



Appendix 7.8

INVERTEBRATE SURVEY REPORT (AUGUST 2023)

**INVERTEBRATE SURVEY
OF
BROADWATER LAKE,
MIDDLESEX**

AUGUST 2023



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SUMMARY

Surveys of terrestrial and aquatic invertebrates were carried out on the following dates ; - 7th April, 17th May, 19th June, and 15th August 2023.

Species Totals: Peninsula area

In all 303 taxa were recorded (the list of species recorded are shown in Appendix 3). Conservation status definitions are provided in Appendix 5.

Species with conservation designations

Species	Family	Order	Conservation status
<i>Tetragnatha striata</i>	Tetragnathidae	Araneae	NS
<i>Longitarsus lycopi</i>	Chrysomelidae	Coleoptera	NS
<i>Stenus butrintensis</i>	Staphylinidae	Coleoptera	Notable
<i>Ceraleptus lividus</i>	Coreidae	Hemiptera	NS
<i>Aquarius paludum</i>	Gerridae	Hemiptera	NS
<i>Lasius brunneus</i>	Formicidae	Hymenoptera	Na
<i>Euplagia quadripunctaria</i>	Erebidae	Lepidoptera	LC (Global)
<i>Nonagria typhae</i>	Noctuidae	Lepidoptera	LC (Global)
<i>Furcula furcula</i>	Notodontidae	Lepidoptera	LC (Global)
<i>Anodonta cygnea</i>	Unionidae	Unionoida	NT (European)

Species Totals: Lake Edge

In all 245 taxa were recorded (the list of species recorded are shown in Appendix 4).

Species with conservation designations

Species	Family	Order	Conservation status
<i>Tmeticus affinis</i>	Linyphiidae	Araneae	NS
<i>Tetragnatha striata</i>	Tetragnathidae	Araneae	NS
<i>Donacia thalassina</i>	Chrysomelidae	Coleoptera	NS
<i>Longitarsus lycopi</i>	Chrysomelidae	Coleoptera	NS
<i>Longitarsus rutilus</i>	Chrysomelidae	Coleoptera	NS
<i>Mecinus circulator</i>	Curculionidae	Coleoptera	Nb
<i>Stenus butrintensis</i>	Staphylinidae	Coleoptera	Notable
<i>Aquarius paludum</i>	Gerridae	Hemiptera	NS
<i>Opisthograptis luteolata</i>	Geometridae	Lepidoptera	LC (Global)
<i>Sesia apiformis</i>	Sesiidae	Lepidoptera	LC (Global)
<i>Anodonta cygnea</i>	Unionidae	Unionoida	NT (European)

Species new for Middlesex

Thinodromus arcuatus

INTRODUCTION

Baseline invertebrate surveys of the peninsula and lake edge were carried out on 7th April, 17th May, 19th June, and 15th August 2023.

Surveys were focussed on both terrestrial and emergent / riparian habitats. The site was split into two areas for survey: the peninsula (encompassing all habitat types including woodland, pools, flooded areas) and the remaining lake edge (encompassing wetland, tree-associated, open habitat).

Sampling locations are shown in Figure 1 and described in Appendix 1. Selected photographs are provided in Appendix 2.

NB. The path along the west shore became overgrown and the samples sites L3-L7 were not sampled in August.



Figure 1 Main sample sites

METHODS

Standard field techniques were employed to sample the invertebrate fauna across the site. These included sweeping vegetation with a wide mouthed sweep net, beating trees and bushes over a beating tray, and grubbing amongst tussocks and key host plant rosettes etc. A 0.5mm mesh GB nets net was used to sample the ponds and flowing water.

Sampling stations were selected for their accessibility and representativeness of the site habitats. Sampling was also carried out between these stations on a *ad hoc* basis primarily for flying insects.

Samples were collected and preserved in the field in ethanol, before being identified at a later date in a laboratory using a microscope.

Because it is impracticable to survey all the potential invertebrates within any given site, only specific groups of species were examined during fieldwork. These groups are sufficiently well known as to allow meaningful comparisons to be made with other sites, both locally and nationally. They are also important as indicators of the quality of a site and the habitats present (see Brooks 1993).

Groups covered during the survey were:

- Mollusca (slugs and snails)
- Arachnida (spiders, harvestmen & pseudoscorpions)
- Isopoda (woodlice)
- Thysanura (bristletails)
- Ephemeroptera (mayflies)
- Odonata (dragonflies & damselflies)
- Plecoptera (stoneflies)
- Orthoptera (grasshoppers & crickets)
- Dictyoptera (cockroaches)
- Dermaptera (earwigs)
- Hemiptera-Heteroptera (true-bugs)
- Hemiptera-Homoptera (hoppers)
- Neuroptera (lace-wings)
- Mecoptera (scorpion-flies)
- Lepidoptera (butterflies & moths)
- Trichoptera (caddis flies)
- Diptera (true flies)
- Aculeate Hymenoptera (ants, bees & wasps)
- Coleoptera (beetles)

HABITAT ASSESSMENT

USING PANTHEON AND ISIS TO MEASURE SITE QUALITY

Explanation of the underlying invertebrate assemblage framework.

ISIS is a computer spreadsheet application for recognising invertebrate assemblage types in species lists collected at scales ranging from management compartment to landscape character area. This has been developed into an online programme called Pantheon. The assemblage types are labelled in terms that relate to their favoured habitats in order to make them accessible to non-specialists. However, they are defined by lists of characteristic species that are generally found together in nature. Two levels are recognised in the classification. Broad assemblage types (BATs) are a comprehensive series of assemblage types that are characterised by more widespread species. They can be expressed in lists from a wide range of sites. Specific assemblage types (SATs) are characterised by ecologically restricted species and are generally only expressed in lists from sites with conservation value. Since 2008 there has also been a third category of assemblage types that cut across this classification. They are mainly defined by lists of species dependent on a particular environmental resource, such as flowers as a source of pollen and nectar. The assemblage type classification is given below. Textual descriptions of each assemblage type and its habitats have been prepared for incorporation into a web-based database.

RESULTS

PENINSULA

In all 303 taxa were recorded (the list of species recorded are shown in Appendix 3) and the species with a conservation designation are shown in Table 1. Conservation status definitions are provided in Appendix 5.

Table 1. Species with conservation designations from the peninsula

Species	Family	Order	Conservation status
<i>Tetragnatha striata</i>	Tetragnathidae	Araneae	NS
<i>Longitarsus lycopi</i>	Chrysomelidae	Coleoptera	NS
<i>Stenus butrintensis</i>	Staphylinidae	Coleoptera	Notable
<i>Ceraleptus lividus</i>	Coreidae	Hemiptera	NS
<i>Aquarius paludum</i>	Gerridae	Hemiptera	NS
<i>Lasius brunneus</i>	Formicidae	Hymenoptera	Na
<i>Euplagia quadripunctaria</i>	Erebidae	Lepidoptera	LC (Global)
<i>Nonagria typhae</i>	Noctuidae	Lepidoptera	LC (Global)
<i>Furcula furcula</i>	Notodontidae	Lepidoptera	LC (Global)
<i>Anodonta cygnea</i>	Unionidae	Unionoida	NT (European)

The removal of buddleja had caused disturbance of the brownfield habitats on the peninsula which were still recovering during the May visit as a result of the slow spring, but by the June and August visits the habitats had partially recovered and additional flowering ephemeral species noted in cleared open areas.

The woodland was flooded extensively, and the pools supported a good range of species including *Acilius sulcatus*, *Hygrobia hermanmi* and *Corixa panzeri*.

The woodland is largely secondary, however the older alder and willows include dead and moribund trees with saproxylic habitat. The ants *Lasius brunneus* and *Temnothorax nylanderi* were nesting under bark, where the predatory (and formerly notable) beetle *Uleiota planata* was frequent.

