



## **Invertebrate Survey Report 2015**

### **Land at Wenny Road, Chatteris, Cambridgeshire**

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### **Notice to Interested Parties**

To achieve the study objectives stated in this report, we were required to base our conclusions on the best information available during the period of the investigation and within the limits prescribed by our client in the agreement.

No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Thus, we cannot guarantee that the investigations completely defined the degree or extent of e.g. species abundances or habitat management efficacy described in the report.

### **Document Information**

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## 0 EXECUTIVE SUMMARY

- 0.1 On behalf of Cannon-Kirk (UK) Ltd, Cambridge Ecology Ltd was commissioned by Savills to carry out an invertebrate survey of land at Wenny Road, Chatteris, Cambridgeshire. The survey was required to investigate the likely presence of invertebrates of conservation importance, which include protected species, on the land within and adjacent to the development site, which could potentially be affected by a proposed residential development at the site. The proposed development would provide new housing on the site.
- 0.2 In order to ensure compliance to legislation pertaining to invertebrates, a series of surveys were carried out from early April to September 2015. The survey followed recognised standard methods and was considered to provide a robust set of data, suitable to evaluate the presence of invertebrates of conservation importance within the survey areas and identify any potential ecological constraints requiring particular attention.
- 0.3 The survey recorded 811 different kinds of invertebrates. Of these, four are Red Data Book, namely tree snail *Balea perversa*, the false scorpion *Dendrochernes cyrneus*, the beetle *Notolaemus unifasciatus* and the assassin bug *Empicoris baerensprungi*, 35 species are Nationally Scarce, eighteen are considered to be rare or of only occasional occurrence in the county. Using various recognised assessment criteria, the site as a whole could be considered of county importance for its invertebrate community in general and its saproxylic beetles. Therefore the site was considered to be of at least county importance for its assemblage of invertebrate species.
- 0.4 The location of the most important areas for invertebrates was identified as being in the south west, including the parkland/grassland area, mature woodland belts and interlinking hedgerow boundary features including Birch Fen Drove.
- 0.5 It is recognised that the development proposals for the site would result in a number of direct and indirect adverse impacts on the assemblage of invertebrates. Therefore recommendations have been made that would aim to ensure a representative assemblage of invertebrates were maintained within the site, which would meet local and national planning policy guidance.
- 0.6 Mitigation and enhancement measures would aim to, (i) maintain existing suitable habitat; (ii) improve connectivity between different habitats and (iii) enhance other habitats in the survey area. These measures would be required to minimise the potential adverse effect of habitat loss as a result of the proposed development.

## 1 INTRODUCTION

### Background to the study

- 1.1 On behalf of Cannon-Kirk (UK) Ltd, Cambridge Ecology Ltd was commissioned by Savills to carry out an invertebrate survey of land at Wenny Road, Chatteris, Cambridgeshire. The survey was required to investigate the likely presence of invertebrates, which include protected species, on the land within and adjacent to the development site, which could potentially be affected by a proposed residential development at the site.
- 1.2 An investigation of biological records carried out during the literature search as part of the Extended Phase 1 Habitat Survey (Cambridge Ecology 2014) showed that within the last 10 years, there had been only one record of an invertebrate in close proximity (within 2km) of the proposed development site; the Large Garden Bumble bee, listed as UK Biodiversity Action Plan (UK BAP) priority species and/or 'Species of Principle Importance' as listed on Section 41 of the Natural Environment & Rural Communities (NERC) Act (2006).
- 1.3 This would suggest that the area was of limited value for invertebrates of conservation value, perhaps due to the intensively farmed nature of the wider area, although the under-recording of invertebrates in this area may also take account of the few records.
- 1.4 The results of the Extended Phase 1 Habitat Survey carried out in November 2014 identified habitats present within the proposed development site that had potential to support invertebrates.
- 1.5 Therefore the development site did contain some areas and features (e.g. improved grassland, hedgerows, standing water and woodland suitable for invertebrates. Consequently a variety of habitats (e.g. deciduous woodland and wet ditches) had potential to support specialist invertebrate species. In addition third party feedback from the scoping exercise highlighted the requirement for a detailed invertebrate survey.

### Relevant Legislation and Policy

- 1.6 There are several pieces of legislation and government policy to be aware of with regard to carrying out and interpreting the results of Invertebrate surveys, these include: the Wildlife and Countryside Act 1981 (WCA 1981); the Countryside and Rights of Way Act 2000 (CRoW Act 2000); the Conservation of Habitats and Species Regulations 2010; The Natural Environment and Rural Communities Act (2006); and National Planning Policy Framework 2012 (NPPF 2012).



- 1.7 In the UK invertebrate species are covered by the UK's domestic wildlife legislation, national biodiversity policies and relevant international statutes. Most of these measures aim to protect vulnerable species. Therefore UK invertebrate species are protected under:
- International statutes such as Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive) This Directive is implemented in the whole of the UK through The Conservation (Natural Habitats &c.) Regulations 1994 and The Conservation of Habitats and Species Regulations 2010.
  - Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) for England and Wales
  - Section 41 of the Natural Environment and Rural Communities Act for England.
  - under the EU CITES Regulations
  - Schedule 9 of the Wildlife and Countryside Act 9 (as amended)
- 1.8 In terms of the UK Wildlife and Countryside Act 1981 (as amended), under Section 9 of this Act, wild animal species listed on Schedule 5 may be protected under one, some or all of these parts:
- Part 1 – intentional killing, injuring, taking
  - Part 2 - possession or control (live or dead animal, part or derivative)
  - Part 4 (a) - intentional damage to or destruction of any structure or place used by a scheduled animal for shelter or protection
  - Part 4 (b) - intentional disturbance of animal occupying such a structure or place
  - Part 4 (c) - obstruction of access to any structure or place used for shelter or protection
  - Part 5 (a) - selling, offering for sale, possessing or transporting for the purpose of sale (live or dead animal, part or derivative)
  - Part 5 (b) - advertising for buying or selling live or dead animal, part or derivative
- 1.9 The current UK BAP and Section 41 of the NERC Act 2006 lists close to 400 invertebrate species that are Species of Principle Importance. Section 40 of the same Act requires every public body in the exercising of its functions (in relation to Section 41 species) to '*have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity*'. This makes the listed invertebrates a material consideration in the planning process, requiring a detailed ecological survey before planning permission can be granted. In addition, local authority planning departments must meet the requirements of the National Planning Policy Framework, which requires planners not only to protect biodiversity, but where possible to enhance it.
- 1.10 Figure 1.1 shows the red line boundary of the Wenny Road site that formed the invertebrate survey area.

### **Aims and objectives**

- 1.11 The purpose of the 2015 invertebrate survey was to confirm likely presence/absence of invertebrate of conservation importance with the survey area. If invertebrate of conservation importance were found to be present, the aim of the study would be to:
- identify the species of invertebrate present.
  - confirm the presence/absence of invertebrate species of principal importance.
  - identify the likely distribution of important invertebrate species within the survey area.
  - assess the importance of the site for its invertebrate assemblage.
- 1.12 The data gathered would be used to help inform and develop appropriate and proportionate mitigation measures, that may be necessary to ensure legal compliance pertaining to wildlife legislation in relation to invertebrates and meet local and national planning policy requirements, such as the national Planning Policy Framework 2012 (NPPF 2012).
- 1.13 The key principles in the NPPF require that "*the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and delivering net gains in biodiversity where possible.*"
- 1.14 This report summarises the background to the study and details the results and key findings of the 2015 invertebrate survey. The up-to-date data may then be used to provide guidance on the need for and design of any appropriate mitigation and enhancement measures. These measures may be necessary to minimise any potential adverse effects of the new development proposals on invertebrates of conservation importance and help the design of any appropriate ecological enhancement measures such as habitat creation and site management for the benefit of invertebrates.

### **Study Area and Development Proposals**

- 1.15 The invertebrate survey area was defined as the area within the red line boundary of the proposed development site as illustrated in Figure 1.1. Due to the size and nature of the development and the character of the surrounding habitats an additional area to comprise a potential zone of influence was not considered necessary.
- 1.16 The area beyond the site boundary to the north and west was not included in the field survey because it comprised entirely of a built environment with residential properties and roads, and therefore of very limited ecological value, while access to these areas was also not possible. To the east and

south the site was bordered by a main road, arable land and additional residential properties and therefore was also of limited ecological value for invertebrates.

- 1.17 For clarity in this report reference to the 'development site' comprises the red line boundary of the proposed development site. For this study the 'survey area' also includes the red line boundary of the proposed development site only, there is no additional area that would form a zone of influence.
- 1.18 The habitats present within the survey area are detailed in Extended Phase 1 Habitat Survey Report 2014 (Cambridge Ecology 2014). These habitats comprised improved grassland some of which is grazed by horse, hedgerow edges, wet and dry ditch edges, tall ruderal, scrub, and edges of the deciduous woodland belts.
- 1.19 The development site was located approximately 1 kilometre to the south east of Chatteris town centre and is bordered to the north and west by residential properties, part of Chatteris town and the west and south by the A142 road. Chatteris lies approximately 28km north of the city of Cambridge. The centre of the site is situated at Grid Ref TL 400 856. The total area of the development site covers an area of approximately 26 hectares (ha).
- 1.20 The land beyond the A142 on the east and southern boundary of the development site and in the wider area around Chatteris is primarily intensively farmed arable land. It was considered that this arable land and the associated drainage ditches, which were sparsely vegetated and heavily engineered, would be unlikely to be suitable for invertebrates.
- 1.21 Within the survey area the habitats comprised:
- Arable land
  - Dry/Wet Ditches
  - Ponds/Standing Water
  - Amenity/Improved grassland
  - Scattered Scrub
  - Scattered Trees/Parkland/Broadleaved Woodland
  - Hedgerows
  - Tall Ruderal
  - Bare ground and Buildings
- 1.22 The development site was primarily used for recreational dog walking and livestock grazing (mainly horses). There was also an active arable field.
- 1.23 The development proposals for the site adjacent to Wenny Road, Chatteris, would consist of various residential properties.

- 1.24 Details of the number of buildings, their design and the layout of the scheme were not available at the time of preparing this report. However it would be expected that the results of this ecology survey (and other species specific surveys in the future) would help provide details that would influence the layout of the scheme and especially the landscaping and habitat creation.

