaks	A	8
Hemiptera	Miridae	Megaloceroea relicticornis		None	<i>not evaluated</i>		g	Poaceae	AFG	7
Hemiptera	Miridae	Monalocoris filicis		None	<i>not evaluated</i>			bracken	EH	78
Hemiptera	Miridae	Notostira elongata		None	<i>not evaluated</i>		g	Poaceae	B	8
Hemiptera	Miridae	Orthonotus rufifrons		None	<i>not evaluated</i>		s	nettles	EFG	7
Hemiptera	Miridae	Orthops campestris		None	<i>not evaluated</i>			umbellifers	AF	678
Hemiptera	Miridae	Orthops kalmii		None	<i>not evaluated</i>			umbellifers	F	8
Hemiptera	Miridae	Orthotylus ericetorum		None	<i>not evaluated</i>		h	heather	AB	7
Hemiptera	Miridae	Orthotylus marginalis		None	<i>not evaluated</i>		s	willows	DFG	7
Hemiptera	Miridae	Orthotylus ochrotrichus		None	<i>not evaluated</i>				FG	7
Hemiptera	Miridae	Phytocoris ulmi		None	<i>not evaluated</i>		s	hawthorn mainly	AFGH	7
Hemiptera	Miridae	Phytocoris varipes		None	<i>not evaluated</i>		g	Poaceae	A	7

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Hemiptera	Miridae	Plagiognathus arbustorum		None	<i>not evaluated</i>				ACDEFG H	78
Hemiptera	Miridae	Plagiognathus chrysanthemi		None	<i>not evaluated</i>		g	composites	ABDE	7
Hemiptera	Miridae	Polymerus nigrita		None	<i>not evaluated</i>			bedstraws, cleavers	CG	7
Hemiptera	Miridae	Polymerus unifasciatus		None	<i>not evaluated</i>		g	bedstraws	AB	7
Hemiptera	Miridae	Psallus ambiguus		None	<i>not evaluated</i>		s	hawthorn, willow, alder	F	6
Hemiptera	Miridae	Psallus betuleti		None	<i>not evaluated</i>		s	birch	B	6
Hemiptera	Miridae	Psallus perrisi		None	<i>not evaluated</i>		s	oaks	A	6
Hemiptera	Miridae	Psallus varians		None	<i>not evaluated</i>		s	oaks	G	6
Hemiptera	Miridae	Rhabdomiris striatellus		None	<i>not evaluated</i>		s	oaks	E	6
Hemiptera	Miridae	Salicarus roseri		None	<i>not evaluated</i>		s	willows	G	7
Hemiptera	Miridae	Stenodema calcarata		None	<i>not evaluated</i>			Poaceae	ABCDFG H	3457
Hemiptera	Miridae	Stenodema laevigata		None	<i>not evaluated</i>			Poaceae	AE	6
Hemiptera	Miridae	Stenotus binotatus		None	<i>not evaluated</i>		g	Poaceae	DEFGH	7
Hemiptera	Miridae	Teratocoris antennatus		None	<i>not evaluated</i>	YES	w	club-rushes	CD	7
Hemiptera	Miridae	Trigonotylus caelestialium		None	<i>not evaluated</i>		g	Poaceae	A	8
Hemiptera	Nabidae – Damselbugs	Himacerus apterus	Tree Damselbug	None	<i>not evaluated</i>		s		ABDEFG H	789
Hemiptera	Nabidae	Himacerus mirmicoides	Ant Damselbug	None	<i>not evaluated</i>		g		ABDEF	5678
Hemiptera	Nabidae	Nabis ferus		None	<i>not evaluated</i>				DH	78

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Hemiptera	Nabidae	Nabis flavomarginatus		None	<i>not evaluated</i>				A	9
Hemiptera	Nabidae	Nabis limbatus		None	<i>not evaluated</i>		g/w		EFGH	78
Hemiptera	Nabidae	Nabis rugosus	Common Damselbug	None	<i>not evaluated</i>				CF	48
Hemiptera	Nepidae – Water Scorpions	Nepa cinerea	Water Scorpion	None	Least Concern		a		H	5
Hemiptera	Pentatomidae – Shieldbugs (part)	Aelia acuminata	Bishop's Mitre Shieldbug	None	Least Concern		g	Poaceae	A	36
Hemiptera	Pentatomidae	Dolycoris baccarum	Hairy Shieldbug	None	Least Concern				GH	58
Hemiptera	Pentatomidae	Eurydema oleracea	Crucifer Shieldbug	None	Least Concern			Brassicaceae	CF	5
Hemiptera	Pentatomidae	Eysarcoris venustissimus	Woundwort Shieldbug	None	Least Concern			hedge woundwort	H	6
Hemiptera	Pentatomidae	Palomena prasina	Common Green Shieldbug	None	Least Concern				ABDEFG	35678
Hemiptera	Pentatomidae	Pentatoma rufipes	Red-legged Shieldbug	None	Least Concern		s		ABDEFG H	789
Hemiptera	Pentatomidae	Picromerus bidens	Spiked Shieldbug	None	Least Concern				B	8
Hemiptera	Pentatomidae	Piezodorus lituratus	Gorse Shieldbug	None	Least Concern		h	gorse, broom	AH	48
Hemiptera	Pentatomidae	Rhacognathus punctatus	Heather Shieldbug	None	Least Concern		h	heather etc	B	7
Hemiptera	Pentatomidae	Troilus luridus	Bronze Shieldbug	None	Least Concern		s		ABG	368
Hemiptera	Reduviidae – Assassin Bugs	Coranus woodroffei		None	<i>not evaluated</i>		h		A	9
Hemiptera	Rhopalidae – Scentless Plant Bugs	Myrmus miriformis		None	Least Concern		h		AB	7
Hemiptera	Rhopalidae	Rhopalus subrufus		None	Least Concern		g		A	6
Hemiptera	Saldidae – Shore Bugs	Chartoscirta cincta		None	Least Concern		w		CF	234