Table 2. Scores for Peninsula area

Code	SAT	No. of species	Reported condition
F001	scrub edge	11	Favourable (11 species, 11 required)
F002	rich flower resource	19	Favourable (19 species, 15 required)
F112	open short sward	5	Unfavourable (5 species, 13 required)
A212	bark & sapwood decay	11	Unfavourable (11 species, 19 required)
W211	open water on disturbed mineral sediments	5	Unfavourable (5 species, 6 required)
A211	heartwood decay	3	Unfavourable (3 species, 6 required)
W314	reed-fen & pools	3	Unfavourable (3 species, 11 required)
F003	scrub-heath & moorland	2	Unfavourable (2 species, 9 required)

LAKE EDGE

In all 245 taxa were recorded around the remaining lake edge habitats (the list of species recorded are shown in Appendix 4) and the species with a conservation designation are shown in Table 3.

Table 3. Species (11No.) with conservation designations from lake edge

Species	Family	Order	Conservation status
<i>Tmeticus affinis</i>	Linyphiidae	Araneae	NS
<i>Tetragnatha striata</i>	Tetragnathidae	Araneae	NS
<i>Donacia thalassina</i>	Chrysomelidae	Coleoptera	NS
<i>Longitarsus lycopi</i>	Chrysomelidae	Coleoptera	NS
<i>Longitarsus rutilus</i>	Chrysomelidae	Coleoptera	NS
<i>Mecinus circulatus</i>	Curculionidae	Coleoptera	Nb
<i>Stenus butrintensis</i>	Staphylinidae	Coleoptera	Notable
<i>Aquarius paludum</i>	Gerridae	Hemiptera	NS
<i>Opisthograptis luteolata</i>	Geometridae	Lepidoptera	LC (Global)
<i>Sesia apiformis</i>	Sesiidae	Lepidoptera	LC (Global)
<i>Anodonta cygnea</i>	Unionidae	Unionoida	NT (European)

The lake margin along the west shore has extensive reed beds: these yielded the nationally scarce spider *Tetragnatha striata*, the camphor beetle *Stenus butrintensis* and the soldier beetle *Silis ruficollis*. Figworts supported the nationally scarce flea beetle *Longitarsus rutilus* and water mint the nationally scarce flea beetle *Longitarsus lycopi* and the local weevil *Datonychus melanostictus*.

The money spider *Tmeticus affinis* was also taken amongst sedge litter. The rove beetle *Thinodromus arcuatus* was found in flotsam in the south-west corner of lake. The first record for Middlesex.

The W211 open water on disturbed mineral sediments assemblage is in favourable condition.

Table 4. SAT scores for lake edge

SAT	SAT	No. of species	Reported condition
W211	open water on disturbed mineral sediments	9	Favourable (9 species, 6 required)
A212	bark & sapwood decay	6	Unfavourable (6 species, 19 required)
W314	reed-fen & pools	5	Unfavourable (5 species, 11 required)
F001	scrub edge	2	Unfavourable (2 species, 11 required)
F002	rich flower resource	1	Unfavourable (1 species, 15 required)

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APPENDIX 1. SAMPLING STATIONS 2023

Station	Habitat	Description
PENINSULA SAMPLE SITES		
P1	Mosaic/ecocline	Herb rich verge at entrance to footpath along south edge of site. Waterlogged in winter but dry after spring/early summer drought
P2	Disturbed ground	Sparsely vegetated glade. Heavily disturbed by <i>Buddleja</i> removal operations
P3	Marginal habitat	Southwest corner of peninsula in area used to dump excess unset concrete. Extensive <i>Typha</i> and <i>Sparganium</i> beds
P4	Broadleaved woodland	Carr woodland with willows <i>Salix fragilis</i> and <i>S.cinerea/caprae</i> : Understorey dominated by nettle beds on drier ground.
P5	Carr woodland	Carr woodland with alder <i>Alnus glutinosa</i> and willows <i>Salix fragilis</i> and <i>S.cinerea/caprae</i> : Understorey dominated by nettle beds on drier ground. Inundated to 0.5-1m in April. Pools in open had <i>Iris pseudacorus</i> , <i>Mentha aquatica</i> . Also root plate pools in sockets where trees had recently fallen.
P6	Marginal habitat	Wave-washed north edge of peninsula with <i>Sparganium</i> bed with <i>Lycopus europaea</i> emergent from gravel substrate.
P7	Marginal habitat	Wave-washed north end of peninsula with root tangles over a gravel substrate. Secondary woodland on bank.
LAKE EDGE SAMPLE SITES		
L1	Marginal habitat	<i>Iris pseudacorus</i> and <i>Sparganium</i> beds with <i>Mentha aquatica</i> , <i>Scrophularia</i> . Free-floating <i>Elodea canadensis</i> abundant in water column
L2	Marginal habitat	<i>Iris pseudacorus</i> beds with <i>Mentha aquatica</i> , <i>Scrophularia</i> , <i>Lycopus</i> , <i>Solanum dulcamarae</i> . Free-floating <i>Elodea canadensis</i> abundant in water column
L3	Marginal habitat	Southwest corner of lake. Large accumulations of vegetable flotsam on open gravelly substrate. Abundant emergent <i>Mentha aquatica</i> , <i>Iris pseudacorus</i>
L4	Marginal habitat	<i>Carex acutiformis</i> , <i>Sparganium</i> beds with <i>Typha</i> , <i>Lycopus</i> etc.
L5	Marginal habitat	<i>Phragmites</i> bed with <i>Typha</i> and <i>Carex acutiformis</i>
L5	Marginal habitat	<i>Phragmites</i> bed with <i>Typha</i>
L5	Marginal habitat	<i>Phragmites</i> bed with <i>Typha</i> , <i>Sparganium</i> and <i>Carex acutiformis</i>

L8	Marginal habitat	<i>Iris pseudacorus</i> beds with <i>Mentha aquatica</i> , <i>Solanum dulcamarae</i> . Free-floating <i>Elodea canadensis</i> abundant in water column
L9	Marginal habitat	<i>Iris pseudacorus</i> beds with <i>Mentha aquatica</i> , <i>Eupatoria cannabinum</i> . Free-floating <i>Elodea canadensis</i> abundant in water column
L10	Marginal habitat	Woodland with short open section with <i>Iris pseudacorus</i> beds with <i>Mentha aquatica</i> , <i>Eupatoria cannabinum</i> . Free-floating <i>Elodea canadensis</i> abundant in water column
L11	Marginal habitat	Woodland with short open section with <i>Iris pseudacorus</i> beds with <i>Mentha aquatica</i> , <i>Eupatoria cannabinum</i> . Free-floating <i>Elodea canadensis</i> abundant in water column and extensive root tangles from willow trees
L12	Marginal habitat	Wooded bank with open water with occasional <i>Elodea canadensis</i>

APPENDIX 2 SAMPLING STATION PHOTOGRAPHS



Figure 2.1. Peninsula site 3 looking NW



Figure 2.2. Peninsula site 6 looking NW.