## 2 METHODS

### 2015 Invertebrate Survey

- 2.1 Comprehensive invertebrate surveys were carried out monthly between early April and September 2015. The surveys were carried out by Peter Kirby an invertebrate specialist who has over 25 years experience in invertebrate survey in a wide range of terrestrial and aquatic habitats throughout Britain and particularly in Cambridgeshire, he is skilled and proficient in the use of invertebrate information in site assessment and management planning. He is author of *Habitat Management for Invertebrates: a Practical Handbook*.
- 2.2 The visits commenced early morning and continuing to late afternoon and were carried out in good weather conditions, suitable for identifying invertebrate species and when invertebrate activity would be expected to be at its highest.

### Subdivision of the site for recording purposes

- 2.3 Observations were made from within the survey area, comprising the red-line boundary of the Wenny Road site (Figure 1.1).
- 2.4 The character of the site invited separate numbering and recording of each field, boundary and other discrete features. Therefore the survey area was split up into separate compartments to differentiate the various parts of the survey area.
- 2.5 Table 2.1 provides a brief description for each compartment and a centre point grid reference. Figure 2.1 shows the location of the different compartments.
- 2.6 Although this compartmentalization provided a convenient subdivision of the site and provided a reasonably precise location for each record, it was not the intention to provide equal coverage of the features for assessment purposes. Rather, the intention was to produce an overall list for the site, to concentrate recording effort on those areas and features considered most likely, on habitat grounds and feedback from early survey work, to be of particular interest for invertebrates, and to provide location details for the scarcer species.

**Table 2.1: Recording areas and features**

Feature code	Grid reference	Description
A1	TL40288589	Arable field
A2	TL40218572	Arable field
BFD	TL40118567	Birch Fen Drove. Bordered both sides by hedges and trees with shallow seasonal drains beneath. Recently heavily managed, with encroaching scrub cleared to create a broad

Invertebrate Survey on land proposed for development at Wenny Road, Chatteris,  
Cambridgeshire

Feature code	Grid reference	Description
		track, the recovering vegetation mostly tall ruderals at the time of the first survey visit. Bordering hedge dominated by hawthorn and bramble, with elm, ash, etc. Mature trees especially substantial oak, but also including field maple. A moderate quantity of dead wood of various sizes, and with significant potential for saproxylics.
D1	TL40258602	A recently cleared drain, running straight, with moderately steep banks, recently managed and rather open-structured with bare ground but already with considerable scrub invasion, especially bramble at the upper edge. Colonised by <i>Typha latifolia</i> and <i>Callitriche</i> sp., and carrying, at least intermittently, a heavy sediment load.
G1	TL40408611	A small horse-grazed field of improved grassland, generally close-grazed but patchy and with large bramble clumps. Sheltered to the west by young trees and shrubs beyond the fence-line, bordering the road.
G2	TL40338605	Improved grassland, ungrazed at the time of survey and probably managed by cutting in the recent past, with hints of former floristic interest ( <i>Rumex acetosa</i> , <i>Centaurea nigra</i> ), but without characteristics or features suggesting significant invertebrate potential.
G3	TL40218601	In the south, mown amenity grassland of negligible potential; in the north, unmanaged improved grassland and ruderal tall herbs with invading bramble and scrub; structural variety increased by local ground disturbance in the summer; without characteristics or features suggesting significant invertebrate potential.
G4	TL40118583	Improved ungrazed grassland, poorly drained and interestingly structured, at the time of the first visit with one area of very shallow flooding and bare mud elsewhere where water had lain; in places a complex arrangement of tussocks, including a substantial area of <i>Deschampsia cespitosa</i> ; structural variety increased by local ground disturbance in the summer. Floristic poverty and presumed high nutrient levels limit invertebrate potential.
G5	TL39848574	Horse-grazed improved grassland; generally quite closely grazed, but patchy; a scattering of trees, the most interesting mature oaks, and patches of scrub; a seasonally flooded hollow on the north side, adjoining S2.
G6	TL39908561	Horse-grazed improved grassland, with tethered horses producing a patchy structure, with dense tall grassland and ruderal tall herbs in places at margins and around contained scrub and trees; damper areas locally with <i>Deschampsia cespitosa</i> tussocks; structural variety increased by local ground disturbance in the summer. A number of mature trees are included, mostly oaks but also a horse chestnut, and an ash stump, giving the field a parkland structure; patches of scrub, especially bramble and hawthorn, and including one old hawthorn. The parkland trees, and well-structured transitions to adjoining hedges and shelterbelts, which contain additional mature trees, make this the area of highest invertebrate potential on the site, judged by habitat characteristics.
G7	TL40138554	Heavily improved grassland, containing substantial mature oaks of significant potential but otherwise devoid of features of invertebrate potential except for contained ponds on its

**Invertebrate Survey on land proposed for development at Wenny Road, Chatteris,  
Cambridgeshire**

Feature code	Grid reference	Description
		western side, separately coded.
H1	TL40388608	An unmanaged hedge, without trees, with dense bramble and a considerable quantity of elm, including dead standing branches. Potential for invertebrates limited.
H2	TL40298595	An unmanaged hedge dominated by hawthorn, elm and bramble, with considerable standing dead wood of elm, but without trees. Of limited invertebrate potential.
H3	TL40218585	A fairly low, unmanaged hedge, dominated by bramble and hawthorn, with a little elm locally; of limited invertebrate potential.
H4	TL39888569	Mostly, though not completely, a double hedge, the space between variably grassy or scrubbed; unmanaged, variable in density, the scrub layer dominated by hawthorn and bramble, with a substantial amount of elm, including much standing dead wood, but noteworthy especially for substantial mature trees, including large ash, and oak, the latter including both pedunculate oak and Turkey oak.
H5	TL40058573	Mostly a reasonably dense unmanaged hedge dominated by bramble and hawthorn with a significant amount of elm, including standing dead wood. Notable chiefly for a pair of mature elms, slightly offset from the hedge into G6, near its western end.
P1	TL40148569	Robin Knight's Pond. Rather heavily shaded by adjoining trees and shrubs, so that only a fraction of the pond is well-vegetated, but this is quite well-structured, with considerable tall emergent vegetation, a broad fringe of seasonally exposed mud, and winter-flooded grassland, and is very sheltered. The bed, however, is of deep and rather organic mud and litter, and conditions are assumed to be rather eutrophic.
P2	TL40078547	A fairly shallow pond, approximately 50 centimetres at its deepest at the time of the first survey visit and completely dry in late summer, and a broad outer ring of flooded grass, extending in a long band to the south, up to 30cm deep on the first survey visit; bed mostly reasonably firm or of shallow mud, not anoxic, and with no deep build-up of decaying vegetation structure excellent for water beetles in particular, but potential possibly limited by extreme seasonality or high nutrient levels.
S1	TL39898551	A band of trees and shrubs along the edge of Wenny Road, notable especially for very substantial oaks, particularly along the inner margin adjoining G6, and for a large amount of elm, including substantial dead wood; also Turkey oak, ash, a very substantial beech, a number of scrub species, considerable ivy, and a dense growth of <i>Anthriscus sylvestris</i> along the centre, where there is a well-marked informal path. A substantial amount of fallen and standing dead wood. The transition to the grassland of G6 is well-structured. There is considerable scope for invertebrate interest, especially in the saproxylic fauna.
S2	TL39888583	A band of trees and scrub along the northern edge of the western part of the site, bordered to the north by housing and a playing field, notable especially for a good number of substantial mature oaks, including both pedunculate and Turkey oaks, a considerable amount of elm, including standing dead wood, locally dense growth of ivy, and

Feature code	Grid reference	Description
		variable but often dense growth of <i>Anthriscus sylvestris</i> along its centre, where a well-marked informal path runs the length of the shelterbelt. The transition to grassland in G4 is well-structured, that to G5 rather more abrupt. There is considerable invertebrate potential, especially for saproxylic invertebrates.
W1	TL39708555	Old brick walls, partly ivy-covered and with coarse ruderal vegetation at the base, mark the western end of the site. These are fairly intact and not obviously of high potential for invertebrates, but potentially of value for aculeate Hymenoptera which might find nesting space and for invertebrates associated with the unshaded ivy; flowering currants nearby provide a potential nectar source for early bees.

### Sampling methods

- 2.7 The surveys involved identifying as many species as possible in the various habitat types present in the survey area. The surveys involved a range of appropriate and representative survey techniques that would be expected to find the target invertebrate groups.

### Aquatic invertebrates

- 2.8 The aquatic invertebrate fauna were sampled using:
- a standard pond net of side twenty-four centimetres and mesh size one millimetre in deeper water;
  - a plastic sieve of seventeen centimetres diameter with a mesh size of approximately one millimetre in dense vegetation and shallow water;
  - a plastic sieve ten centimetres in diameter with a mesh size of 0.5 millimetres at water margins and to take secondary samples from areas disturbed by the larger sieve.
- 2.9 Representative bulk samples obtained by the larger pond net were examined in the net and large and obvious animals extracted immediately. Each sample was then spread on metal grids of mesh size five millimetres suspended over plastic trays, and active animals were allowed to pass easily through the grid for a minimum of ten minutes while the sieves were employed in the capture of additional material from shallower areas and the pond net in a search for additional large and active species. Material remaining on the metal grid was then sorted for less active invertebrates, such as molluscs, and additional larger individuals unable to fit through the mesh of the grid. Further samples taken with the large net were placed in trays of water and searched for taxa prone to be overlooked by the preceding methods, particularly small soft-bodied animals, caddis larvae and some molluscs. Readily identifiable species were noted immediately and released. Representatives of the remaining fauna were preserved in 70% propanol-2-ol for later examination.



- 2.10 No precise length of waterbody margin was used for sampling; sub-samples were taken from a number of points chosen both to reflect the character of the water body and to include the areas which seemed likely to hold the richest fauna. Sampling was continued until the capture of new species of water beetles had apparently ceased.

#### **Terrestrial invertebrates**

- 2.11 The terrestrial invertebrate fauna were sampled using a small range of active methods.