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Hemiptera	Saldidae	Saldula saltatoria		None	Least Concern		w		C	79
Hemiptera	Scutelleridae	Eurygaster testudinaria	Tortoise Shieldbug	None	Least Concern		g	Poaceae	DH	68
Hemiptera	Thyreocoridae – Ebony Bugs	Thyreocoris scarabaeoides	Scarab Shieldbug	NS	Least Concern		g/h	violets	AB	56
Hemiptera	Tingidae – Lacebugs	Acalypta parvula		None	<i>not evaluated</i>				AB	56
Hemiptera	Tingidae	Agramma laetum		None	<i>not evaluated</i>			rushes, sedges	B	7
Hemiptera	Tingidae	Dictyla convergens		None	<i>not evaluated</i>		w	water forget- me-not	F	6
Hemiptera	Tingidae	Kalama tricornis		None	<i>not evaluated</i>		h		A	6
Hemiptera	Tingidae	Physatocheila confinis		<i>not evaluated</i>	<i>not evaluated</i>		s		A	6
Hymenoptera – Bees, Wasps, Sawflies, Ants etc	Apidae – Bees	Andrena haemorrhoea	Orange-tailed Mining Bee	None	<i>not evaluated</i>				A	4
Hymenoptera	Apidae	Anthophora plumipes	Hairy-footed Flower Bee	None	<i>not evaluated</i>				AE	45
Hymenoptera	Apidae	Apis mellifera	Western Honey Bee	None	<i>not evaluated</i>				AEFG	3457
Hymenoptera	Apidae	Bombus hypnorum	Tree Bumblebee	None	<i>not evaluated</i>				ADGH	3467
Hymenoptera	Apidae	Bombus lapidarius	Red-tailed Bumblebee	None	<i>not evaluated</i>				ABEG	34567
Hymenoptera	Apidae	Bombus lucorum	White-tailed Bumblebee	None	<i>not evaluated</i>				E	7
Hymenoptera	Apidae	Bombus pascuorum	Common Carder Bee	None	<i>not evaluated</i>				ACDFG	345678
Hymenoptera	Apidae	Bombus pratorum	Early Bumblebee	None	<i>not evaluated</i>				D	6
Hymenoptera	Apidae	Bombus terrestris	Buff-tailed Bumblebee	None	<i>not evaluated</i>				ACDEFG	3457

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Hymenoptera	Apidae	Nomada goodeniana	Gooden's Nomad Bee	None	<i>not evaluated</i>				G	5
Hymenoptera	Apidae	Nomada leucophthalma	Early Nomad Bee	None	<i>not evaluated</i>				A	5
Hymenoptera	Argidae – Argid Sawflies	Arge melanochra		None	<i>not evaluated</i>				AC	6
Hymenoptera	Chrysididae – Cuckoo Wasps	Chrysis illigeri		Nb	<i>not evaluated</i>		h		AB	6
Hymenoptera	Crabronidae – Sand Wasps	Ectemnius continuus		None	<i>not evaluated</i>				B	6
Hymenoptera	Crabronidae	Oxybelus uniglumis	Common Spiny Digger Wasp	None	<i>not evaluated</i>		h		A	6
Hymenoptera	Crabronidae	Philanthus triangulum	Bee Wolf	[RDB2]	<i>not evaluated</i>		h		B	7
Hymenoptera	Formicidae – Ants	Formica fusca	Dusky Ant		<i>not evaluated</i>				AB	4569
Hymenoptera	Formicidae	Lasius brunneus	Brown Tree Ant	Na	<i>not evaluated</i>		s		E	57
Hymenoptera	Formicidae	Lasius flavus	Yellow Meadow Ant	None	<i>not evaluated</i>		g		AB	56
Hymenoptera	Formicidae	Myrmica lobicornis		None	<i>not evaluated</i>	YES	g		A	9
Hymenoptera	Formicidae	Myrmica ruginodis		None	<i>not evaluated</i>		g		CD	69
Hymenoptera	Formicidae	Temnothorax nylanderi		None	<i>not evaluated</i>		s		A	4
Hymenoptera	Halictidae – Sweat Bees	Lasioglossum morio	Green Furrow Bee	None	<i>not evaluated</i>				A	6
Hymenoptera	Ichneumonidae – Ichneumon Wasps	Enicospilus merdarius		None	<i>not evaluated</i>				A	9
Hymenoptera	Pompilidae – Spider-hunting Wasps	Evagetes crassicornis		None	<i>not evaluated</i>		g/h		A	9
Hymenoptera	Pompilidae	Priocnemis parvula		None	<i>not evaluated</i>		h		A	6
Hymenoptera	Sphecidae – Digger	Podalonia affinis	Mud Wasp	[RDB3]	<i>not evaluated</i>		h		A	6