Figure 2.3. Lake site 1 looking NW



Figure 2.4. Lake site 2 looking NW



Figure 2.5. Lake site 5 looking NW

APPENDIX 3. SPECIES LIST FOR PENINSULA 2023

Species	Family	Order	Conservation status
<i>Arcitalitrus dorrieni</i>	Talitridae	Amphipoda	naturalised
<i>Agelena labyrinthica</i>	Agelenidae	Araneae	common
<i>Eratigena duellica</i>	Agelenidae	Araneae	common
<i>Anypaena accentuata</i>	Anypaenidae	Araneae	common
<i>Gibbaranea gibbosa</i>	Araneidae	Araneae	common
<i>Mangora acalypha</i>	Araneidae	Araneae	common
<i>Nuctenea umbratica</i>	Araneidae	Araneae	common
<i>Zilla diodia</i>	Araneidae	Araneae	local
<i>Clubiona lutescens</i>	Clubionidae	Araneae	common
<i>Clubiona phragmitis</i>	Clubionidae	Araneae	common
<i>Dictyna arundinacea</i>	Dictynidae	Araneae	common
<i>Dictyna uncinata</i>	Dictynidae	Araneae	common
<i>Nigma walckenaeri</i>	Dictynidae	Araneae	local
<i>Harpactea hombergi</i>	Dysderidae	Araneae	common
<i>Gnathonarium dentatum</i>	Linyphiidae	Araneae	common
<i>Hypomma bituberculatum</i>	Linyphiidae	Araneae	common
<i>Linyphia triangularis</i>	Linyphiidae	Araneae	common
<i>Tenuiphantes tenuis</i>	Linyphiidae	Araneae	common
<i>Pardosa nigriceps</i>	Lycosidae	Araneae	common
<i>Pardosa pullata</i>	Lycosidae	Araneae	common
<i>Trochosa terricola</i>	Lycosidae	Araneae	common
<i>Philodromus albidus</i>	Philodromidae	Araneae	common
<i>Philodromus aureolus</i>	Philodromidae	Araneae	common
<i>Philodromus dispar</i>	Philodromidae	Araneae	common
<i>Pisaura mirabilis</i>	Pisauridae	Araneae	common
<i>Euophrys frontalis</i>	Salticidae	Araneae	common
<i>Heliophanus flavipes</i>	Salticidae	Araneae	common
<i>Tetragnatha extensa</i>	Tetragnathidae	Araneae	common
<i>Tetragnatha montana</i>	Tetragnathidae	Araneae	common
<i>Tetragnatha striata</i>	Tetragnathidae	Araneae	NS
<i>Paidiscura pallens</i>	Theridiidae	Araneae	common
<i>Platnickina tinctoria</i>	Theridiidae	Araneae	common
<i>Steatoda nobilis</i>	Theridiidae	Araneae	common
<i>Theridion mystaceum</i>	Theridiidae	Araneae	common
<i>Theridion pictum</i>	Theridiidae	Araneae	local
<i>Theridion varians</i>	Theridiidae	Araneae	common
<i>Apion frumentarium</i>	Apionidae	Coleoptera	common
<i>Protapion assimile</i>	Apionidae	Coleoptera	common
<i>Cantharis cryptica</i>	Cantharidae	Coleoptera	common

<i>Cantharis rustica</i>	Cantharidae	Coleoptera	common
<i>Rhagonycha fulva</i>	Cantharidae	Coleoptera	common
<i>Abax parallelepipedus</i>	Carabidae	Coleoptera	common
<i>Agonum marginatum</i>	Carabidae	Coleoptera	common
<i>Amara aenea</i>	Carabidae	Coleoptera	common
<i>Amara plebeja</i>	Carabidae	Coleoptera	common
<i>Amara similata</i>	Carabidae	Coleoptera	common
<i>Bembidion articulatum</i>	Carabidae	Coleoptera	common
<i>Bembidion dentellum</i>	Carabidae	Coleoptera	common
<i>Carabus granulatus</i>	Carabidae	Coleoptera	common
<i>Carabus violaceus</i>	Carabidae	Coleoptera	common
<i>Harpalus affinis</i>	Carabidae	Coleoptera	common
<i>Harpalus rufipes</i>	Carabidae	Coleoptera	common
<i>Leistus ferrugineus</i>	Carabidae	Coleoptera	common
<i>Leistus fulvibarbis</i>	Carabidae	Coleoptera	common
<i>Nebria brevicollis</i>	Carabidae	Coleoptera	common
<i>Notiophilus biguttatus</i>	Carabidae	Coleoptera	common
<i>Notiophilus substriatus</i>	Carabidae	Coleoptera	common
<i>Ocys harpaloides</i>	Carabidae	Coleoptera	common
<i>Paradromius linearis</i>	Carabidae	Coleoptera	common
<i>Pterostichus madidus</i>	Carabidae	Coleoptera	common
<i>Pterostichus melanarius</i>	Carabidae	Coleoptera	common
<i>Pterostichus nigrita</i>	Carabidae	Coleoptera	common
<i>Syntomus foveatus</i>	Carabidae	Coleoptera	common
<i>Syntomus obscuroguttatus</i>	Carabidae	Coleoptera	local
<i>Grammoptera ruficornis</i>	Cerambycidae	Coleoptera	common
<i>Agelastica alni</i>	Chrysomelidae	Coleoptera	common
<i>Altica lythri</i>	Chrysomelidae	Coleoptera	common
<i>Chaetocnema concinna</i>	Chrysomelidae	Coleoptera	common
<i>Cryptocephalus moraei</i>	Chrysomelidae	Coleoptera	local
<i>Longitarsus jacobaeae</i>	Chrysomelidae	Coleoptera	common
<i>Longitarsus lycopi</i>	Chrysomelidae	Coleoptera	NS
<i>Longitarsus parvulus</i>	Chrysomelidae	Coleoptera	common
<i>Phyllotreta nigripes</i>	Chrysomelidae	Coleoptera	common
<i>Plagioderma versicolora</i>	Chrysomelidae	Coleoptera	common
<i>Psylliodes affinis</i>	Chrysomelidae	Coleoptera	common
<i>Psylliodes chrysocephala</i>	Chrysomelidae	Coleoptera	common
<i>Psylliodes dulcamarae</i>	Chrysomelidae	Coleoptera	common
<i>Adalia bipunctata</i>	Coccinellidae	Coleoptera	common
<i>Adalia decempunctata</i>	Coccinellidae	Coleoptera	common
<i>Anisosticta novemdecimpunctata</i>	Coccinellidae	Coleoptera	local
<i>Calvia quattuordecimguttata</i>	Coccinellidae	Coleoptera	common
<i>Coccidula rufa</i>	Coccinellidae	Coleoptera	local
<i>Coccidula scutellata</i>	Coccinellidae	Coleoptera	local
<i>Coccinella septempunctata</i>	Coccinellidae	Coleoptera	common

<i>Halyzia sedecimguttata</i>	Coccinellidae	Coleoptera	common
<i>Harmonia quadripunctata</i>	Coccinellidae	Coleoptera	common
<i>Nephus quadrimaculatus</i>	Coccinellidae	Coleoptera	local
<i>Nephus redtenbacheri</i>	Coccinellidae	Coleoptera	common
<i>Propylea quattuordecimpunctata</i>	Coccinellidae	Coleoptera	common
<i>Rhyzobius chrysomeloides</i>	Coccinellidae	Coleoptera	common
<i>Subcoccinella vigintiquattuorruptata</i>	Coccinellidae	Coleoptera	common
<i>Anthonomus pomorum</i>	Curculionidae	Coleoptera	common
<i>Ceutorhynchus pallidactylus</i>	Curculionidae	Coleoptera	common
<i>Dorytomus tortrix</i>	Curculionidae	Coleoptera	local
<i>Euophryum confine</i>	Curculionidae	Coleoptera	common
<i>Sciaphilus asperatus</i>	Curculionidae	Coleoptera	local
<i>Sitona lineatus</i>	Curculionidae	Coleoptera	common
<i>Xylocleptes bispinus</i>	Curculionidae	Coleoptera	local
<i>Acilius sulcatus</i>	Dytiscidae	Coleoptera	common
<i>Agabus bipustulatus</i>	Dytiscidae	Coleoptera	common
<i>Colymbetes fuscus</i>	Dytiscidae	Coleoptera	common
<i>Hyphidrus ovatus</i>	Dytiscidae	Coleoptera	common
<i>Hydroporus planus</i>	Dytiscidae	Coleoptera	common
<i>Laccophilus hyalinus</i>	Dytiscidae	Coleoptera	local
<i>Laccophilus minutus</i>	Dytiscidae	Coleoptera	common
<i>Agriotes pallidulus</i>	Elateridae	Coleoptera	common
<i>Helophorus aequalis</i>	Helophoridae	Coleoptera	common
<i>Helophorus brevipalpis</i>	Helophoridae	Coleoptera	common
<i>Cercyon sternalis</i>	Hydrophilidae	Coleoptera	local
<i>Anacaena limbata</i>	Hydrophilidae	Coleoptera	common
<i>Anacaena globulus</i>	Hydrophilidae	Coleoptera	common
<i>Enochrus testaceus</i>	Hydrophilidae	Coleoptera	common
<i>Helochares lividus</i>	Hydrophilidae	Coleoptera	local
<i>Hydrobius fuscipes</i>	Hydrophilidae	Coleoptera	common
<i>Hygrobia hermanni</i>	Hygrobiidae	Coleoptera	local
<i>Brachypterus glaber</i>	Kateretidae	Coleoptera	common
<i>Brachypterus urticae</i>	Kateretidae	Coleoptera	common
<i>Malachius bipustulatus</i>	Malachiidae	Coleoptera	common
<i>Pyrochroa coccinea</i>	Pyrochroidae	Coleoptera	local
<i>Pyrochroa serraticornis</i>	Pyrochroidae	Coleoptera	common
<i>Deporaus betulae</i>	Rhynchitidae	Coleoptera	common
<i>Melolontha melolontha</i>	Scarabaeidae	Coleoptera	common
<i>Contacyphon coarctatus</i>	Scirtidae	Coleoptera	common
<i>Anaspis maculata</i>	Scraptiidae	Coleoptera	common
<i>Phosphuga atrata</i>	Silphidae	Coleoptera	common
<i>Psammoecus bipunctatus</i>	Silvanidae	Coleoptera	common
<i>Uleiota planatus</i>	Silvanidae	Coleoptera	local
<i>Alianta incana</i>	Staphylinidae	Coleoptera	common
<i>Anotylus rugosus</i>	Staphylinidae	Coleoptera	common