##### *Sweep-netting*

- 2.12 A lightweight folding circular frame 40 centimetres in diameter was fitted with a net bag supplied for sweep-netting by GB Nets and attached to an extending lightweight aluminium handle. Net strokes were reasonably rapid, and penetrated as far into the vegetation as possible without the stroke being seriously slowed by its resistance. Sweeps were counted as single strokes of the net, either from left to right or right to left. A maximum of fifty sweeps was taken before examining the catch. The contents of the net were initially examined in the net, noting or capturing large, fast-moving or readily identified species. The contents were then sifted through a 0.5 centimetre mesh sieve onto a white tray, and the material in the tray examined for smaller and slower animals.

##### *Beating*

- 2.13 Samples were taken from tree and shrub foliage, ivy, and dense, tall herbaceous vegetation by holding a sweep-net under the foliage and tapping the branches or stems above sharply several times with a stout stick. The sweep net currently in use was usually employed for collection of material. For high vegetation and larger branches, a net with a lightweight folding frame 55 centimetres in diameter and a long bag was also used: this net has the advantage that substantial amounts of foliage can be inserted into the net, or a substantial length of tall vegetation placed next to the net, before sampling. Material was initially examined in the net, then emptied onto a white tray for further sorting.

##### *Brushing of trunks, branches and dead wood.*

- 2.14 A soft nylon-bristled domestic hand-brush was used to brush invertebrates onto a white tray or net where they were examined.

##### *Active search of key features of value for invertebrates*

- 2.15 Features of significance to invertebrates which were not able to be sampled by other methods were investigated by close examination, hand searching and sieving of litter through a 0.5 cm mesh sieve. This method was used to

investigate: flowering plants providing an important nectar source; accumulations of plant litter; dead wood; the undersides of plant rosettes; and bare wet ground.

*Direct observation*

- 2.16 A small number of relatively large and readily identified species, especially butterflies, dragonflies, some grasshoppers and crickets, larger hoverflies, bees and wasps, were seen without the need for specific search and either identified from sight or individually captured using a sweep-net.
- 2.17 In all methods of active sampling, some readily identified species were noted in the field. Representative examples of most species were collected for subsequent identification or confirmation. Most were collected using a pooter. A dry pooter made from a flexible polythene sample bottle and a combination of rigid plastic and flexible polythene tubing was used to capture most insects and retain them alive; for spiders, some soft-bodied insects and predacious species which might do serious damage to other material if collected live into a dry pooter, a spider-pooter was used to gather up individual specimens. Invertebrates were either identified immediately, or layered between sheets of tissue paper and placed in a labelled plastic box for later examination.

**Target groups**

- 2.18 The following aquatic invertebrate groups were identified, or would have been if found:
- Tricladida - flatworms
  - Mollusca - water snails and mussels
  - Hirudinea - leeches
  - Larger Crustacea - water lice and freshwater shrimps
  - Araneae - spiders
  - Coleoptera - water beetles
  - Diptera - flies – to family only except for selected groups
  - Ephemeroptera - mayflies
  - Hemiptera - water bugs
  - Lepidoptera - moths
  - Megaloptera - alder flies
  - Odonata - dragonflies
  - Trichoptera - caddisflies.
- 2.19 The terrestrial survey was taxonomically wide-ranging, but concentrated on those groups considered most likely to be informative as to conservation interest and habitat requirements. The following groups have been identified:
- Mollusca - snails, slugs
  - Crustacea - woodlice

- Araneae - spiders
- Opiliones - harvestmen
- Pseudoscorpiones - false scorpions
- Coleoptera - beetles  
Aderidae, Anthribidae, Apionidae, Buprestidae, Byturidae, Cantharidae, Carabidae, Cerambycidae, Chrysomelidae, Ciidae, Cleridae, Coccinellidae, Cryptophagidae (excluding Atomaria and Cryptophagus), Curculionidae, Dasytidae, Dermestidae, Elateridae, Erotylidae, Histeridae, Hydrophilidae, Kateretidae, Latridiidae, Lucanidae, Malachiidae, Megalopodidae, Melandryidae, Mordellidae, Nitidulidae, Oedemeridae, Phalacridae, Ptinidae, Rhynchitidae, Salpingidae, Scarabaeidae, Scirtidae, Scraphiidae, Staphylinidae (except Aleocharinae), Tenebrionidae, Tetratomidae
- Dermaptera - earwigs
- Diptera - flies  
Anisopodidae, Asilidae; Bibionidae; Clusiidae, Conopidae, Dolichopodidae, Empididae, Hybotidae, Lauxaniidae, Limoniidae, Muscidae (selected species), Opomyzidae, Pipunculidae, Psilidae, Ptychopteridae, Rhagionidae, Scathophagidae, Sciomyzidae, Stratiomyidae, Syrphidae, Tachinidae, Tephritidae, Tipulidae, Ulidiidae
- Hemiptera - bugs  
Auchenorrhyncha, Heteroptera, Psylloidea
- Hymenoptera - bees, wasps, ants  
Aculeata, Symphyta
- Lepidoptera - moths, butterflies  
Adult and conspicuous larval Macrolepidoptera, selected Microlepidoptera
- Mecoptera - scorpionflies
- Neuroptera - lacewings
- Odonata - dragonflies
- Orthoptera - grasshoppers, crickets
- Psocoptera - barklice
- Trichoptera - caddisflies.

## Nomenclature

2.20 Checklists and other sources used for names have been selected as far as possible on the basis of easy availability, broad coverage, specific reference to the British fauna, of being reasonably recent, and of their availability in printed form. There are few occasions when all these criteria are met. The following main sources have been used:

- Tricladida Reynoldson & Young, 2000
- Mollusca Anderson, 2005
- Hirudinea Elliott & Mann, 1979
- Crustacea Gregory, 2009; Gledhill et al., 1993
- Araneae Harvey *et al.*, 2002
- Opiliones Hillyard & Sankey, 1989
- Pseudoscorpiones Legg & Jones, 1988
- Chilopoda Barber, 2009
- Diplopoda Lee, 2006

- Coleoptera Duff, 2012
- Dermaptera Haes & Harding, 1997
- Diptera Chandler, 2012
- Ephemeroptera Elliott & Humpesch, 2010
- Hemiptera Auchenorrhyncha Biedermann & Niedringhaus, 2009
- Hemiptera-Heteroptera Aukema & Rieger, 1995-2006
- Hemiptera – Psylloidea [http://www.britishbugs.org.uk/  
systematic.html](http://www.britishbugs.org.uk/systematic.html)
- Hymenoptera Aculeata Archer, 2004
- Lepidoptera Agassiz et al., 2013
- Mecoptera Plant, 1997
- Neuroptera Plant, 1997
- Odonata Cham et al., 2014
- Orthoptera Haes & Harding, 1997
- Psocoptera New, 2005
- Trichoptera Barnard & Ross, 2012.

2.21 In the lists, taxonomic arrangement governs the positioning of the highest taxa, with molluscs preceding crustaceans, spiders, and insects. Other invertebrates are listed under larger taxonomic groupings, usually phylum or class.

#### **Site Evaluation**

2.22 An initial evaluation of the ecological importance of the site was made by comparing the desk-study and field survey results against recognised criteria for establishing the presence of valued ecological receptors (any ecological feature that is sensitive to or has the potential to be affected by an impact).

2.23 The criteria used to determine the ecological value of the development site included the following:

- Species protected as 'European Protected Species' under regulation 41 of the Conservation of Habitats and Species Regulations 2010.
- Species protected under Schedule 5 and Section 9 of the Wildlife and Countryside Act (1981 as amended).
- Principal species – as listed under Section 41 of the Natural Environment and Rural Communities Act (NERC 2006).
- Important species – as listed on the UK BAP priority species.
- County Wildlife Site Selection Guidelines version 5. (Cambridgeshire and Peterborough County Wildlife Sites Panel, 2009).

#### *Statuses*

2.24 Each of the species recorded has been assigned a status. The better-known groups of invertebrates were assessed for formal conservation status in Red Data Books and National reviews from the mid-1980s onwards, using criteria from the IUCN for the rarest (Red Data Book) species, and defining species believed to occur in 100 or fewer 10-kilometres squares of the National Grid as Nationally Scarce (also referred to as Nationally Notable). The earlier

IUCN criteria have been superseded, but only a fraction of the British invertebrate fauna has as yet been assessed, in published reviews, under the newer criteria.

- 2.25 The following statuses and abbreviations from the older system are used in this report:

*Red Data Book category 2 - Vulnerable (RDB2)*

- 2.26 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 for inclusion are: species declining throughout their range; species in vulnerable habitats.

*Red Data Book category 3 – Rare (RDB3)*

- 2.27 Taxa with small populations 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. Usually, such taxa are not likely to exist in more than fifteen post-1970 10km squares. This criterion may be relaxed where populations are likely to exist in over fifteen 10km squares but occupy small areas of especially vulnerable habitats.

*Nationally Scarce category A (Na)*

- 2.28 Taxa which do not fall within RDB categories but which are nonetheless uncommon in Great Britain and are thought to occur in 30 or fewer hectads of the National Grid or, for less well-recorded groups, within seven or fewer vice-counties.

*Nationally Scarce category B (Nb)*

- 2.29 Taxa which do not fall within RDB categories but which are nonetheless uncommon in Great Britain and are thought to occur in between 31 and 100 10km squares of the National Grid or, for less well-recorded groups, between eight and twenty vice-counties.

*Nationally Scarce (N)*

- 2.30 For some less well-recorded groups and species, it has not been possible to determine which of the Nationally Scarce categories (A or B) is most appropriate for scarce species. These species have been assigned to an undivided Nationally Scarce category.

2.31 Only one category and sub-category from the revised IUCN criteria have been used:

*Lower Risk (LR)*

2.32 A taxon is Lower Risk where it has been evaluated, does not satisfy the criteria for any of the categories Critically Endangered, Endangered or Vulnerable. Taxa included in the LR category can be separated into four subcategories, only one of which is used in this report.

- **Near Threatened (NT).** Taxa which do not qualify for Conservation Dependent, but which are close to qualifying for Vulnerable – in Britain, defined as occurring in 15 or fewer hectads but not CR, EN or VU.