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	Wasps									
Hymenoptera	Tenthredinidae – Sawflies (part)	Aglaostigma aucupariae		None	<i>not evaluated</i>			bedstraws	FG	35
Hymenoptera	Tenthredinidae	Aglaostigma fulvipes		None	<i>not evaluated</i>			bedstraws	FG	45
Hymenoptera	Tenthredinidae	Athalia circularis		None	<i>not evaluated</i>		w	ground ivy, plantains, speedwells	DG	78
Hymenoptera	Tenthredinidae	Athalia cordata		None	<i>not evaluated</i>			bugle, plantains	DF	56
Hymenoptera	Tenthredinidae	Athalia rosae		None	<i>not evaluated</i>			Brassicaceae	D	6
Hymenoptera	Tenthredinidae	Brachythops flavens		None	<i>not evaluated</i>	YES	w	sedges	H	5
Hymenoptera	Tenthredinidae	Claremontia alternipes		None	<i>not evaluated</i>			brambles, raspberries	E	5
Hymenoptera	Tenthredinidae	Dineura stilata		None	<i>not evaluated</i>		s	hawthorn	A	6
Hymenoptera	Tenthredinidae	Dolerus bimaculatus		None	<i>not evaluated</i>	YES	w	horsetails	H	5
Hymenoptera	Tenthredinidae	Dolerus niger		None	<i>not evaluated</i>			Poaceae	B	6
Hymenoptera	Tenthredinidae	Eriocampa ovata		None	<i>not evaluated</i>		s	alders	D	8
Hymenoptera	Tenthredinidae	Eutomostethus ephippium		None	<i>not evaluated</i>			Poaceae	CFG	567
Hymenoptera	Tenthredinidae	Euura mucronata		None	<i>not evaluated</i>		s	goat willow, grey willow, eared willow	G	5
Hymenoptera	Tenthredinidae	Halidamia affinis		None	<i>not evaluated</i>			cleavers, hedge bedstraw	C	5
Hymenoptera	Tenthredinidae	Macrophya annulata		None	<i>not evaluated</i>			Rosaceae	AC	6
Hymenoptera	Tenthredinidae	Macrophya duodecimpunctata		None	<i>not evaluated</i>		w	sedges, grasses	D	6

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Hymenoptera	Tenthredinidae	Macrophya ribis		None	<i>not evaluated</i>			elder	D	4
Hymenoptera	Tenthredinidae	Profenusa pygmaea		None	<i>not evaluated</i>		s	oaks	EH	6
Hymenoptera	Tenthredinidae	Stromboceros delicatulus		None	<i>not evaluated</i>		s	bracken, ferns	DE	7
Isopoda – Woodlice	Armadillidiidae – Pill Woodlice	Armadillidium vulgare	Common Pill Woodlouse	None	Least Concern				ACDEF	4679
Isopoda	Asellidae	Asellus aquaticus	Water hog lice/slaters	None	Least Concern		a		CDFH	34
Isopoda	Ligiidae	Ligidium hypnorum		None	Least Concern		w		CF	4
Isopoda	Oniscidae	Oniscus asellus	Common Shiny Woodlouse	None	Least Concern				CE	46
Isopoda	Philosciidae	Philoscia muscorum	Common Striped Woodlouse	None	Least Concern				ABCDEFH	3456
Isopoda	Porcellionidae	Porcellio scaber	Common Rough Woodlouse	None	Least Concern				ABDEF	23569
Isopoda	Trichoniscidae	Haplophthalmus danicus		None	Least Concern				G	3
Ixodida – Ticks	Ixodidae	Ixodes ricinus	Castor Bean Tick	None	<i>not evaluated</i>			mammals, birds	DEG	456
Julida – Snake Millipedes	Julidae	Cylindroiulus latestriatus		None	Least Concern				A	6
Julida	Julidae	Cylindroiulus punctatus	Blunt-tailed Snake-millipede	None	Least Concern				DE	56
Julida	Julidae	Julus scandinavus		None	Least Concern				B	6
Julida	Julidae	Ommatoiulus sabulosus	Striped Millipede	None	Least Concern				ABDE	5689
Julida	Julidae	Ophiulus pilosus		None	Least Concern				ABD	56
Julida	Julidae	Tachypodoiulus niger	White-legged Snake-millipede	None	Least Concern				B	5
Lepidoptera – Butterflies and	Adelidae – Fairy Longhorn Moths	Adela reaumurella	Green Long-horn	None	<i>not evaluated</i>		s	leaf litter	CEG	5