<i>Hygronoma dimidiata</i>	Staphylinidae	Coleoptera	local
<i>Lathrobium elongatum</i>	Staphylinidae	Coleoptera	local
<i>Ocypus olens</i>	Staphylinidae	Coleoptera	common
<i>Paederus riparius</i>	Staphylinidae	Coleoptera	common
<i>Stenus bimaculatus</i>	Staphylinidae	Coleoptera	common
<i>Stenus butrintensis</i>	Staphylinidae	Coleoptera	Notable
<i>Stenus flavipes</i>	Staphylinidae	Coleoptera	common
<i>Stenus impressus</i>	Staphylinidae	Coleoptera	common
<i>Stenus junco</i>	Staphylinidae	Coleoptera	common
<i>Stenus solutus</i>	Staphylinidae	Coleoptera	common
<i>Forficula auricularia</i>	Forficulidae	Dermaptera	common
<i>Pegomya solennis</i>	Anthomyiidae	Diptera	common
<i>Dilophus febrilis</i>	Bibionidae	Diptera	common
<i>Bombylius major</i>	Bombyliidae	Diptera	common
<i>Medetera truncorum</i>	Dolichopodidae	Diptera	common
<i>Empis livida</i>	Empididae	Diptera	common
<i>Erioptera lutea</i>	Limoniidae	Diptera	common
<i>Opomyza germinationis</i>	Opomyzidae	Diptera	common
<i>Pollenia amentaria</i>	Polleniidae	Diptera	common
<i>Ptychoptera contaminata</i>	Ptychopteridae	Diptera	common
<i>Chrysopilus cristatus</i>	Rhagionidae	Diptera	common
<i>Rhagio scolopaceus</i>	Rhagionidae	Diptera	common
<i>Tetanocera ferruginea</i>	Sciomyzidae	Diptera	common
<i>Sepsis fulgens</i>	Sepsidae	Diptera	common
<i>Themira annulipes</i>	Sepsidae	Diptera	common
<i>Themira superba</i>	Sepsidae	Diptera	common
<i>Chloromyia formosa</i>	Stratiomyidae	Diptera	common
<i>Pachygaster atra</i>	Stratiomyidae	Diptera	common
<i>Pachygaster leachii</i>	Stratiomyidae	Diptera	common
<i>Criorhina berberina</i>	Syrphidae	Diptera	common
<i>Episyrphus balteatus</i>	Syrphidae	Diptera	common
<i>Myathropa florea</i>	Syrphidae	Diptera	common
<i>Syrphus ribesii</i>	Syrphidae	Diptera	common
<i>Tipula pagana</i>	Tipulidae	Diptera	common
<i>Tipula vernalis</i>	Tipulidae	Diptera	common
<i>Cyphoderus albinus</i>	Cyphoderidae	Entomobryomorpha	common
<i>Entomobrya multifasciata</i>	Entomobryidae	Entomobryomorpha	common
<i>Entomobrya nivalis</i>	Entomobryidae	Entomobryomorpha	common
<i>Lepidocyrtus lanuginosus</i>	Entomobryidae	Entomobryomorpha	common
<i>Orchesella cincta</i>	Entomobryidae	Entomobryomorpha	common
<i>Isotomurus unifasciatus</i>	Isotomidae	Entomobryomorpha	common
<i>Parisotoma notabilis</i>	Isotomidae	Entomobryomorpha	common
<i>Pogonognathellus longicornis</i>	Tomoceridae	Entomobryomorpha	common
<i>Tomocerus minor</i>	Tomoceridae	Entomobryomorpha	common
<i>Tomocerus vulgaris</i>	Tomoceridae	Entomobryomorpha	common

<i>Glomeris marginata</i>	Glomeridae	Glomerida	common
<i>Anthocoris confusus</i>	Anthocoridae	Hemiptera	common
<i>Temnostethus pusillus</i>	Anthocoridae	Hemiptera	common
<i>Pemphigus spyrothecae</i>	Aphididae	Hemiptera	common
<i>Philaenus spumarius</i>	Aphrophoridae	Hemiptera	common
<i>Aneuris avenius</i>	Aradidae	Hemiptera	common
<i>Athysanus argentarius</i>	Cicadellidae	Hemiptera	local
<i>Cicadula quadrinotata</i>	Cicadellidae	Hemiptera	common
<i>Ceraleptus lividus</i>	Coreidae	Hemiptera	NS
<i>Coreus marginatus</i>	Coreidae	Hemiptera	common
<i>Syromastus rhombeus</i>	Coreidae	Hemiptera	local
<i>Corixa panzeri</i>	Corixidae	Hemiptera	common
<i>Paracorixa concinna</i>	Corixidae	Hemiptera	common
<i>Sigara dorsalis</i>	Corixidae	Hemiptera	common
<i>Conomelus anceps</i>	Delphacidae	Hemiptera	common
<i>Aquarius paludum</i>	Gerridae	Hemiptera	NS
<i>Gerris lacustris</i>	Gerridae	Hemiptera	common
<i>Hydrometra stagnorum</i>	Hydrometridae	Hemiptera	common
<i>Cymus claviculus</i>	Lygaeidae	Hemiptera	common
<i>Kleidocerys resedae</i>	Lygaeidae	Hemiptera	common
<i>Closterotomus norwegicus</i>	Miridae	Hemiptera	common
<i>Dryophilacorix flavoquadrimaculatus</i>	Miridae	Hemiptera	common
<i>Lygus pratensis</i>	Miridae	Hemiptera	common
<i>Lygus rugulipennis</i>	Miridae	Hemiptera	common
<i>Phytocoris varipes</i>	Miridae	Hemiptera	common
<i>Psallus varians</i>	Miridae	Hemiptera	common
<i>Nabis limbatus</i>	Nabidae	Hemiptera	common
<i>Nabis ferus</i>	Nabidae	Hemiptera	common
<i>Notonecta glauca</i>	Notonectidae	Hemiptera	common
<i>Notonecta viridis</i>	Notonectidae	Hemiptera	common
<i>Palomena prasina</i>	Pentatomidae	Hemiptera	common
<i>Pentatoma rufipes</i>	Pentatomidae	Hemiptera	common
<i>Zicrona caerulea</i>	Pentatomidae	Hemiptera	local
<i>Myrmus miriformis</i>	Rhopalidae	Hemiptera	common
<i>Stictopleurus punctatonervosus</i>	Rhopalidae	Hemiptera	common
<i>Eurygaster testudinaria</i>	Scutelleridae	Hemiptera	common
<i>Tingis cardui</i>	Tingidae	Hemiptera	common
<i>Microvelia reticulata</i>	Veliidae	Hemiptera	common
<i>Velia caprai</i>	Veliidae	Hemiptera	common
<i>Andrena chrysoceles</i>	Andrenidae	Hymenoptera	common
<i>Andrena dorsata</i>	Andrenidae	Hymenoptera	common
<i>Andrena fulva</i>	Andrenidae	Hymenoptera	common
<i>Andrena haemorrhhoa</i>	Andrenidae	Hymenoptera	common
<i>Andrena minutula</i>	Andrenidae	Hymenoptera	common
<i>Andrena nigroaenea</i>	Andrenidae	Hymenoptera	common