2.33 Under the revised criteria, at the national level, countries are permitted to refine the definitions for the non-threatened categories and to define additional ones of their own. The Nationally Rare (NR) category is defined as species recorded from 15 or fewer hectads of the Ordnance Survey national grid in Great Britain. The Nationally Scarce (NS) category is defined in the same way but the species is recorded from between 16 and 100 hectads since 1980. These correspond respectively to the former Red Data Book Categories 1-3 and the former Nationally Scarce (or Nationally Notable) categories A and B. Collectively, they are referred to as the GB Rarity status. Although in this section a distinction is made between the Nationally Scarce species defined under the older system and those defined under the newer system, since the two categories are for all usual purposes identical they are combined under the name “Nationally Scarce” in assessment and discussion. The different abbreviations are, however, maintained in tables and lists of species, so that their origins are clear.

2.34 Species falling into none of these categories have been assigned a status estimated on a four-point scale: common, frequent, occasional and rare, based largely on their status in Cambridgeshire but generally applicable more widely. No pretence is made that these statuses are assigned after rigorous assessment against precise criteria, but broad guidelines to their significance are as follows:

- **Common:** species found in good numbers over substantial areas, usually in a number of habitats, and either having no very special ecological requirements or having requirements which are easily and widely met (restriction to a common foodplant, e.g.). Such species are expected or unsurprising in any sizeable tract of “wider countryside” within the central parts of their range.
- **Frequent:** typically species with somewhat more specialised or infrequently met habitat requirements, but expected where these characteristics are met; such species may be restricted to a narrow habitat range or to particular soil types, require a particular foodplant of less than universal occurrence, or be associated with a widespread

but erratic habitat resource, such standing dead wood of particular species or in particular conditions. Species in this category are expected or unsurprising wherever the habitat types with which they are associated is found.

- **Occasional:** typically species with a very particular and infrequently met habitat requirement; or species of poor mobility whose presence may be heavily dependent on habitat continuity; or species which, though not obviously of highly restrictive requirements, are nonetheless very rarely recorded. Such species may be erratic in occurrence, and often require specific search of their specialist niches in order to be located; only in special circumstances are they expected merely on the grounds of broad habitat type.
- **Rare:** typically species with a particular and infrequently met habitat requirement, but sometimes merely highly geographically restricted. Such species are generally significantly less frequently found than apparently suitable habitat, and are expected, if at all, only when their very particular and special niche is found. They are expected to have very few populations within the county, unless it contains the core of a very restricted range or an unusual concentration of a very special habitat. Species falling into this category are usually expected to have already been assigned a formal conservation status. It is a useful category for groups and species which have not yet been included in formal reviews, or are disproportionately rare in this region, but it is infrequently used.

2.35 Nationally Scarce and Red Data Book statuses have been assigned to the species recorded according to the most conveniently accessible and useful summary of the most recently published statuses, as follows:

- Araneae Harvey et al., 2002
- Pseudoscorpiones Bratton, 1991
- Coleoptera Alexander, 2014; Alexander et al., 2014; Foster, 2010; Hubble, 2014; Hyman & Parsons, 1992, 1994
- Diptera Falk 1991b
- Hemiptera Kirby, 1992
- Hymenoptera Falk 1991a
- Odonata Daguet et al., 2008
- Orthoptera Haes & Harding, 1997

2.36 The list has also been checked for any Priority species in the UK Biodiversity Action Plans (Biodiversity Reporting and Information Group, 2007). Such species are indicated in the summary species list by the abbreviation "**BAP**". However, BAP statuses are erratically and inconsistently applied amongst invertebrates, and are largely irrelevant to assessment and the setting of management priorities.

2.37 The abbreviations in bold are those used in tables and species lists in this report.

### **Saproxylic Fauna Scoring Systems for site Evaluation**

- 2.38 The majority of the recorded species which have an association with dead wood are beetles. This is usually the case in general surveys, and saproxylic beetles are routinely used to assess the quality of the dead wood fauna of a site. There are two widely used methods for doing so. Alexander (2004) provides the most recent version of an Index of Ecological Continuity (IEC), based on species associated with habitat continuity, assessed on a three-point scale: Group 1 are species which are known to have occurred in recent times only in areas believed to be ancient woodland, mainly pasture woodland; Group 2 are species which occur mainly in areas believed to be ancient woodland with abundant dead-wood habitats, but which also appear to have been recorded from areas that may not be ancient or for which the locality data are imprecise; Group 3 are species which occur widely in wooded land, but which are collectively characteristic of ancient woodland with dead-wood habitats. A score of one is given to species in Group 3, a score of two to those in Group 2, and a score of 3 to those in Group 1. The index is calculated by summing the scores for all species recorded. Because this score is cumulative, it is heavily dependent on recording effort. A score of 15-24 is suggested to be indicative of regional value, and 25-79 of national importance.
- 2.39 The second scoring system (Fowles et al., 1999) calculates a Saproxylic Quality Index which is intended to be less dependent on recording effort than the Index of Ecological Continuity. Scores are assigned to saproxylic species according to their national status rather than the extent of their association with sites of long habitat continuity. Fowles et al. (1999) provide a complete list of species and their scores. Summation of the scores for all species provides the Saproxylic Quality Score (SQS): dividing this score by the number of scoring species (N) and multiplying by 100 gives the Saproxylic Quality Index (SQI). A minimum of forty scoring species is recommended for the calculation of a reliable SQI. A score of 500 has been provisionally set as a threshold for national significance; no lower levels of significance have been defined.

### **Limitations and Assumptions**

- 2.40 Surveys were timed (early April to September) to correspond with optimal periods when most invertebrates would be conspicuously visible and therefore their presence readily observed. Surveys were carried out wherever possible on days when general weather conditions were suitable to make observing, identifying and recording invertebrates as effective as possible.
- 2.41 The survey findings are considered to be an accurate representation and assessment of the site's value to invertebrates and are considered fully appropriate for informing the design of a mitigation strategy.



- 2.42 The surveys were considered to be robust and the results obtained fit for purpose.
- 2.43 However it was recognized that there are always limitations with any invertebrate survey. Every effort has been made to ensure that the fraction captured is a substantial and representative one, and that it included particularly good representation of those groups likely to contain uncommon species, given the character of the site. However, the exact content of that fraction of the fauna which has not been caught is unknown, and the assessment of interest must contain a margin of possible error. The degree of under-recording will vary according to the ecology and habits of the animals: for example, saproxylic insects, many of which spend much of their lives hidden within dead wood, are notoriously time-consuming to record, and are likely to be relatively under-recorded compared to those phytophagous species which live exposed on the standing parts of plants. The recording of some ecological groups, such as those associated with carrion or fungi, is largely dependent on the chance finding of corpses or fruiting bodies; it might be noted that no corpses or substantial fungal fruiting bodies were found during the current survey.
- 2.44 Active survey work has been entirely diurnal, so nocturnal groups have been largely unrecorded, and found only when they could be disturbed from, or found in, their day-time resting places. Many additional species could no doubt be added by night survey and a programme of light trapping.
- 2.45 The use of static traps was considered, but rejected because the high level of public use, and presence of grazing horses, would have made them vulnerable to loss.
- 2.46 The range of groups identified has been as wide as possible. However, it has been to some degree selective, both because of the methods employed and through deliberate choice. The sampling methods employed are commonly used in sampling and are able to record a very wide range of species, but they are not exhaustive.
- 2.47 Within the samples obtained, many species belonged either to groups which, because of their obscurity, seemed unlikely to be informative for site assessment, or to groups beyond the identification skills of the surveyor. Specimens of such groups were not retained, and uncommon species might have been amongst them.
- 2.48 Some of the trees on the site are very tall, and have little canopy vegetation within reach of normal collecting methods. This is a perennial problem in the survey of densely treed sites with high canopies, and there is no easy solution. Temperate trees do not have the extreme stratification found in tropical forests, and individuals may be found dispersing, seeking or leaving hibernation sites, or as windblown strays, but all such recording methods are sufficiently hit-and-miss as to leave an unknown, but potentially substantial, proportion of the invertebrate fauna unrecorded.

- 2.49 No attempt has been made to sample the subterranean fauna, which, amongst the groups investigated for this survey, is of limited extent and relatively labour-intensive and time-consuming to record. It could, however, include some uncommon species, especially those associated with buried wood, decaying tree roots, and underground fungi. Hand-sorting or heat-extraction of soil, or the use of buried traps in strategic locations, could add interestingly to the species list.
- 2.50 The amount and distribution of work undertaken was considered proportionate and appropriate to the site and the information gathered provided an accurate and representative record of the invertebrate assemblage found at the site.
- 2.51 The use of published formal statuses should be used with some limitations. For instance the statuses of some species are considered to be out of date. The reviews which assigned the statuses were, in some cases, undertaken many years ago and the range and abundance of the species in question has changed significantly in the interim; and in some cases, improved knowledge of the invertebrates involved has enabled more efficient recording and the accumulation of many additional records.

### 3 RESULTS

#### 2015 Invertebrate Survey

- 3.1 The 2015 survey has produced 1894 records of 811 different kinds of invertebrates, all but a few identified to species. Of these, four are Red Data Book, 35 are Nationally Scarce, eighteen are considered to be rare or of only occasional occurrence in the county, and a further 109, assessed as "frequent" are considered to be of local occurrence in the county. A complete set of records, with locations for each capture, has been prepared as an Excel spreadsheet, but contains rather more detail, at least for common species, than is needed for this report. Appendix 1 is a complete list of recorded species, together with their statuses. Table 3 lists all species assigned a status of "occasional" or "rare", or with a formal conservation status, and provides a very brief statement of the ecology of each and, where appropriate, of its current status and trends.
- 3.2 Table 3.1 provides a list of the key invertebrate species recorded, their location in the survey area and their conservation status.
- 3.3 Figure 3.1 shows the key areas of the site that were considered to have the highest invertebrate interest.
- 3.4 Invertebrate species listed in Table 3.1 which are unambiguously unworthy of their current conservation status are low-lighted in grey. This option has been taken only for those species for which the evidence is considered unambiguous, the decision uncontroversial, and the species sufficiently undemanding and frequent that it would be inconvenient and misleading to include them in subsequent discussion. Some other species may be doubtfully worthy of the status currently assigned to them, but be nonetheless sufficiently scarce to be worthy of inclusion in the table. These have been left unmarked, some with comments pointing out the changes in frequency.