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Moths										
Lepidoptera	Adelidae	Nematopogon schwarziellus	Sandy Long-horn	None	<i>not evaluated</i>		s		E	5
Lepidoptera	Adelidae	Nemophora degeerella	Yellow-barred Long-horn	None	<i>not evaluated</i>		s	leaf litter	EFG	6
Lepidoptera	Argyresthiidae – Shiny Head-standing Moths	Argyresthia goedartella	Golden Argent	None	<i>not evaluated</i>		s	birch, alder	B	9
Lepidoptera	Choreutidae – Metalmark Moths	Anthophila fabriciana	Common Nettle-tap	None	<i>not evaluated</i>			nettles	D	8
Lepidoptera	Cosmopterigidae	Cosmopterix zieglerella	Hedge Cosmet	Nb	<i>not evaluated</i>			hop	F	8
Lepidoptera	Crambidae – Crambid Snout Moths	Acentria ephemerella	Water Veneer	None	<i>not evaluated</i>		a	pondweeds etc	B	9
Lepidoptera	Crambidae	Agriphila inquinatella	Barred Grass-veneer	None	<i>not evaluated</i>		g	Poaceae	A	9
Lepidoptera	Crambidae	Catoptria falsella	Chequered Grass-veneer	None	<i>not evaluated</i>			mosses	A	9
Lepidoptera	Crambidae	Parapoynx stratiotata	Ringed China-mark	None	<i>not evaluated</i>		a	aquatic plants	A	9
Lepidoptera	Crambidae	Patania ruralis	Mother of Pearl	None	<i>not evaluated</i>			nettles	AD	89
Lepidoptera	Crambidae	Scoparia ambigualis	Common Grey	None	<i>not evaluated</i>		s	mosses	A	9
Lepidoptera	Depressariidae – Flat-bodied Moths	Agonopterix arenella	Brindled Flay-body	None	<i>not evaluated</i>			thistles, knapweeds, burdocks	A	9
Lepidoptera	Depressariidae	Depressaria badiella	Brown Flat-body	None	<i>not evaluated</i>		g/h	cat's-ear, sowthistle, dandelion	B	9
Lepidoptera	Drepanidae – Hooktip Moths	Cilix glaucata	Chinese Character	None	<i>not evaluated</i>		s	blackthorn, hawthorn, crab apple	A	9

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Lepidoptera	Elachistidae – Grass-miner Moths	Elachista consortella	Field Dwarf	Nb	<i>not evaluated</i>		h	annual meadow grass	A	9
Lepidoptera	Erebidae	Eilema griseola	Dingy Footman	None	<i>not evaluated</i>			lichens	AB	9
Lepidoptera	Erebidae	Euclidia mi	Mother Shipton	None	<i>not evaluated</i>		g	Fabaceae	A	9
Lepidoptera	Erebidae	Hypena proboscidalis	Snout	None	<i>not evaluated</i>			nettles	AB	9
Lepidoptera	Erebidae	Lymantria dispar	Gypsy Moth	None	<i>not evaluated</i>		s	bog-myrtle, creeping willow	A	9
Lepidoptera	Erebidae	Lymantria monacha	Black Arches	None	<i>not evaluated</i>		s		A	9
Lepidoptera	Erebidae	Phragmatobia fuliginosa	Ruby Tiger	None	<i>not evaluated</i>		g		A	9
Lepidoptera	Erebidae	Rivula sericealis	Straw Dot	None	<i>not evaluated</i>		g	Poaceae	AH	8
Lepidoptera	Gelechiidae – Twirler Moths	Aproaerema anthyllidella	Vetch Sober	None	<i>not evaluated</i>		g	Poaceae	B	9
Lepidoptera	Gelechiidae	Aroga velocella	Dusky Groundling	None	<i>not evaluated</i>		g/h	sheep's sorrel	A	49
Lepidoptera	Gelechiidae	Teleiopsis diffinis	Large Groundling	None	<i>not evaluated</i>		g	sheep's sorrel	AB	9
Lepidoptera	Geometridae – Geometer Moths	Aplocera plagiata	Treble-bar	None	<i>not evaluated</i>		g	st john's worts	A	9
Lepidoptera	Geometridae	Campaea margaritaria	Light Emerald	None	<i>not evaluated</i>		s		A	9
Lepidoptera	Geometridae	Camptogramma bilineata	Yellow Shell	None	<i>not evaluated</i>			bedstraws, cleavers	AB	89
Lepidoptera	Geometridae	Colostygia pectinataria	Green Carpet	None	<i>not evaluated</i>		g	bedstraws	AB	9
Lepidoptera	Geometridae	Cosmorhoe ocellata	Purple Bar	None	<i>not evaluated</i>			bedstraws	A	9
Lepidoptera	Geometridae	Cyclophora punctaria	Maiden's Blush	None	<i>not evaluated</i>		s	oaks	A	9
Lepidoptera	Geometridae	Dysstroma truncata	Common Marbled Carpet	None	<i>not evaluated</i>		s		AB	9

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Lepidoptera	Geometridae	Ennomos alniaria	Canary-shouldered Thorn	None	<i>not evaluated</i>		s		A	9
Lepidoptera	Geometridae	Ennomos fuscantaria	Dusky Thorn	None	<i>not evaluated</i>		s	ash	AB	9
Lepidoptera	Geometridae	Epirrhoe alternata	Common Carpet	None	<i>not evaluated</i>			bedstraws, cleavers	A	9
Lepidoptera	Geometridae	Eupithecia absinthiata	Wormwood Pug	None	<i>not evaluated</i>		g		AB	9
Lepidoptera	Geometridae	Eupithecia centaureata	Lime-speck Pug	None	<i>not evaluated</i>		g		B	9
Lepidoptera	Geometridae	Eupithecia icterata	Tawny Speckled Pug	None	<i>not evaluated</i>		g	yarrow, sneezewort	A	9
Lepidoptera	Geometridae	Idaea seriata	Small Dusty Wave	None	<i>not evaluated</i>			plant debris	AB	9
Lepidoptera	Geometridae	Macaria alternata	Sharp-angled Peacock	None	<i>not evaluated</i>		s		A	9
Lepidoptera	Geometridae	Opisthograptis luteolata	Brimstone Moth	None	<i>not evaluated</i>		s	Rosaceae	AB	9
Lepidoptera	Geometridae	Scopula imitaria	Small Blood-vein	None	<i>not evaluated</i>			privet, honeysuckle	A	9
Lepidoptera	Geometridae	Timandra comae	Blood-vein	None	<i>not evaluated</i>			docks, orache, common sorrel	AB	9
Lepidoptera	Gracillariidae – Leaf Blotch-miner Moths	Calybites phasianipennella	Little Slender	None	<i>not evaluated</i>		w/s		A	9
Lepidoptera	Hepialidae – Swift Moths	Triodia sylvina	Orange Swift	None	<i>not evaluated</i>		g		A	9
Lepidoptera	Hesperiidae – Skipper Butterflies	Ochlodes sylvanus	Large Skipper	None	Least Concern			cock's-foot, false brome	FH	7
Lepidoptera	Hesperiidae	Thymelicus lineola	Essex Skipper	None	Least Concern		g	cock's-foot etc	ABCD	7
Lepidoptera	Lasiocampidae	Euthrix potatoria	Drinker	None	<i>not evaluated</i>				F	8
Lepidoptera	Lasiocampidae	Macrothylacia rubi	Fox Moth	None	<i>not evaluated</i>		h	heather etc	A	349