<i>Apis mellifera</i>	Apidae	Hymenoptera	common
<i>Bombus hypnorum</i>	Apidae	Hymenoptera	common
<i>Bombus lapidarius</i>	Apidae	Hymenoptera	common
<i>Bombus pascuorum</i>	Apidae	Hymenoptera	common
<i>Bombus pratorum</i>	Apidae	Hymenoptera	common
<i>Bombus terrestris</i>	Apidae	Hymenoptera	common
<i>Bombus vestalis</i>	Apidae	Hymenoptera	common
<i>Nomada flava</i>	Apidae	Hymenoptera	common
<i>Omalus aeneus</i>	Chrysididae	Hymenoptera	common
<i>Hylaeus communis</i>	Colletidae	Hymenoptera	common
<i>Crossocerus megacephalus</i>	Crabronidae	Hymenoptera	common
<i>Trypoxylon attenuatum</i>	Crabronidae	Hymenoptera	common
<i>Trypoxylon clavicerum</i>	Crabronidae	Hymenoptera	common
<i>Lasius brunneus</i>	Formicidae	Hymenoptera	Na
<i>Lasius platythorax</i>	Formicidae	Hymenoptera	common
<i>Myrmica rubra</i>	Formicidae	Hymenoptera	common
<i>Myrmica ruginodis</i>	Formicidae	Hymenoptera	common
<i>Myrmica sabuleti</i>	Formicidae	Hymenoptera	common
<i>Temnothorax nylanderi</i>	Formicidae	Hymenoptera	common
<i>Halictus tumulorum</i>	Halictidae	Hymenoptera	common
<i>Lasioglossum calceatum</i>	Halictidae	Hymenoptera	common
<i>Lasioglossum leucopus</i>	Halictidae	Hymenoptera	common
<i>Sphecodes monilicornis</i>	Halictidae	Hymenoptera	common
<i>Ancistrocerus trifasciatus</i>	Vespidae	Hymenoptera	common
<i>Vespula germanica</i>	Vespidae	Hymenoptera	common
<i>Vespula vulgaris</i>	Vespidae	Hymenoptera	common
<i>Armadillidium vulgare</i>	Armadillidiidae	Isopoda	common
<i>Oniscus asellus</i>	Oniscidae	Isopoda	common
<i>Philoscia muscorum</i>	Philosciidae	Isopoda	common
<i>Porcellio scaber</i>	Porcellionidae	Isopoda	common
<i>Tachypodoiulus niger</i>	Julidae	Julida	common
<i>Acentria ephemerella</i>	Crambidae	Lepidoptera	common
<i>Euplagia quadripunctaria</i>	Erebidae	Lepidoptera	LC (Global)
<i>Nonagria typhae</i>	Noctuidae	Lepidoptera	LC (Global)
<i>Furcula furcula</i>	Notodontidae	Lepidoptera	LC (Global)
<i>Aglais io</i>	Nymphalidae	Lepidoptera	common
<i>Maniola jurtina</i>	Nymphalidae	Lepidoptera	common
<i>Pararge aegeria</i>	Nymphalidae	Lepidoptera	common
<i>Pyronia tithonus</i>	Nymphalidae	Lepidoptera	common
<i>Vanessa atalanta</i>	Nymphalidae	Lepidoptera	common
<i>Gonepteryx rhamni</i>	Pieridae	Lepidoptera	common
<i>Pieris rapae</i>	Pieridae	Lepidoptera	common
<i>Emmelina monodactyla</i>	Pterophoridae	Lepidoptera	common
<i>Panorpa communis</i>	Panorpidae	Mecoptera	common
<i>Sialis lutaria</i>	Sialidae	Megaloptera	common

<i>Aeshna grandis</i>	Aeshnidae	Odonata	common
<i>Aeshna mixta</i>	Aeshnidae	Odonata	common
<i>Brachytron pratense</i>	Aeshnidae	Odonata	local
<i>Calopteryx splendens</i>	Calopterygidae	Odonata	common
<i>Erythromma najas</i>	Coenagrionidae	Odonata	common
<i>Orthetrum cancellatum</i>	Libellulidae	Odonata	common
<i>Platycnemis pennipes</i>	Platycnemididae	Odonata	common
<i>Leiobunum rotundum</i>	Phalangiidae	Opiliones	common
<i>Phalangium opilio</i>	Phalangiidae	Opiliones	common
<i>Chorthippus brunneus</i>	Acrididae	Orthoptera	common
<i>Pseudochorthippus parallelus</i>	Acrididae	Orthoptera	common
<i>Conocephalus fuscus</i>	Conocephalidae	Orthoptera	common
<i>Leptophyes punctatissima</i>	Phaneropteridae	Orthoptera	common
<i>Tetrix subulata</i>	Tetrigidae	Orthoptera	common
<i>Podura aquatica</i>	Poduridae	Poduromorpha	common
<i>Polydesmus angustus</i>	Polydesmidae	Polydesmida	common
<i>Polydesmus denticulatus</i>	Polydesmidae	Polydesmida	common
<i>Valenzuela flavidus</i>	Caeciliusidae	Psocoptera	common
<i>Graphopsocus cruciatus</i>	Stenopsocidae	Psocoptera	common
<i>Cepaea nemoralis</i>	Helicidae	Pulmonata	common
<i>Cornu aspersum</i>	Helicidae	Pulmonata	common
<i>Monacha cantiana</i>	Hygromiidae	Pulmonata	common
<i>Lehmannia marginata</i>	Limacidae	Pulmonata	common
<i>Limacus maculatus</i>	Limacidae	Pulmonata	common
<i>Oxychilus cellarius</i>	Oxychilidae	Pulmonata	common
<i>Discus rotundatus</i>	Patulidae	Pulmonata	common
<i>Xeroplexa intersecta</i>	Geomitridae	Stylommatophora	common
<i>Deuterostminthurus pallipes</i>	Bourletiellidae	Symphyleona	common
<i>Dicyrtoma fusca</i>	Dicyrtomidae	Symphyleona	common
<i>Dicyrtomina ornata</i>	Dicyrtomidae	Symphyleona	common
<i>Sminthurinus aureus</i>	Katiannidae	Symphyleona	common
<i>Sminthurinus elegans</i>	Katiannidae	Symphyleona	common
<i>Allacma fusca</i>	Sminthuridae	Symphyleona	common
<i>Sminthurus viridis</i>	Sminthuridae	Symphyleona	common
<i>Mystacides longicornis</i>	Leptoceridae	Trichoptera	common
<i>Limnephilus rhombicus</i>	Limnephilidae	Trichoptera	common
<i>Anodonta cygnea</i>	Unionidae	Unionoida	NT (European)
<i>Euglesa subtruncata</i>	Sphaeriidae	Veneroida	common
<i>Sphaerium corneum</i>	Sphaeriidae	Veneroida	common