**Table 3.1: Summary of key invertebrate species (for assessment) recorded during the 2015 Invertebrate Survey, their conservation status and location on site**

Taxon	Status	Locations	Notes
<b>Mollusca</b>			
<b>Clausiliidae</b>			
<i>Balea perversa</i>	rare	H5	On trees with deeply fissured bark, often a considerable height above the ground; less often recorded from rocks; at Wenny Road recorded only from the two mature elms in H5, but in large numbers
<b>Araneae</b>			
<b>Dictynidae</b>			
<i>Nigma walckenaeri</i>	Na	BFD,S2	Foliage of shrubs and climbers, especially ivy; spreading rather rapidly,

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Taxon	Status	Locations	Notes
			unworthy of its current status, and found especially in urban and suburban situations
<b>Thomisidae</b>			
<i>Thanatus striatus</i>	occasional	G4	Moderately tall but usually open-structured lightly managed grassland, often on seasonally damp soils
<b>Pseudoscorpiones</b>			
<b>Chernetidae</b>			
<i>Dendrochernes cyrneus</i>	RDB3	G4,S2	Saproxyllic; under loose bark and in dry sapwood of the dead parts of standing trees, especially oak and beech, with a preference for sun-warmed trunks
<b>Coleoptera</b>			
<b>Aderidae</b>			
<i>Euglenes oculatus</i>	occasional	G6	Saproxyllic; larvae develop in moist decaying heartwood, especially of oak, also beech, elm, and recorded from pine
<b>Anthribidae</b>			
<i>Anthribus fasciatus</i>	Na	G4	A predator of scale insects, found, usually, on the branches and trunks of a range of broadleaved trees and shrubs
<i>Anthribus nebulosus</i>	Nb	S1	A predator of scale insects, found, usually, on the branches and trunks of a range of broadleaved trees and shrubs
<b>Buprestidae</b>			
<i>Agilus angustulus</i>	NS	G6	Saproxyllic; larvae develop beneath the bark of dying or recently dead small branches of trees and shrubs, oak and hazel being known hosts; perhaps most frequent in areas of scrub or coppice
<b>Cantharidae</b>			
<i>Malthinus balteatus</i>	occasional	BFD,G6,S1, S2	Saproxyllic; larvae are believed to develop in the dead wood of twigs and small branches in the canopies of a range of broadleaved trees and shrubs
<i>Malthinus frontalis</i>	NS	G6	Saproxyllic; larvae are believed to develop in the dead wood of broadleaved trees; a particular association with substantial mature trees has led to the suggestion that it may develop in decaying heartwood
<i>Malthodes pumilus</i>	NS	G2,G4	Though frequently regarded as saproxyllic, and despite its recent assessment as Nationally Scarce, this is a reasonably frequent and widespread grassland species, perhaps most abundant in under-managed semi-improved grassland with a tussocky structure
<b>Cerambycidae</b>			
<i>Phymatodes testaceus</i>	occasional	G4	Saproxyllic; larvae develop in dead

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Taxon	Status	Locations	Notes
			branches, trunks and logs of a range of broadleaved trees, and occasionally conifers, but with a strong preference for oak
<b>Ciidae</b>			
<i>Cis vestitus</i>	occasional	G4,G6,H4	Saproxylic; found mainly on dead branches of oak, especially on old trees; very local, but apparently less so than formerly
<b>Cleridae</b>			
<i>Opilo mollis</i>	NS	G6,S2	Saproxylic; a predator of wood-boring beetles, especially in old hard timber of broadleaved trees
<i>Tillus elongatus</i>	NS	S2	Saproxylic; a predator of wood-boring beetles, especially <i>Ptilinus pectinicornis</i> , on standing dead wood and heartwood of broadleaved trees
<b>Coccinellidae</b>			
<i>Hippodamia variegata</i>	Nb	G3,G4	Open-structured grassy or ruderal vegetation, usually on well-drained or summer-baked soils; despite its status, a reasonably frequent species of field margins and universal in brownfield sites; it may well be prone to the rapid establishment of transitory populations
<b>Curculionidae</b>			
<i>Anthonomus ulmi</i>	Nb	H5	Elm; larvae develop in the flower buds, so the species is restricted to reasonably substantial flowering shrubs and trees and was severely affected by Dutch Elm disease; now very localised, though still with a wide distribution
<i>Curculio villosus</i>	Nb	G6	Oaks; larvae develop in oak-apple galls caused by the gall wasp <i>Biorhiza pallida</i> on pedunculate and sessile oaks, both in woodland and on isolated trees
<i>Kissophagus hederæ</i>	Nb	S2	Saproxylic; larvae develop in decaying woody stems of ivy
<i>Larinus planus</i>	Nb	G4	Thistles; increasing in range and frequency, and doubtfully worthy of its current status
<i>Rhinocyllus conicus</i>	Nb	G3,G4	Thistles; increasing in range and frequency, and doubtfully worthy of its current status
<b>Dasytidae</b>			
<i>Dasytes plumbeus</i>	NS	BFD	Believed to be saproxylic, though larval habitats appear uncertain; especially characteristic of wood margins and other woody/herbaceous transitions
<b>Dermeestidae</b>			
<i>Ctesias serra</i>	occasional	S1	Saproxylic; under dry loose bark, or in dry blocky heartwood, apparently feeding mainly on the dead remains of insects caught in spider's webs

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Taxon	Status	Locations	Notes
<b>Elateridae</b>			
<i>Oedostethus quadripustulatus</i>	Na	H4	Seasonally wet grasslands; the larvae feed on plant roots; seemingly confined to long-established sites, and locally frequent in, for example, the Nene and Ouse Washes, but tolerant of considerable improvement and disturbance within them, and often most abundant in weedy areas by gates and along tracks
<b>Histeridae</b>			
<i>Plegaderus dissectus</i>	Nb	S2	Saproxyllic; in moist crumbly decaying timber of broadleaved trees; a strong association with ancient wood pastures has been claimed, but is doubtfully justifiable
<b>Hydrophilidae</b>			
<i>Berosus signaticollis</i>	occasional	P2	Aquatic; especially characteristic of partially vegetated clear water over a mineral substrate, and often an early colonist of new ponds or cleared ditches
<i>Cryptopleurum crenatum</i>	N	G6	Associated with a wide range of decaying organic matter, including dung, and also found in wetland habitats amongst plant debris and moss; though somewhat local, it is widely distributed and its formal status is open to doubt
<i>Enochrus quadripunctatus</i>	NS	P2	Aquatic; found in well-vegetated shallow water, especially in base-rich waters in fens and where there is some mineral substrate; it has expanded its range recently and has become more frequent and widely distributed in Cambridgeshire
<b>Laemophloeidae</b>			
<i>Notolaemus unifasciatus</i>	Na	G4	Typically found under sappy bark of freshly dead branches of beech or oak; records are rather widely scattered
<b>Lucanidae</b>			
<i>Sinodendron cylindricum</i>	occasional	S2	Saproxyllic; dead heartwood of large broadleaved trees, including stumps; perhaps more local and more restricted to ancient sites in east midland counties than further south or west
<b>Megalopodidae</b>			
<i>Orsodacne cerasi</i>	NS	BFD	Typically found at wood margins, along hedgerows and at other woody/herbaceous transitions; adults have been recorded from a wide range of shrubs and trees, and occur regularly on flowers of herbaceous plants, especially umbellifers; larval habitats are not clearly known, but it

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Taxon	Status	Locations	Notes
			has been suggested that they may mine within the apical shoots of oaks, or within leaf petioles of woody hosts, or perhaps feed on roots
<b>Melandryidae</b>			
<i>Abdera biflexuosa</i>	NS	G6,H4	Saproxyllic; larvae develop in decaying lower branches, usually of oak, which have been shaded out by the tree's own canopy
<i>Conopalpus testaceus</i>	occasional	G6	Saproxyllic; larvae develop in decaying branches of broadleaved trees and shrubs, especially oak and hazel
<b>Mordellidae</b>			
<i>Mordellistena humeralis</i>	NS	S1	Believed, though not perhaps universally, to be saproxyllic; usually recorded as an adult on flowers, especially of umbels, and especially frequent at woodland margins; formerly considered rare, but subject to taxonomic confusion, and now quite widely recorded
<i>Mordellistena variegata</i>	NS	S1	Believed, though not perhaps universally, to be saproxyllic; usually recorded as an adult on flowers, especially of umbels, and especially frequent at woodland margins
<b>Oedemeridae</b>			
<i>Ischnomera cyanea</i>	occasional	S1	Saproxyllic; larvae develop in fairly soft decaying heartwood of a wide range of broadleaved trees
<b>Ptinidae</b>			
<i>Anobium inexpectatum</i>	Nb	G6,S1,S2	Saproxyllic; in dead woody stems of ivy; overlooked in the past and doubtfully worthy of its status
<i>Xestobium rufovillosum</i>	occasional	G6	Saproxyllic; tunnels in hard dead heartwood of broadleaved trees, especially oak and willow
<b>Salpingidae</b>			
<i>Lissodema denticolle</i>	NS	BFD,G6,H4	Saproxyllic; larvae develop in dead wood, mainly of broadleaved trees and shrubs and with a preference for small diameter branches and twigs in the canopy
<b>Scarabaeidae</b>			
<i>Aphodius equestris</i>	occasional	G4,G5,G6	A dung beetle, most frequently, as at Wenny Road, found in horse dung, and especially in shaded places, or at least in the vicinity of trees
<b>Tenebrionidae</b>			
<i>Prionychus ater</i>	occasional	S2	Saproxyllic; larvae develop in powdery decaying wood in hollow branches and trunks of broadleaved trees, perhaps especially beneath birds' nests
<i>Scaphidema metallicum</i>	occasional	G6	Saproxyllic; rather erratic in occurrence, and of uncertain exact requirements, but perhaps especially characteristic of unpromising situations