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Lepidoptera	Lycaenidae – Blue and Hairstreak Butterflies	Favonius quercus	Purple Hairstreak	None	Least Concern		s	oaks	DH	8
Lepidoptera	Lycaenidae	Lycaena phlaeas	Small Copper	None	Least Concern		g	sorrels	AB	4567
Lepidoptera	Micropterigidae	Micropterix calthella	Plain Gold	None	<i>not evaluated</i>				DG	46
Lepidoptera	Nepticulidae	Ectoedemia lousiella		None	<i>not evaluated</i>		s	field maple	A	9
Lepidoptera	Noctuidae – Cut-worms, Owlet Moths etc	Acronicta psi	Grey Dagger	None	<i>not evaluated</i>				A	9
Lepidoptera	Noctuidae	Agrotis puta	Shuttle-shaped Dart	None	<i>not evaluated</i>		g		A	9
Lepidoptera	Noctuidae	Agrotis segetum	Turnip Moth	None	<i>not evaluated</i>				A	9
Lepidoptera	Noctuidae	Amphipyra pyramidea	Copper Underwing	None	<i>not evaluated</i>		s		A	9
Lepidoptera	Noctuidae	Amphipyra tragopoginis	Mouse Moth	None	<i>not evaluated</i>				A	9
Lepidoptera	Noctuidae	Atethmia centrago	Centre-barred Sallow	None	<i>not evaluated</i>		s	ash	AB	9
Lepidoptera	Noctuidae	Autographa gamma	Silver Y	None	<i>not evaluated</i>				A	9
Lepidoptera	Noctuidae	Caradrina clavipalpis	Pale Mottled Willow	None	<i>not evaluated</i>		g	Poaceae	B	9
Lepidoptera	Noctuidae	Charanyca trigrammica	Treble Lines	None	<i>not evaluated</i>		g		A	6
Lepidoptera	Noctuidae	Craniophora ligustri	Coronet	None	<i>not evaluated</i>			ash, wild privet	A	9
Lepidoptera	Noctuidae	Cryphia algae	Tree-lichen Beauty	None	<i>not evaluated</i>			lichens	A	9
Lepidoptera	Noctuidae	Diachrysia chrysitis	Burnished Brass	None	<i>not evaluated</i>		g		AB	9
Lepidoptera	Noctuidae	Euxoa tritici	White-line Dart	None	<i>not evaluated</i>				A	9
Lepidoptera	Noctuidae	Gortyna flavago	Frosted Orange	None	<i>not evaluated</i>				A	9

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Lepidoptera	Noctuidae	Hoplodrina ambigua	Vine's Rustic	None	<i>not evaluated</i>		g		B	9
Lepidoptera	Noctuidae	Hydraecia micacea	Rosy Rustic	None	<i>not evaluated</i>				A	9
Lepidoptera	Noctuidae	Lacanobia oleracea	Bright-line Brown-eye	None	<i>not evaluated</i>				A	9
Lepidoptera	Noctuidae	Luperina testacea	Flounced Rustic	None	<i>not evaluated</i>		g	Poaceae	AB	9
Lepidoptera	Noctuidae	Mamestra brassicae	Cabbage Moth	None	<i>not evaluated</i>			Brassicaceae	B	9
Lepidoptera	Noctuidae	Mythimna albipuncta	White-point	None	<i>not evaluated</i>			Poaceae	AB	9
Lepidoptera	Noctuidae	Mythimna pallens	Common Wainscot	None	<i>not evaluated</i>		g	Poaceae	AB	9
Lepidoptera	Noctuidae	Noctua comes	Lesser Yellow Underwing	None	<i>not evaluated</i>				A	9
Lepidoptera	Noctuidae	Noctua fimbriata	Broad-bordered Yellow Underwing	None	<i>not evaluated</i>		s		A	9
Lepidoptera	Noctuidae	Noctua janthe	Lesser Broad-bordered Yellow Underwing	None	<i>not evaluated</i>				A	9
Lepidoptera	Noctuidae	Noctua pronuba	Large Yellow Underwing	None	<i>not evaluated</i>				AB	9
Lepidoptera	Noctuidae	Ochropleura plecta	Flame Shoulder	None	<i>not evaluated</i>				A	9
Lepidoptera	Noctuidae	Phlogophora meticulosa	Angle Shades	None	<i>not evaluated</i>				A	9
Lepidoptera	Noctuidae	Sideridis rivularis	Campion	None	<i>not evaluated</i>		g	campions	B	9
Lepidoptera	Noctuidae	Tholera cespitis	Hedge Rustic	None	<i>not evaluated</i>		g	Poaceae	A	9
Lepidoptera	Noctuidae	Tholera decimalis	Feathered Gothic	None	<i>not evaluated</i>		g	Poaceae	A	9
Lepidoptera	Noctuidae	Xestia c-nigrum	Setaceous Hebrew Character	None	<i>not evaluated</i>				AB	9
Lepidoptera	Noctuidae	Xestia sexstrigata	Six-striped Rustic	None	<i>not evaluated</i>				A	9