APPENDIX 4. SPECIES LIST FOR LAKE EDGE 2023

Species	Family	Order	Conservation status
<i>Crangonyx pseudogracilis</i>	Crangonyctidae	Amphipoda	common
<i>Gammarus pulex sens. str.</i>	Gammaridae	Amphipoda	common
<i>Erpobdella octoculata</i>	Erpobdellidae	Arhynchobdellida	common
<i>Amaurobius fenestralis</i>	Amaurobiidae	Araneae	common
<i>Anyphaena accentuata</i>	Anyphaenidae	Araneae	common
<i>Araneus diadematus</i>	Araneidae	Araneae	common
<i>Larinioides cornutus</i>	Araneidae	Araneae	common
<i>Clubiona phragmitis</i>	Clubionidae	Araneae	common
<i>Dictyna arundinacea</i>	Dictynidae	Araneae	common
<i>Dictyna uncinata</i>	Dictynidae	Araneae	common
<i>Harpactea hombergi</i>	Dysderidae	Araneae	common
<i>Bathypantes gracilis</i>	Linyphiidae	Araneae	common
<i>Erigone atra</i>	Linyphiidae	Araneae	common
<i>Hypomma bituberculatum</i>	Linyphiidae	Araneae	common
<i>Linyphia triangularis</i>	Linyphiidae	Araneae	common
<i>Microlinyphia pusilla</i>	Linyphiidae	Araneae	common
<i>Porrhomma pygmaeum</i>	Linyphiidae	Araneae	common
<i>Tenuiphantes tenuis</i>	Linyphiidae	Araneae	common
<i>Tmeticus affinis</i>	Linyphiidae	Araneae	NS
<i>Pirata piraticus</i>	Lycosidae	Araneae	common
<i>Trochosa terricola</i>	Lycosidae	Araneae	common
<i>Philodromus dispar</i>	Philodromidae	Araneae	common
<i>Pisaura mirabilis</i>	Pisauridae	Araneae	common
<i>Pachygnatha degeeri</i>	Tetragnathidae	Araneae	common
<i>Tetragnatha extensa</i>	Tetragnathidae	Araneae	common
<i>Tetragnatha montana</i>	Tetragnathidae	Araneae	common
<i>Tetragnatha striata</i>	Tetragnathidae	Araneae	NS
<i>Anelosimus vittatus</i>	Theridiidae	Araneae	common
<i>Enoplognatha ovata sensu stricto</i>	Theridiidae	Araneae	common
<i>Platnickina tincta</i>	Theridiidae	Araneae	common
<i>Theridion pictum</i>	Theridiidae	Araneae	local
<i>Ozyptila praticola</i>	Thomisidae	Araneae	common
<i>Cantharis cryptica</i>	Cantharidae	Coleoptera	common
<i>Cantharis pellucida</i>	Cantharidae	Coleoptera	common
<i>Silis ruficollis</i>	Cantharidae	Coleoptera	Nb
<i>Bembidion articulatum</i>	Carabidae	Coleoptera	common
<i>Bembidion dentellum</i>	Carabidae	Coleoptera	common
<i>Bembidion quadrimaculatum</i>	Carabidae	Coleoptera	common

<i>Carabus granulatus</i>	Carabidae	Coleoptera	common
<i>Elaphrus riparius</i>	Carabidae	Coleoptera	common
<i>Leistus fulvibarbis</i>	Carabidae	Coleoptera	common
<i>Ocys harpaloides</i>	Carabidae	Coleoptera	common
<i>Oxypselaphus obscurus</i>	Carabidae	Coleoptera	common
<i>Paradromius linearis</i>	Carabidae	Coleoptera	common
<i>Paranchus albipes</i>	Carabidae	Coleoptera	common
<i>Pterostichus nigrita</i>	Carabidae	Coleoptera	common
<i>Pterostichus strenuus</i>	Carabidae	Coleoptera	common
<i>Grammoptera ruficornis</i>	Cerambycidae	Coleoptera	common
<i>Agelastica alni</i>	Chrysomelidae	Coleoptera	common
<i>Altica lythri</i>	Chrysomelidae	Coleoptera	common
<i>Cassida viridis</i>	Chrysomelidae	Coleoptera	common
<i>Crepidodera aurata</i>	Chrysomelidae	Coleoptera	common
<i>Crepidodera aurea</i>	Chrysomelidae	Coleoptera	common
<i>Crepidodera fulvicornis</i>	Chrysomelidae	Coleoptera	common
<i>Donacia simplex</i>	Chrysomelidae	Coleoptera	common
<i>Donacia thalassina</i>	Chrysomelidae	Coleoptera	NS
<i>Epitrix pubescens</i>	Chrysomelidae	Coleoptera	common
<i>Galerucella calabriensis</i>	Chrysomelidae	Coleoptera	common
<i>Longitarsus lycopi</i>	Chrysomelidae	Coleoptera	NS
<i>Longitarsus rubiginosus</i>	Chrysomelidae	Coleoptera	common
<i>Longitarsus rutilus</i>	Chrysomelidae	Coleoptera	NS
<i>Plagioderma versicolora</i>	Chrysomelidae	Coleoptera	common
<i>Anisosticta novemdecimpunctata</i>	Coccinellidae	Coleoptera	local
<i>Coccidula rufa</i>	Coccinellidae	Coleoptera	common
<i>Coccidula scutellata</i>	Coccinellidae	Coleoptera	local
<i>Coccinella septempunctata</i>	Coccinellidae	Coleoptera	common
<i>Harmonia axyridis</i>	Coccinellidae	Coleoptera	common
<i>Curculio glandium</i>	Curculionidae	Coleoptera	common
<i>Datonychus melanostictus</i>	Curculionidae	Coleoptera	local
<i>Mecinus circulator</i>	Curculionidae	Coleoptera	Nb
<i>Sitona lineatus</i>	Curculionidae	Coleoptera	common
<i>Trichosirocalus troglodytes</i>	Curculionidae	Coleoptera	common
<i>Colymbetes fuscus</i>	Dytiscidae	Coleoptera	common
<i>Hyphidrus ovatus</i>	Dytiscidae	Coleoptera	common
<i>Laccophilus hyalinus</i>	Dytiscidae	Coleoptera	local
<i>Laccophilus minutus</i>	Dytiscidae	Coleoptera	common
<i>Haliplus confinis</i>	Haliplidae	Coleoptera	common
<i>Haliplus flavicollis</i>	Haliplidae	Coleoptera	local
<i>Helophorus brevipalpis</i>	Helophoridae	Coleoptera	common
<i>Ochthebius minimus</i>	Hydraenidae	Coleoptera	common
<i>Anacaena limbata</i>	Hydrophilidae	Coleoptera	common
<i>Cercyon convexiusculus</i>	Hydrophilidae	Coleoptera	local
<i>Cercyon sternalis</i>	Hydrophilidae	Coleoptera	local