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Taxon	Status	Locations	Notes
			where few other saproxylic species occur, such as small isolated dead wood, the thin wood of elder, or hard dry timber; recorded from a wide range of broadleaved trees and shrubs
<b>Diptera</b>			
<b>Sciomyzidae</b>			
<i>Colobaea bifasciella</i>	N	D1	A snail-killing fly usually found amongst tall emergent and marginal vegetation of ponds and drains; the larvae are parasites of water snails, the adults selecting individuals left exposed by falling summer water levels
<b>Stratiomyidae</b>			
<i>Chorisops nagatomii</i>	N	S1	Typically found around the margins of woodlands, shelterbelts and other places with transitions between or mosaics of tall woody and herbaceous vegetation; larvae probably develop in leaf litter; not as scarce as formerly thought, possibly especially frequent in urban and suburban sites, and perhaps sometimes overlooked because of its late flight season; doubtfully worthy of its status
<b>Tephritidae</b>			
<i>Goniglossum wiedemanni</i>	N	G6	Associated with <i>Bryonia dioica</i> , the larvae developing in the fruits; a local species, far less common than its host plant, but easily overlooked, despite the apparent ease with which it may be searched for and its distinctive appearance
<b>Tipulidae</b>			
<i>Ctenophora pectinicornis</i>	N	H4	Saproxylic; especially associated with rot-holes, shattered trunks and large decaying branches, but able to breed in a wider range of dead wood
<b>Hemiptera</b>			
<b>Anthocoridae</b>			
<i>Anthocoris gallarum-ulmi</i>	occasional	BFD,G6,S2	Elm; a predator of aphids in galls on leaves; though leaf galls are frequent on scrubby elm re-growth, the bug tends to be very local and found in small numbers
<b>Cicadellidae</b>			
<i>lassus scutellaris</i>	Nb	BFD,G4,H2, H4,H5,S1,S2	Elm; a foliage-feeder, this species thrives on low scrubby elms and has, against the trend for elm-feeding species, considerably expanded its range and increased in frequency in recent years; its current status is open to question
<b>Miridae</b>			
<i>Lygus pratensis</i>	RDB3	G3	Found chiefly amongst tall ruderal vegetation in open sunny places, and



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Taxon	Status	Locations	Notes
			a regular component of brownfield and arable field margins; formerly restricted to a few locations in the south-east, it has become a common species through much of southern England in recent years, and is now of negligible conservation significance
<b>Reduviidae</b>			
<i>Empicoris baerensprungi</i>	Na	G6	Trunks and branches of broadleaved trees, especially oaks; especially associated with the broken stumps of branches
<b>Tingidae</b>			
<i>Derephysia foliacea</i>	occasional	W1	Ivy; usually found where there are dense growths of ivy in rather dry situations, either on trees or walls; though perhaps borderline for "occasional" status, it is curiously sporadic in occurrence, and absent from the vast majority of apparently suitable sites
<b>Hymenoptera</b>			
<b>Crabronidae</b>			
<i>Cerceris arenaria</i>	occasional	G6	Nests in burrows in unshaded, well-drained sandy ground; a predator of weevils; a fairly common species nationally, but decidedly local in Cambridgeshire because of the shortage of suitable soils; the nesting site at, or near, Wenny Road is currently unknown
<i>Philanthus triangulum</i>	RDB2	H2	Nests in burrows in unshaded, well-drained sandy ground; a predator of bees, especially honey bees, in open flowery habitats; formerly a rarity of the south coast, it has increased enormously in recent years and no longer deserves formal status; it remains a decidedly local species in Cambridgeshire, because of the shortage of sandy soils, and the nesting site at, or near, Wenny Road is currently unknown
<b>Formicidae</b>			
<i>Lasius brunneus</i>	Na	BFDW,S1,S2	Saproxyllic; nests in the heartwood of trees, and forages almost entirely within the tree canopy; formerly with a very restricted distribution and largely confined to large open-grown oaks, it has spread more widely in recent years and is now rather more catholic in its taste in trees and habitats; its current status is open to doubt
<b>Odonata</b>			
<b>Libellulidae</b>			
<i>Libellula fulva</i>	NT	H4	Larvae live in large slow lowland rivers and drains; this species is clearly not

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Cambridgeshire

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Taxon	Status	Locations	Notes
			breeding on the site, but occasional wandering adults are using it for hunting, as are much larger numbers of other large dragonflies
<b>Orthoptera</b>			
<b><i>Tettigoniidae</i></b>			
<i>Conocephalus fuscus</i>	Na	G2,G3,G4	Tall unmanaged or lightly managed grasslands; has increased greatly in range and abundance in recent years, and is now of negligible conservation significance
<i>Metrioptera roeselii</i>	Nb	G4,S2	Tall unmanaged or lightly managed grasslands; has increased greatly in range and abundance in recent years, and is now of negligible conservation significance

## 4 EVALUATION

### Importance of site to invertebrates

#### *Open water and wetland*

- 4.1 The aquatic and wetland fauna was considered to be poor. Improvement of the grassland and eutrophication of the water could have had a significant negative impact. Robin Knight's Pond (P1) is rather heavily shaded over much of its area, as are smaller seasonal drains along hedges, and the single permanent watercourse (D1) is poorly profiled and carries a substantial silt load. The records obtained suggest a rather species-poor wetland fauna of generally common and widely distributed invertebrates, with occasional, slightly unexpected, species of higher interest (the snail-killing fly *Colobaea bifasciella* and the water beetle *Enochrus quadripunctatus*), and this seems likely to be an accurate reflection of the state of the fauna. Overall the aquatic and marginal invertebrates of the site are considered to be of low significance.

#### *Arable land*

- 4.2 Though usually not considered a priority for invertebrate survey, arable land, or at least its fringes, can hold significant invertebrate interest, depending on the soil type, the extent and timing of cultivation, and the extent of disturbed and weedy ground at field margins. At Wenny Road, none of these factors favoured invertebrates: cultivation was thorough, the soils fertile and not unduly free-draining, and field margins narrow. The types of arable weeds which grew amongst and around the sweetcorn crop in late summer - especially a large amount of *Geranium molle* - might be able to support an invertebrate fauna of at least mild interest, but the plants grew too late in the year and to too small a size to provide useful habitat. The arable land is considered, in its present form, to be of negligible conservation interest for invertebrates.

#### *Grassland*

- 4.3 The improved grassland habitat dominates the site. For the most part the less heavily managed areas have dense and continuous cover and tend to go over to tall coarse ruderal plants such as thistles and nettles and, eventually, to bramble invasion. However, the grassland is varied in its structure and composition by virtue of different intensities of grazing, extensive and deliberate disturbance, areas of poor drainage, and a rather sparse but well-walked network of informal paths with bare centres and short ruderal vegetation at the margins, especially characterised by extensive growth of *Polygonum aviculare*. The expectation of such grassland is that it will support large populations of a moderate range of generally common and widely distributed species. Tussocks of *Deschampsia cespitosa* in damper,

lightly managed areas supported local species such as the bugs *Fieberocapsus flaveolus* and *Tytthus pygmaeus*, both species associated almost exclusively with tussocks of grass, sedge or rush in damp places, and the crab spider *Thanatus striatus*, a rather characteristic species of tall grassland on seasonally wet soils. The most notable record was that of the click beetle *Oedostethus quadripustulatus* (which, though recorded from H4, is definitively associated with grassland as a breeding species, and should no doubt more accurately be assigned to G6). This species is strongly associated with winter-wet grasslands and appears to be a poor colonist, so is likely to be long-term survivor from former, less improved conditions. A single individual of this species was captured.

- 4.4 The crab spider *Ozyptila sanctuaria* was found commonly throughout G4 and G6; this is a local species characteristically associated with short-turf or open structured grasslands, often well-drained, such as are found in grazed chalk and limestone grasslands or brownfield sites: its presence here is somewhat unexpected, and its abundance surprising. Two of the recorded species of solitary wasp - *Cerceris arenaria* and the bee wolf *Philanthus triangulum* - nest exclusively in bare, well-drained sandy ground, a habitat requirement far removed from anything seen within the survey area.
- 4.5 The fauna associated with horse dung provides an interesting additional component to the grassland fauna. Though the number of dung-associated species recorded in 2015 is small, it includes one Nationally Scarce species, *Cryptopleurum crenatum* (though this beetle is not exclusively associated with dung, and its status is considered out of date) and two rather local dung beetles, *Aphodius fimetarius* and, especially, *A. equestris*.

#### *Woody vegetation*

- 4.6 Woody vegetation invites division into the visually obvious categories of isolated mature trees, shelterbelts and hedges, but in practice this division is of little help in assessing the invertebrate fauna. A more useful primary division is into species associated with foliage, live branches and trunks, and the saproxylic species associated in some way with dead wood, with a secondary division into tree species. The saproxylic fauna is undoubtedly the more significant of the two major components of the woody vegetation fauna.

#### *The saproxylic fauna*

- 4.7 Table 4.1 lists the saproxylic Coleoptera recorded from Wenny Road in 2015, together with their scores on the two systems. Note that some species have no scores in either system: these are either recent arrivals in Britain, or are not invariably saproxylic.