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Lepidoptera	Noctuidae	Xestia xanthographa	Square-spot Rustic	None	<i>not evaluated</i>				AB	9
Lepidoptera	Notodontidae – Prominent Moths	Pheosia gnoma	Lesser Swallow Prominent	None	<i>not evaluated</i>		s	birch	A	9
Lepidoptera	Nymphalidae – Brush-footed Butterflies	Aglais io	Peacock	None	Least Concern			nettles	ABCDFGH	34567
Lepidoptera	Nymphalidae	Aphantopus hyperantus	Ringlet	None	Least Concern			Poaceae	ACDEFGH	7
Lepidoptera	Nymphalidae	Coenonympha pamphilus	Small Heath	None	VULNERABLE, NERC s.41 Species of Principal Importance, BAP (Research Only)		g	Poaceae	A	6
Lepidoptera	Nymphalidae	Maniola jurtina	Meadow Brown	None	Least Concern		g	Poaceae	ABCDEFH	7
Lepidoptera	Nymphalidae	Pararge aegeria	Speckled Wood	None	Least Concern		s	Poaceae	AE	467
Lepidoptera	Nymphalidae	Pyronia tithonus	Gatekeeper	None	Least Concern		s	Poaceae	A	7
Lepidoptera	Nymphalidae	Vanessa atalanta	Red Admiral	None	Least Concern			nettles	ACDEFG	67
Lepidoptera	Oecophoridae – Concealer Moths	Crassa unitella	Golden-brown Tubic	None	<i>not evaluated</i>		s	fungus under bark	G	7
Lepidoptera	Oecophoridae	Endrosis sarcitrella	White-shouldered House Moth	None	<i>not evaluated</i>			dried plant and animal debris	A	9
Lepidoptera	Oecophoridae	Hofmannophila pseudospretella	Brown House Moth	None	<i>not evaluated</i>			dried plant and animal debris	A	9
Lepidoptera	Peleopodidae	Carcina quercana	Long-horned Flat-body	None	<i>not evaluated</i>		s		E	7
Lepidoptera	Pieridae – White Butterflies	Anthocharis cardamines	Orange-tip	None	Least Concern		g	cuckoo flower, garlic mustard etc	BCDEFGH	456

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Lepidoptera	Pieridae	Gonepteryx rhamni	Brimstone	None	Least Concern		s	buckthorn, alder buckthorn	FGH	36
Lepidoptera	Pieridae	Pieris brassicae	Large White	None	Least Concern			Brassicaceae	CF	7
Lepidoptera	Pieridae	Pieris napi	Green-veined White	None	Least Concern			Brassicaceae	ACEFGH	57
Lepidoptera	Pieridae	Pieris rapae	Small White	None	Least Concern			Brassicaceae	ACDFG	467
Lepidoptera	Pyralidae – Snout Moths	Homoeosoma nebulella	Large Clouded Knot-horn	Nb	<i>not evaluated</i>		h	spear thistle, ragwort, tansy	B	9
Lepidoptera	Stathmopodidae	Stathmopoda pedella	Alder Signal	Nb	<i>not evaluated</i>		s	alders	FG	7
Lepidoptera	Tineidae – Clothes Moths	Monopis weaverella	Carrion Moth	None	<i>not evaluated</i>			carcasses and dung	B	9
Lepidoptera	Tischeriidae	Coptotriche marginea	Bordered Carl	None	<i>not evaluated</i>			brambles	A	9
Lepidoptera	Tortricidae – Tortrix Moths	Acleris emargana	Notch-wing Button	None	<i>not evaluated</i>			sallow, poplar, birch	F	
Lepidoptera	Tortricidae	Acleris rhombana	Rhomboid Tortrix	None	<i>not evaluated</i>		s	hawthorn etc	B	9
Lepidoptera	Tortricidae	Apotomis betuletana	Birch Marble	None	<i>not evaluated</i>		s	birch	B	9
Lepidoptera	Tortricidae	Archips podana	Large Fruit-tree Tortrix	None	<i>not evaluated</i>		s	various	A	9
Lepidoptera	Tortricidae	Celypha lacunana	Common Marble	None	<i>not evaluated</i>			various	A	9
Lepidoptera	Tortricidae	Cochylidia implicitana	Chamomile Conch	None	<i>not evaluated</i>		g	mayweeds, goldenrod etc	B	9
Lepidoptera	Tortricidae	Epinotia nisella	Grey Poplar Bell	None	<i>not evaluated</i>		s	sallow, poplar	A	9
Lepidoptera	Tortricidae	Epinotia ramella	Small Birch Bell	None	<i>not evaluated</i>		s	birch, willow	A	9
Lepidoptera	Tortricidae	Grapholita compositella	Triple-stripe Piercer	None	<i>not evaluated</i>		g	clover	CE	5
Lepidoptera	Tortricidae	Neocochylis (ex Cochyliis) molliculana	Ox-tongue Conch	None	<i>not evaluated</i>		g	bristly oxtongue	B	9