<i>Enochrus testaceus</i>	Hydrophilidae	Coleoptera	common
<i>Helochares lividus</i>	Hydrophilidae	Coleoptera	local
<i>Hydrobius fuscipes</i>	Hydrophilidae	Coleoptera	common
<i>Hygrobia hermanni</i>	Hygrobiiidae	Coleoptera	common
<i>Nanophyes marmoratus</i>	Nanophyidae	Coleoptera	common
<i>Acrotrichis grandicollis</i>	Ptiliidae	Coleoptera	common
<i>Pyrochroa serraticornis</i>	Pyrochroidae	Coleoptera	common
<i>Contacyphon laevipennis</i>	Scirtidae	Coleoptera	local
<i>Psammoecus bipunctatus</i>	Silvanidae	Coleoptera	local
<i>Uleiota planatus</i>	Silvanidae	Coleoptera	[Na]
<i>Alianta incana</i>	Staphylinidae	Coleoptera	common
<i>Anotylus rugosus</i>	Staphylinidae	Coleoptera	common
<i>Gabrius brevioenter</i>	Staphylinidae	Coleoptera	common
<i>Gabrius splendidulus</i>	Staphylinidae	Coleoptera	common
<i>Hygronoma dimidiata</i>	Staphylinidae	Coleoptera	local
<i>Lathrobium elongatum</i>	Staphylinidae	Coleoptera	local
<i>Ocyusa picina</i>	Staphylinidae	Coleoptera	common
<i>Paederus riparius</i>	Staphylinidae	Coleoptera	common
<i>Stenus bimaculatus</i>	Staphylinidae	Coleoptera	common
<i>Stenus boops</i>	Staphylinidae	Coleoptera	common
<i>Stenus butrintensis</i>	Staphylinidae	Coleoptera	Notable
<i>Stenus flavipes</i>	Staphylinidae	Coleoptera	common
<i>Stenus impressus</i>	Staphylinidae	Coleoptera	common
<i>Stenus junco</i>	Staphylinidae	Coleoptera	common
<i>Stenus solutus</i>	Staphylinidae	Coleoptera	common
<i>Tachyporus hypnorum</i>	Staphylinidae	Coleoptera	common
<i>Tachyporus nitidulus</i>	Staphylinidae	Coleoptera	common
<i>Tachyporus pallidus</i>	Staphylinidae	Coleoptera	common
<i>Thinodromus arcuatus</i>	Staphylinidae	Coleoptera	local
<i>Forficula auricularia</i>	Forficulidae	Dermaptera	common
<i>Cerodontha phragmitidis</i>	Agromyzidae	Diptera	common
<i>Pegomya solennis</i>	Anthomyiidae	Diptera	common
<i>Dilophus febrilis</i>	Bibionidae	Diptera	common
<i>Bombylius major</i>	Bombyliidae	Diptera	common
<i>Lucilia sericata</i>	Calliphoridae	Diptera	common
<i>Elachiptera brevipennis</i>	Chloropidae	Diptera	common
<i>Medetera truncorum</i>	Dolichopodidae	Diptera	common
<i>Lonchoptera lutea</i>	Lonchopteridae	Diptera	common
<i>Opomyza germinationis</i>	Opomyzidae	Diptera	common
<i>Epistrophe eligans</i>	Syrphidae	Diptera	common
<i>Episyrphus balteatus</i>	Syrphidae	Diptera	common
<i>Eristalis arbustorum</i>	Syrphidae	Diptera	common
<i>Eristalis pertinax</i>	Syrphidae	Diptera	common
<i>Eristalis tenax</i>	Syrphidae	Diptera	common
<i>Helophilus pendulus</i>	Syrphidae	Diptera	common

<i>Myathropa florea</i>	Syrphidae	Diptera	common
<i>Cyphoderus albinus</i>	Cyphoderidae	Entomobryomorpha	common
<i>Entomobrya multifasciata</i>	Entomobryidae	Entomobryomorpha	common
<i>Entomobrya nivalis</i>	Entomobryidae	Entomobryomorpha	common
<i>Lepidocyrtus lanuginosus</i>	Entomobryidae	Entomobryomorpha	common
<i>Orchesella cincta</i>	Entomobryidae	Entomobryomorpha	common
<i>Isotomurus unifasciatus</i>	Isotomidae	Entomobryomorpha	common
<i>Parisotoma notabilis</i>	Isotomidae	Entomobryomorpha	common
<i>Pogonognathellus longicornis</i>	Tomoceridae	Entomobryomorpha	common
<i>Tomocerus minor</i>	Tomoceridae	Entomobryomorpha	common
<i>Tomocerus vulgaris</i>	Tomoceridae	Entomobryomorpha	common
<i>Ephemera vulgata</i>	Ephemeridae	Ephemeroptera	common
<i>Elasmucha grisea</i>	Acanthosomatidae	Hemiptera	common
<i>Anthocoris confusus</i>	Anthocoridae	Hemiptera	common
<i>Pemphigus spyrothecae</i>	Aphididae	Hemiptera	common
<i>Philaenus spumarius</i>	Aphrophoridae	Hemiptera	common
<i>Aneurus avenius</i>	Aradidae	Hemiptera	common
<i>Cixius nervosus</i>	Cixiidae	Hemiptera	common
<i>Coreus marginatus</i>	Coreidae	Hemiptera	common
<i>Corixa panzeri</i>	Corixidae	Hemiptera	local
<i>Cymatia coleoptrata</i>	Corixidae	Hemiptera	local
<i>Paracorixa concinna</i>	Corixidae	Hemiptera	common
<i>Sigara dorsalis</i>	Corixidae	Hemiptera	common
<i>Sigara falleni</i>	Corixidae	Hemiptera	common
<i>Sigara fossarum</i>	Corixidae	Hemiptera	common
<i>Aquarius paludum</i>	Gerridae	Hemiptera	NS
<i>Gerris argentatus</i>	Gerridae	Hemiptera	local
<i>Gerris lacustris</i>	Gerridae	Hemiptera	common
<i>Hydrometra stagnorum</i>	Hydrometridae	Hemiptera	common
<i>Cymus glandicolor</i>	Lygaeidae	Hemiptera	common
<i>Cymus melanocephalus</i>	Lygaeidae	Hemiptera	common
<i>Ischnodemus sabuleti</i>	Lygaeidae	Hemiptera	common
<i>Scolopostethus affinis</i>	Lygaeidae	Hemiptera	common
<i>Scolopostethus thomsoni</i>	Lygaeidae	Hemiptera	common
<i>Deraeocoris lutescens</i>	Miridae	Hemiptera	common
<i>Dicyphus epilobii</i>	Miridae	Hemiptera	common
<i>Harpocera thoracica</i>	Miridae	Hemiptera	common
<i>Liocoris tripustulatus</i>	Miridae	Hemiptera	common
<i>Lygocoris pabulinus</i>	Miridae	Hemiptera	common
<i>Rhabdomiris striatellus</i>	Miridae	Hemiptera	common
<i>Nabis lineatus</i>	Nabidae	Hemiptera	common
<i>Ilyocoris cimicoides</i>	Naucoridae	Hemiptera	common
<i>Ranatra linearis</i>	Nepidae	Hemiptera	common
<i>Notonecta glauca</i>	Notonectidae	Hemiptera	common
<i>Notonecta viridis</i>	Notonectidae	Hemiptera	common

<i>Palomena prasina</i>	Pentatomidae	Hemiptera	common
<i>Pentatoma rufipes</i>	Pentatomidae	Hemiptera	common
<i>Zicrona caerulea</i>	Pentatomidae	Hemiptera	local
<i>Plea minutissima</i>	Pleidae	Hemiptera	common
<i>Chartoscirta cincta</i>	Saldidae	Hemiptera	common
<i>Microvelia reticulata</i>	Veliidae	Hemiptera	common
<i>Velia caprai</i>	Veliidae	Hemiptera	common
<i>Bombus lapidarius</i>	Apidae	Hymenoptera	common
<i>Bombus pratorum</i>	Apidae	Hymenoptera	common
<i>Bombus pascuorum</i>	Apidae	Hymenoptera	common
<i>Bombus terrestris</i>	Apidae	Hymenoptera	common
<i>Lasius platythorax</i>	Formicidae	Hymenoptera	common
<i>Temnothorax nylanderi</i>	Formicidae	Hymenoptera	local
<i>Armadillidium vulgare</i>	Armadillidiidae	Isopoda	common
<i>Asellus aquaticus</i>	Asellidae	Isopoda	common
<i>Oniscus asellus</i>	Oniscidae	Isopoda	common
<i>Pyrausta aurata</i>	Crambidae	Lepidoptera	common
<i>Opisthograptis luteolata</i>	Geometridae	Lepidoptera	LC (Global)
<i>Maniola jurtina</i>	Nymphalidae	Lepidoptera	common
<i>Pararge aegeria</i>	Nymphalidae	Lepidoptera	common
<i>Pyronia tithonus</i>	Nymphalidae	Lepidoptera	common
<i>Vanessa atalanta</i>	Nymphalidae	Lepidoptera	common
<i>Gonepteryx rhamni</i>	Pieridae	Lepidoptera	common
<i>Emmelina monodactyla</i>	Pterophoridae	Lepidoptera	common
<i>Sesia apiformis</i>	Sesiidae	Lepidoptera	LC (Global)
<i>Endothenia gentianaeanana</i>	Tortricidae	Lepidoptera	common
<i>Sialis lutaria</i>	Sialidae	Megaloptera	common
<i>Aeshna grandis</i>	Aeshnidae	Odonata	common
<i>Aeshna cyanea</i>	Aeshnidae	Odonata	common
<i>Aeshna mixta</i>	Aeshnidae	Odonata	common
<i>Anax imperator</i>	Aeshnidae	Odonata	common
<i>Brachytron pratense</i>	Aeshnidae	Odonata	local
<i>Orthetrum cancellatum</i>	Libellulidae	Odonata	common
<i>Sympetrum striolatum</i>	Libellulidae	Odonata	common
<i>Calopteryx splendens</i>	Calopterygidae	Odonata	common
<i>Enallagma cyathigerum</i>	Coenagrionidae	Odonata	common
<i>Erythromma najas</i>	Coenagrionidae	Odonata	common
<i>Ischnura elegans</i>	Coenagrionidae	Odonata	common
<i>Platycnemis pennipes</i>	Coenagrionidae	Odonata	local
<i>Pyrrhosoma nymphula</i>	Coenagrionidae	Odonata	common
<i>Tetrix subulata</i>	Tetrigidae	Orthoptera	common
<i>Podura aquatica</i>	Poduridae	Poduromorpha	common
<i>Valenzuela flavidus</i>	Caeciliusidae	Psocoptera	common
<i>Graphopsocus cruciatus</i>	Stenopsocidae	Psocoptera	common