**Table 4.1: Saproxylic beetles and calculation of faunal quality scores**

Taxon	Status	Scores	
		SQI	IEC
<b>Aderidae</b>			
<i>Euglenes oculus</i>	occasional	8	1
<b>Buprestidae</b>			
<i>Agrilus angustulus</i>	NS	8	
<i>Agrilus laticornis</i>	frequent	8	
<i>Agrilus sinuatus</i>	frequent	4	
<b>Cantharidae</b>			
<i>Malthinus balteatus</i>	occasional	8	
<i>Malthinus flaveolus</i>	common	1	
<i>Malthinus frontalis</i>	NS	8	
<i>Malthinus sereipunctatus</i>	common	2	
<i>Malthodes marginatus</i>	common	1	
<i>Malthodes minimus</i>	common	1	
<i>Malthodes pumilus</i>	NS	2	
<b>Cerambycidae</b>			
<i>Clytus arietis</i>	common	1	
<i>Grammoptera ruficornis</i>	common	1	
<i>Leiopus linnei</i>	frequent	2	
<i>Phymatodes testaceus</i>	occasional	4	1
<i>Pogonocherus hispidulus</i>	frequent	2	
<i>Pogonocherus hispidus</i>	frequent	2	
<i>Rutpela maculata</i>	frequent	1	
<i>Stenocorus meridianus</i>	frequent	2	
<i>Stenurella melanura</i>	frequent	1	
<i>Tetrops praeustus</i>	frequent	2	
<b>Ciidae</b>			
<i>Orthocis alni</i>	frequent	2	
<i>Cis boleti</i>	common	1	
<i>Cis pygmaeus</i>	frequent	2	
<i>Cis vestitus</i>	occasional	2	
<b>Cleridae</b>			
<i>Opilo mollis</i>	NS	8	1
<i>Tillus elongatus</i>	NS	8	1
<b>Curculionidae</b>			
<i>Acalles misellus</i>	frequent	2	
<i>Euophryum confine</i>	common		
<i>Hylesinus varius</i>	common	1	
<i>Kissophagus hederæ</i>	Nb	8	
<i>Magdalis armigera</i>	frequent	2	
<i>Magdalis ruficornis</i>	frequent	2	
<i>Phloeophagus lignarius</i>	frequent	2	
<i>Scolytus intricatus</i>	frequent	2	
<i>Scolytus multistriatus</i>	common	1	
<i>Scolytus rugulosus</i>	frequent	2	
<b>Dasytidae</b>			
<i>Dasytes aeratus</i>	frequent	2	
<i>Dasytes plumbeus</i>	NS	8	
<b>Dermestidae</b>			
<i>Ctesias serra</i>	occasional	4	
<b>Elateridae</b>			
<i>Melanotus castanipes</i>	common	1	
<b>Erotylidae</b>			
<i>Dacne bipustulata</i>	frequent	2	

Taxon	Status	Scores	
		SQI	IEC
<i>Dacne rufifrons</i>	frequent	2	
<b>Histeridae</b>			
<i>Plegaderus dissectus</i>	Nb	8	2
<b>Laemophloeidae</b>			
<i>Notolaemus unifasciatus</i>	Na	16	2
<b>Lucanidae</b>			
<i>Dorcus parallelepipedus</i>	frequent	2	
<i>Sinodendron cylindricum</i>	occasional	2	
<b>Malachiidae</b>			
<i>Malachius bipustulatus</i>	common	1	
<b>Melandryidae</b>			
<i>Abdera biflexuosa</i>	NS	8	1
<i>Conopalpus testaceus</i>	occasional	8	1
<b>Mordellidae</b>			
<i>Mordellistena variegata</i>	NS	8	
<b>Oedemeridae</b>			
<i>Ischnomera cyanea</i>	occasional	4	1
<b>Ptinidae</b>			
<i>Anobium fulvicorne</i>	common	1	
<i>Anobium inexpectatum</i>	Nb	8	
<i>Anobium punctatum</i>	common	1	
<i>Ochina ptinoides</i>	frequent	2	
<i>Ptilinus pectinicornis</i>	common	1	
<i>Xestobium rufovillosum</i>	occasional	4	1
<b>Salpingidae</b>			
<i>Lissodema denticolle</i>	NS	8	
<i>Rhinosimus ruficollis</i>	frequent	1	
<i>Salpingus planirostris</i>	frequent	1	
<i>Vincinzelus ruficollis</i>	frequent	2	
<b>Scaptiidae</b>			
<i>Anaspis fasciata</i>	common	2	
<i>Anaspis frontalis</i>	common	1	
<i>Anaspis pulicarius</i>	common	1	
<i>Anaspis rufilabris</i>	common	1	
<b>Tenebrionidae</b>			
<i>Prionychus ater</i>	occasional	8	1
<i>Scaphidema metallicum</i>	occasional		
<b>Tetratomidae</b>			
<i>Tetratoma fungorum</i>	frequent	2	
<b>Number of scoring species</b>		<b>67</b>	<b>11</b>
<b>IEC</b>			<b>13</b>
<b>SQS</b>		<b>234</b>	
<b>SQI</b>		<b>349.3</b>	

4.8 The Index of Ecological Continuity (IEC) for the site, at thirteen, is close to the fifteen threshold for regional significance. This is a cumulative score, and it was considered likely that the saproxylic fauna was under recorded (given the absence of trapping for instance). The IEC could almost certainly be increased by further work.

4.9 A list of 169 sites evaluated using the SQI is available at <http://yrefail.net/Coleoptera/sqi.htm>, arranged in order of their index. If the

2015 list obtained from Wenny Road were placed in this list it would, on current records, be at position 100. This is not a high placing, but is more respectable than might at first appear. The list of evaluated sites includes the New Forest, Epping Forest, and other sites of national or international importance, and a large proportion are places which have been examined precisely because they were considered likely to hold important saproxylic faunas. It would be very unusual to find a previously unrecorded site which, on the basis of a single year's recording, fell within the top 50 on the list. The SQI compares favourably with those calculated for some ancient woodlands in Cambridgeshire, and ahead of some well-known and well-established parklands.

- 4.10 Saproxylic members of groups other than Coleoptera are few in number, but significant. The Nationally Scarce crane fly *Ctenophora pectinicornis* is by no means rare in the county, but seems essentially to be restricted to ancient woodland and old parkland and treed fens. The false scorpion *Dendrochernes cyrneus* is a rarity both locally and nationally, strongly associated both with large old trees and with sites with long habitat continuity. *D. cyrneus* was found on most of the old oaks in G6, which suggests that there is a substantial and healthy population on the site; it is cryptic, evasive, and largely nocturnal, so it is possible that only a very small fraction of the population would be seen by diurnal survey.
- 4.11 Overall, the saproxylic fauna is important, especially given the location of the site. It is considered the most valuable element of the recorded fauna, despite the inherent difficulties of sampling, the most under-recorded. The character of the fauna suggests that it not only reflects the quality of the current habitats for saproxylic species, but also a long and continuous history of such habitat at (or at least very near) the site. The relative isolation of Chatteris in intensively farmed fenland increases its local importance.
- 4.12 Old oaks - both pedunculate oak and Turkey oak - in and adjoining grassland are by far the most important of the woody plants supporting saproxylic interest. Old trees of other species and dead wood, including that of ivy, within the shelterbelts S1 and S2, also make a significant contribution. Dead wood of shrubby vegetation within the hedges contributes rather little to the total - rather less, indeed, than might be hoped or expected given the substantial amount of such material, especially standing elm, which is present.

#### **The fauna of foliage and live wood**

- 4.13 Elm and oak are the most important of the woody species on the site for their associated non-saproxylic fauna. Elm is important mostly by virtue of the two mature trees in area H5. These trees supported substantial populations of the elm-specific weevil *Anthonomus ulmi*, a species dependent on reasonably large flowering elms and much reduced by Dutch elm disease, and the tree snail *Balea perversa*, associated mainly with trees with deeply fissured bark and much declined in eastern and midland

counties. The weevil is unlikely to be found elsewhere on the site apart from these two trees, and the snail could not be found elsewhere despite search and seems to be similarly restricted. The abundant scrub elm elsewhere proved unexceptional. The leaf-feeding weevil *Orchestes alni*, a somewhat local and considerably declined species, was recorded only once, from area S1; the Nationally Scarce leafhopper *Iassus scutellaris* was widely recorded and is probably present throughout the hedges and shelterbelts, but is much commoner now than in the past and of limited conservation significance; the flower-bug *Anthocoris gallarum-ulmi*, which feeds on aphids in leaf galls on elm, is probably also widespread on the site; few were found, but thorough survey for the species requires systematic search of the galls, so it is liable to under-recording.

- 4.14 The foliage fauna of the oaks has proved, as would be expected of this tree, rich and diverse. Uncommon species are, however, rather few. The rarest is the assassin bug *Empicoris baerensprungi*. Though found on tree trunks and large branches, it is especially associated with dead branches and shattered ends on old trees. It seems usually to be captured as single individuals, so it is possible that these locations merely represent the places where it is most easily found, rather than its preferred habitat. An association with old trees and, seemingly, ancient sites of high general invertebrate conservation interest, mark it out as a significant indicator of the wider value of the site and, perhaps, a further indication of long-term habitat continuity. The oaks are also notable for supporting both British species of broad-nosed weevils of the genus *Anthribus*, both Nationally Scarce and both predators of scale insects. The remainder of the non-saproxyllic oak-associated species are common or mildly local, and of no great conservation significance except as contributors to overall diversity. The presence of the plant bugs *Psallus anaemicus* and *P. helenae* on Turkey oak is of some academic interest. Only recently recognised in Britain, they are confined here, so far as is currently known, to Turkey oak, and will probably prove to be widely distributed in southern counties. There are probably few possible locations for them in most of fenland, so these records are of biogeographical, but not conservation, significance.
- 4.15 Ivy on the site supports some invertebrate interest, apart from its several saproxyllic species, but is unexceptional. Dense growths of ivy elsewhere in the county, especially in the vicinity of Cambridge, have proved to support a rather rich invertebrate assemblage, including very uncommon species. At Wenny Road, however, despite determined search, the species list has proved limited. The local ivy lace-bug *Derephysia foliacea* is perhaps the most interesting species, though hardly a rarity in the county. The Nationally Scarce spider *Nigma walckenaeri* is rapidly increasing in range and is now unworthy of its status, and the value of the record lies largely in adding Chatteris to the expanding list of towns in which it has become established.
- 4.16 The most interesting of the remaining foliage-associated species is the Nationally Scarce leaf beetle *Orsodacne cerasi*. Though its exact habitat requirements seem a little uncertain, in Cambridgeshire - where it is



decidedly scarce - it seems always to be associated with rosaceous shrubs in old hedges and at wood margins. This species was recorded only from Birch Fen Drove, though the adults are flower-visitors and fairly easily recorded, suggesting a genuinely restricted distribution on the site.

#### **Presence of specific important species**

- 4.17 Though the list of uncommon species is substantial, and the overall assemblage of species is good for a rather isolated site in the fens, few species are individually of very special note. The two most uncommon solitary wasps are assumed to breed outside the site; the uncommon saproxylic species are for the most part reasonably widespread in the county and not of great individual rarity. However, there were two species that stand out as being of particular importance.