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Lepidoptera	Tortricidae	Pandemis corylana	Chequered Fruit-tree Tortrix	None	<i>not evaluated</i>		s	various	B	9
Lepidoptera	Tortricidae	Rhopobota naevana	Holly Tortrix	None	<i>not evaluated</i>		s	holly	A	9
Lepidoptera	Zygaenidae – Burnet Moths	Adscita statices	Forester	None	<i>not evaluated</i>		g	sheep's sorrel, common sorrel	AB	7
Lithobiomorph a – Stone Centipedes	Lithobiidae	Lithobius calcaratus		None	Least Concern		h		A	5
Lithobiomorph a	Lithobiidae	Lithobius forficatus	Brown Centipede	None	Least Concern				ABCDFG	3469
Mecoptera – Scorpionflies	Panorpidae	Panorpa communis		None	<i>not evaluated</i>				G	6
Mecoptera	Panorpidae	Panorpa germanica		None	<i>not evaluated</i>				CFG	67
Megaloptera – Alderflies	Sialidae	Sialis lutaria		None	<i>not evaluated</i>		a		DEG	456
Neuroptera – Lacewings	Chrysopidae – Green Lacewings	Chrysoperla carnea agg.		None	<i>not evaluated</i>				A	7
Neuroptera	Chrysopidae	Nineta vittata		None	<i>not evaluated</i>		s		G	7
Neuroptera	Hemerobiidae – Brown Lacewings	Hemerobius humulinus		None	<i>not evaluated</i>				A	4
Neuroptera	Hemerobiidae	Micromus paganus		None	<i>not evaluated</i>				G	5
Neuroptera	Hemerobiidae	Micromus variegatus		None	<i>not evaluated</i>				E	7
Odonata – Dragonflies and Damselflies	?	<i>odonata nymphs</i>					a		D	3
Odonata	Aeshnidae – Hawker Dragonflies	Aeshna cyanea	Southern Hawker	None	Least Concern		a		A	7
Odonata	Aeshnidae	Brachytron pratense	Hairy Dragonfly	None	Least Concern		a		F	6

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Odonata	Calopterygidae – Demoiselle Damselflies	Calopteryx splendens	Banded Demoiselle	None	Least Concern		a		CF	7
Odonata	Coenagrionidae – Red and Blue Damselflies	Coenagrion puella	Azure Damselfly	None	Least Concern		a		ADFGH	567
Odonata	Coenagrionidae	Enallagma cyathigerum	Common Blue Damselfly	None	Least Concern		a		AB	67
Odonata	Coenagrionidae	Ischnura elegans	Blue-tailed Damselfly	None	Least Concern		a		AG	67
Odonata	Coenagrionidae	Pyrrhosoma nymphula	Large Red Damselfly	None	Least Concern		a		BCDEFG H	456
Odonata	Libellulidae – Chaser, Skimmer and Darter Dragonflies	Libellula quadrimaculata	Four-spotted Chaser	None	Least Concern		a		DF	6
Odonata	Libellulidae	Sympetrum sanguineum	Ruddy Darter	None	Least Concern		a		CH	78
Odonata	Libellulidae	Sympetrum striolatum	Common Darter	None	Least Concern		a		DEGH	7
Opiliones – Harvestmen	Nemastomatidae	Nemastoma bimaculatum		None	<i>not evaluated</i>				A	3
Opiliones	Phalangiidae	Dicranopalpus ramosus sensu stricto (post 2015)		None	<i>not evaluated</i>				A	8
Opiliones	Phalangiidae	Leiobunum rotundum		None	<i>not evaluated</i>		s		AFG	78
Opiliones	Phalangiidae	Oligolophus tridens		None	<i>not evaluated</i>				AB	8
Opiliones	Phalangiidae	Platybunus triangularis		None	<i>not evaluated</i>		s		C	4
Opiliones	Phalangiidae	Homalenotus quadridentatus		None	<i>not evaluated</i>				B	56
Orthoptera – Grasshoppers, Bush-crickets and	Acrididae – Grasshoppers	Chorthippus albomarginatus	Lesser Marsh Grasshopper	None	Least Concern		g		F	7

Order	Family	Taxon	Vernacular	British Rarity	IUCN Classification	Voucher retained ?	Habitat Code	Association	Site Code	Months
Groundhoppers										
Orthoptera	Acrididae	Chorthippus brunneus	Field Grasshopper	None	Least Concern		g		AB	789
Orthoptera	Acrididae	Chorthippus parallelus	Meadow Grasshopper	None	Least Concern		g		AB	78
Orthoptera	Acrididae	Myrmeleotettix maculatus	Mottled Grasshopper	None	Least Concern		h		AB	7
Orthoptera	Acrididae	Stenobothrus lineatus	Stripe-winged Grasshopper	None	Least Concern		h		A	7
Orthoptera	Conocephalidae – Coneheads	Conocephalus fuscus	Long-winged Cone- head	None	Least Concern		g		AFH	78
Orthoptera	Meconematidae – Bush-crickets (part)	Meconema thalassinum	Oak Bush Cricket	None	Least Concern		s	oaks mainly	AEG	7
Orthoptera	Phaneropteridae – Bush-crickets (part)	Leptophyes punctatissima	Speckled Bush Cricket	None	Least Concern		s		ABDEFG H	678
Orthoptera	Tetrigidae – Groundhoppers	Tetrix subulata	Slender Ground Hopper	None	Least Concern		w		ACEFGH	345689
Orthoptera	Tettigoniidae – Bush-crickets (part)	Pholidoptera griseoptera	Dark Bush Cricket	None	Least Concern		s		ABFG	5789
Plecoptera – Stoneflies	Nemouridae	Nemoura dubitans		NR	Least Concern		a		CDEGH	345
Plecoptera	Nemouridae	Nemurella pictetii		None	Least Concern		a		G	6
Polydesmida – Flat-backed Millipedes	Polydesmidae	Brachydesmus superus		None	Least Concern				E	6
Polydesmida	Polydesmidae	Polydesmus angustus	Common Flat-backed Millipede	None	Least Concern				ABD	356
Polydesmida	Polydesmidae	Polydesmus denticulatus		None	Least Concern				B	6
Psocoptera – Barklice	Caeciliusidae	Valenzuela atricornis		?	<i>not evaluated</i>		g		H	8
Psocoptera	Psocidae	Psococerastis gibbosa		None	<i>not evaluated</i>		s		D	7