<i>Cepaea nemoralis</i>	Helicidae	Pulmonata	common
<i>Lehmannia marginata</i>	Limacidae	Pulmonata	common
<i>Limacus maculatus</i>	Limacidae	Pulmonata	common
<i>Aegopinella nitidula</i>	Oxychilidae	Pulmonata	common
<i>Oxychilus cellarius</i>	Oxychilidae	Pulmonata	common
<i>Alboglossiphonia heteroclita</i>	Glossiphoniidae	Rhynchobdellida	common
<i>Deuterosminthurus pallipes</i>	Bourletiellidae	Symphyleona	common
<i>Dicyrtoma fusca</i>	Dicyrtomidae	Symphyleona	common
<i>Dicyrtomina ornata</i>	Dicyrtomidae	Symphyleona	common
<i>Sminthurinus aureus</i>	Katiannidae	Symphyleona	common
<i>Sminthurinus elegans</i>	Katiannidae	Symphyleona	common
<i>Allacma fusca</i>	Sminthuridae	Symphyleona	common
<i>Sminthurus viridis</i>	Sminthuridae	Symphyleona	common
<i>Sminthurides aquaticus</i>	Sminthurididae	Symphyleona	common
<i>Ecnomus tenellus</i>	Ecnomidae	Trichoptera	common
<i>Athripsodes cinereus</i>	Leptoceridae	Trichoptera	common
<i>Mystacides longicornis</i>	Leptoceridae	Trichoptera	common
<i>Limnephilus rhombicus</i>	Limnephilidae	Trichoptera	common
<i>Molanna angustata</i>	Molannidae	Trichoptera	common
<i>Girardia tigrina</i>	Dugesiidae	Tricladida	common
<i>Anodonta cygnea</i>	Unionidae	Unionoida	NT (European)
<i>Euglesa subtruncata</i>	Sphaeriidae	Veneroida	common
<i>Sphaerium corneum</i>	Sphaeriidae	Veneroida	common
<i>Valvata piscinalis</i>	Valvatidae	Pulmonata	common
<i>Ampullaceana balthica</i>	Lymnaeidae	Hygrophila	common
<i>Physa fontinalis</i>	Physidae	Hygrophila	common
<i>Gyraulus crista</i>	Planorbidae	Hygrophila	common
<i>Gyraulus albus</i>	Planorbidae	Hygrophila	common
<i>Planorbis carinatus</i>	Planorbidae	Hygrophila	common
<i>Bithynia tentaculata</i>	Bithyniidae	Littorinimorpha	common
<i>Potamopyrgus antipodarum</i>	Tateidae	Littorinimorpha	common

APPENDIX 5. STATUS CATEGORIES FOR RARE AND NOTABLE SPECIES

Red Data Book Category 1 (RDB 1) – Endangered

Definition.

Taxa in danger of extinction *in Great Britain* and whose survival is unlikely if the causal factors continue operating.

Included are those taxa whose numbers have been reduced to a critical level or whose habitats have been so dramatically reduced that they are deemed to be in immediate danger of extinction. Also included are *some* taxa that are *possibly* extinct.

Criteria.

Species which are known *or believed to occur* as only a single population within one 10 km square of the National Grid.

Species which only occur in habitats known to be especially vulnerable.

Species which have shown a rapid or continuous decline over the last twenty years and are now *estimated* to exist in five or fewer 10 km squares.

Species which are *possibly* extinct *but have been recorded this century* and if rediscovered would need protection.

Red Data Book Category 2 (RDB 2) - Vulnerable

Definition.

Taxa *believed* likely to move into the endangered category in the near future if the causal factors continue operating.

Included are taxa of which most or all of the populations are decreasing because of *over-exploitation*, extensive destruction of habitat or other environmental disturbance; taxa with populations that have been seriously depleted and whose ultimate security is not yet assured; and taxa with populations that are still abundant but are under threat from serious adverse factors throughout their range.

Criteria.

Species declining throughout their range.

Species in vulnerable habitats.

Red Data Book Category 3 (RDB 3) – Rare

Definition.

Taxa with small populations *in Great Britain* that are not at present endangered or vulnerable, but are at risk.

These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range.

Criterion.

Species which are estimated to exist in only fifteen or fewer 10 km squares. *This criterion may be relaxed where populations are likely to exist in over fifteen 10 km squares but occupy small areas of especially vulnerable habitat*

Nationally Scarce Category A - Notable A (Na)

Definition.

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in 30 or fewer 10 km squares of the National Grid or, for less well recorded groups, within seven or fewer vice-counties.

Nationally Scarce Category B - Notable B (Nb)

Definition.

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 31 and 100 10 km squares of the National Grid or, for less well recorded groups, within eight and twenty vice-counties.

Nationally Scarce - Notable (N)

Definition.

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 16 to 100 10 km squares of the National Grid. Species within this category are often too poorly known for their status to be more precisely estimated.

Summary of the IUCN categories and criteria.

- **REGIONALLY EXTINCT (RE)**
A taxon is Extinct when there is no reasonable doubt that the last individual has died. In this review the last date for a record is set at fifty years before publication.
- **CRITICALLY ENDANGERED (CR)**
A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered.
- **ENDANGERED (EN)**
A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered.
- **VULNERABLE (VU)**
A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable.
- **NEAR THREATENED (NT)**
A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.
- **LEAST CONCERN (LC)**
A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.
- **DATA DEFICIENT (DD)**
A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate.
- **NOT EVALUATED (NE)**
A taxon is Not Evaluated when it is has not yet been evaluated against the criteria.

GB Rarity Status categories and criteria

- **Nationally Rare (NR)**

Native species which have not been recorded from more than 15 British hectads since 31st December 1979 and where there is reasonable confidence that exhaustive recording would not find them in more than 15 hectads. This category includes species which are probably extinct.

- **Nationally Scarce (NS)**

Native species which are not regarded as Nationally Rare AND which have not been recorded from more than 100 British hectads since 31st December 1979 and where there is reasonable confidence that exhaustive recording would not find them in more than 100 hectads.

Other species status terminology.

- **Local.** Species that are restricted in distribution either geographically or by habitat. Also used for species that are widespread but infrequently encountered, e.g. encountered in no more than 300 10km squares of the national Ordnance Survey grid since 1970. Or those species listed as such, based upon modern geographical data, by ISIS (2010) and/or relevant recording schemes.
- **Widely Scattered.** Generally distributed but at low densities.
- **Southern.** Mainly or completely confined to southern England and/or its westerly or easterly regions – as indicated.
- **Common.** Generally widespread throughout the UK.
- **Unknown.** Usually indicates a lack of available data for difficult taxa but may also imply recent taxonomic confusion.