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Psocoptera	Stenopsocidae	Graphopsocus cruciatus		None	<i>not evaluated</i>		s		F	7
Psylloidea – Jumping Plantlice	Psyllidae	Psylla alni		None	<i>not evaluated</i>		s	alders	FGH	78
Pulmonata – Snails and Slugs	Arionidae – Slugs	Arion ater	Large Black Slug	None	Data Deficient				G	5
Pulmonata	Cochlicopidae	Cochlicopa lubricella		None	Least Concern				A	5
Pulmonata	Enidae	Merdigera obscura	Lesser Bulin	None	Least Concern		s		G	5
Pulmonata	Euconulidae	Euconulus alderi		None	Least Concern		w/s		C	4
Pulmonata	Gastrodontidae	Zonitoides nitidus	Shiny Glass Snail	None	Least Concern		w		CD	459
Pulmonata	Helicidae	Cepaea hortensis	White-lipped Snail	None	Least Concern				EG	57
Pulmonata	Helicidae	Cepaea nemoralis	Brown-lipped Snail	None	Least Concern				ACDEFG H	345678
Pulmonata	Helicidae	Cornu aspersum	Garden Snail	None	Least Concern				E	5
Pulmonata	Hygromiidae – Leaf Snails	Monacha cantiana	Kentish Snail	None	Least Concern		g		DEFG	456
Pulmonata	Hygromiidae	Trochulus hispidus	Hairy Snail	None	Least Concern				EG	5
Pulmonata	Lymnaeidae – Pond Snails	Ampullaceana balthica	Wandering Pond Snail	None	Least Concern		a		DFH	34
Pulmonata	Lymnaeidae	Galba truncatula	Dwarf Pond Snail	None	Least Concern		w/a		CD	4
Pulmonata	Lymnaeidae	Stagnicola fuscus/palustris	Marsh Pond Snail	None	Least Concern		w/a		FGH	45
Pulmonata	Oxychilidae	Oxychilus alliarius	Garlic Snail	None	Least Concern				A	5
Pulmonata	Physidae – Bladder Snails	Aplexa hypnorum	Moss Bladder Snail	None	Least Concern		w		FG	45

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Pulmonata	Planorbidae – Ramshorn Snails	Anisus leucostoma/spirorbis	White-lipped Ram's-horn	None	Least Concern		a		F	4
Pulmonata	Planorbidae	Bathyomphalus contortus	Twisted Ram's-horn	None	Least Concern		a		H	4
Pulmonata	Planorbidae	Planorbis planorbis	Margined Ram's-horn	None	Least Concern		a		FG	48
Pulmonata	Succineidae – Amber Snails	Oxyloma elegans	Pfeiffer's Amber Snail	None	Least Concern		w		FH	5
Pulmonata	Succineidae	Succinea putris	Large Amber Snail	None	Least Concern		w		CF	45
Pulmonata	Vertiginidae – Whorl Snails	Vertigo moulinsiana	Desmoulin's Whorl Snail	None	BAP NERC s.41 IUCN VULNERABLE		w		F	8
Raphidioptera – Snakeflies	Raphidiidae	Atlantoraphidia maculicollis		None	<i>not evaluated</i>		s	pinetrees	F	6
Raphidioptera	Raphidiidae	Xanthostigma xanthostigma		None	<i>not evaluated</i>		s		G	5
Symphyleona – Springtails (part)	Sminthuridae – Globular Springtails	Allacma fusca		None	<i>not evaluated</i>				DH	7
Trichoptera – Caddisflies	Beraeidae	Beraea pullata		None	Least Concern		a		H	5
Trichoptera	Hydroptilidae – Micro Caddisflies	Agraylea sexmaculata		None	Least Concern		a		AB	9
Trichoptera	Limnephilidae	Glyphotaelius pellucidus	Mottled Sedge	None	Least Concern		a		AEG	567
Trichoptera	Limnephilidae	Grammotaulius nigropunctatus		None	Least Concern		a		G	5
Trichoptera	Limnephilidae	Limnephilus affinis		None	Least Concern		a		A	9
Trichoptera	Limnephilidae	Limnephilus auricula		None	Least Concern		a		FG	5
Trichoptera	Limnephilidae	Limnephilus flavicornis		None	Least Concern		a		A	9
Trichoptera	Limnephilidae	Limnephilus incisus		None	Least Concern		a		C	7

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Trichoptera	Limnephilidae	Limnephilus lunatus		None	Least Concern		a		A	89