#### *Dendrochernes cyrneus* (Pseudoscorpiones; Chernetidae)

- 4.18 This species has the distinction of being the largest British false scorpion, as well as one of the rarest. It has, admittedly, proved in recent years not to be quite as rare as formerly thought - it is largely nocturnal and difficult to find by search during the day, and there has been a slow trickle of additional records over the years - but it is undoubtedly very scarce, and largely or wholly confined to sites with large mature trees - especially, but not exclusively, oaks and willows - and long habitat continuity. It is known from several other Cambridgeshire sites, but examination of the NBN map for the species shows these, with the exception of several records from Wicken Fen, to be concentrated in the north-west of the county, around Peterborough. Chatteris is thus some way removed from other known records of the species. There is clearly a substantial population here, it was found on most of the mature parkland oaks.



Photograph4.11 *Dendrochernes cyrneus* (Sarah Lambert)

*Balea perversa* (Mollusca, Clausiliidae)

- 4.19 The exact status of this snail is uncertain, at present. Until recently, it was regarded as a widespread species, found on trunks and large branches of trees and on rocks. The extent of decline of this species in Cambridgeshire and adjoining counties made good populations at least of interest on a local basis. The population of *B. perversa* at Wenny Road is large, but appears to be absolutely restricted to the two mature elms in H5. Elm is certainly not the only tree on which *B. perversa* may be found, but if such an association were historically more widespread, this alone could account for much of the decline of the snail in eastern counties. Examination of the NBN records for the species shows only a single post-1980 site for the aggregate in the county, at Wicken Fen; there appear to be no previous records from Chatteris.
- 4.20 The beetle *Notolaemus unifasciatus* and the assassin bug *Empicoris baerensprungi* are potentially also of individual significance, since they nationally very uncommon and are known from few localities in the county, but in both cases only single individuals were captured.

**Assessment against County Wildlife Site Criteria**

- 4.21 The following criteria from the CWS selection guidelines (Cambridgeshire and Peterborough County Wildlife Sites Panel, 2009) are relevant to the fauna recorded.

*11.3. Saproxylic beetles*

a) Sites with an ecological continuity index greater than 8 should be considered for inclusion. Records should be post-1945.

- 4.22 The IEC calculated from the 2014 records is 13. This comfortably exceeds the threshold, and since the score is cumulative it is a minimum estimate. The CWS criteria were drawn up before the SQI assessment method for the saproxylic fauna was devised, so there is no criterion based on this measure.

*6. General*

a) Any site with an invertebrate index exceeding 500 (calculated as summation of nationally rare = 100 and nationally scarce = 50) should be considered for inclusion. Records should have been made since 1980.

- 4.23 The Invertebrate Index for the site, calculated in this way from the 2015 records, is 1150. This considerably exceeds the threshold value for County Wildlife Status, however, some of the species on which it is based are unquestionably now unworthy of the status they currently hold. If the species shaded in grey in Table 3 are excluded, along with the scarce chaser

*Libellula fulva* which undoubtedly does not breed on the site, and the bee wolf *Philanthus triangulum* which, though uncommon in the county is unlikely to breed, the Invertebrate Index falls to 750. This still qualifies for County Wildlife Status but by a relatively slender margin, considering that the current statuses of some of the remaining species on the list are also considered out of date.

c) Any site supporting significant populations of Red Data Book or nationally scarce species.

- 4.24 Though the exact meaning of "significant" is open to interpretation, it is reasonable to regard it as applicable at this site to the tree snail *Balea perversa* and the false scorpion *Dendrochernes cyrneus*. Both species are sufficiently well-known and well-recorded for it to be certain that they are very scarce in the county, and there is good evidence for a substantial population of each at Wenny Road. The beetle *Notolaemus unifasciatus* and the assassin bug *Empicoris baerensprungi* might also be considered candidates, since they are known from few localities, but in both cases only single individuals were captured and so the size of the populations are unknown.

**Overall assessment of invertebrate interest**

- 4.25 The invertebrate interest of the site is of undoubted and considerable interest at the county level. The greatest component of significance is in the saproxylic fauna of the older trees, but also of note is the invertebrate fauna of grassland, shrubs, and living tree foliage, trunks and branches. The saproxylic fauna is considered under-recorded, and further survey work could raise its interest to the regional level.

**Distribution of interest**

- 4.26 The most important single area of the site is the "parkland" area of G6, together with the bordering lengths of areas S1, H4, H5 and Birch Fen Drove (over its full width). This includes the largest concentration, of open-grown oaks, the mature elms, a range of other trees, and representative areas of closed canopy woodland and hedgerows, so is likely to have a more or less complete range of the saproxylic species and, incidentally, to have most or all of the other species associated with trees and hedges. It also includes a large and reasonably representative area of grassland. Isolated mature trees in area G7 are sufficiently close to Birch Fen Drove that the key area might usefully be extended to include them. Area S2 also supports a good range of saproxylic features and species. It is of rather lower intrinsic value than G6 and its surroundings, but contributes a significant proportion of the total of large trees on the site, and is of similar character to area S1. Area G5 is of somewhat secondary intrinsic value, its trees being few and relatively lacking in saproxylic features, but it provides a useful link between areas S2 and H4/G6. Area G4 provides the most useful grassland for invertebrates at

present - it has areas of *Deschampsia cespitosa* tussocks and seasonally flooded ground - but no greater than that of area G6, and grassland characteristics may change quickly and considerably according to management.

- 4.27 Figure 3.1 shows the areas of the site considered of greatest value for invertebrates and those of secondary value. Remaining areas are not without interest, but their intrinsic interest is low; it is likely that the grassland hedgerow species they support are present in the key area. The ponds and drain are not included in either category; the aquatic fauna is considered of low value and easily replaced.

## 5 RECOMMENDATIONS

- 5.1 The invertebrate survey indicated that most of the invertebrate interest was associated with boundary features, such as hedgerows, and the mature trees and tree belts, water course, walls and pathways such as Birch Fen Drove. In addition the grassland area to the south and west was of invertebrate value.
- 5.2 Therefore in order to maintain as much invertebrate biodiversity as practically possible during site preparation and construction works within the site, it is recommended that the areas identified in this report should be retained as much as possible and a buffer zone around the periphery of the linear features be incorporated into the landscaping plan where mature tree belts, hedgerows, water courses and some grassland could be left untouched by the construction works associated with the development of the site.
- 5.3 If the existing invertebrate interest is to be maintained, the preference must be for the retention of sufficient of the existing habitat to maintain them in the long term. This is especially the case for the saproxylic fauna dependent on old trees. The time taken for replacement of lost habitat would be measured in centuries, and since the fauna is, to some extent, dependent on long-term habitat continuity it may be effectively irreplaceable if lost. The most critical trees are the parkland oaks and the two mature elms, with mature oaks in the shelterbelts and hedges a close second. The elms are unique and must be retained if their fauna is to survive. The oaks are more numerous - and no one tree, or subset of trees, stands out as being of greater importance over any other. However, the total number of oaks is not large, and therefore it will be desirable to retain as many as possible. The retention of area G6, its parkland oak and bordering hedges, the shelter belts S1 and S2, and Birch Fen Lane would include most of the significant trees - certainly enough to be reasonably confident of avoiding faunal losses, and would also include representative set of the secondary features of the site, except ponds and drains.
- 5.4 The interest in the aquatic invertebrates of the ponds is sufficiently slight that their complete destruction without mitigation could not be regarded as a major loss. It would probably be possible to improve the fauna by management of the existing ponds, but a better fauna would almost certainly be generated by creating new ponds, especially if these were clay-lined and so largely isolated from the nutrient-rich soils of the site. If new ponds were made, it would be recommended that they be created in the drier areas. This is because the damper grassland has a more interesting fauna than the ponds. A cluster of three to five ponds, each three to five metres across with gently shelving margins, and all but one seasonally dry, would be beneficial.
- 5.5 Management measure might usefully be put in place which would ensure the long-term maintenance, and in some cases enhancement of, the existing

invertebrate fauna. The long-term continuity of mature trees is, at present, something of a concern. Though there is some variation in age amongst the oaks, there is a shortage of young trees to provide long term replacements. Though the older trees - especially the open-grown ones - potentially have several centuries at least to live, replacements should be planted soon to ensure long term habitat continuity. It will be important not to plant too many at any one time: it is essential that closed-canopy woodland is not created, and a spacing which ensures at least a mature tree canopy's width between adjacent trees is always desirable. Too many trees planted now would leave no space for subsequent plantings, which might usefully take place every 50 to 100 years. If areas G5 and G6 were retained, there should be enough space to plant sufficient oaks to provide replacements for all mature trees currently present, and leave space for subsequent plantings to increase the stock. Though oaks are the key trees - and these should be native pedunculate oaks, rather than Turkey oaks, and ideally grown from acorns from trees on the site - some variety in species is desirable; a small proportion of ash is the best alternative, since these are already present on the site, are fast-growing and will provide dead wood niches ahead of oaks, and decay in a different way to develop a complementary set of species.

- 5.6 Though structurally quite varied and possessing some interest, the current state of the grassland is not ideal. The grassland in area G5 is rather too heavily grazed to support significant invertebrate interest; that in area G6 is much better, but the tethered horse-grazing which predominates there tends to produce extreme swings from tall, coarse and ruderal-invaded to flattened and fringed by a rather concentrated circle of dung, with long-term ungrazed areas becoming very dense and tall. The results of sward removal and ground disturbance, practiced over significant areas in 2015, suggest that this is not a useful way to encourage or retain diversity on such fertile soil. On grassland with less luxuriant growth, tethered horse-grazing can produce good results, and can be very effective in ensuring varied sward structure. At Wenny Road at present, it enables the retention of well-structured margins and transitions, which fencing and/or more intensive grazing can destroy. Grazing is desirable at least as one component of grassland management because of its effectiveness, because it is the type of management which invertebrates have evolved to cope with, and for the additional faunal component supported by dung. Horses are effective grazers, and tend to produce a diverse sward. Ideal management here should be aimed to maintain ideal habitat structure. If invertebrate interest is to be maintained or enhanced, it will be essential to avoid producing either a close-grazed sward or introducing a uniform cutting regime. It is desirable that nutrient content is reduced in the long-term, and piecemeal management and the wilful retention of ruderals may slow this, but a long-term change is better for the retention of interest than sudden dramatic change.
- 5.7 The hedges generally on the site, and the shelterbelt boundary bordering area G6, are well-structured at present. This is because they are effectively unmanaged and are spreading into the grassland. The introduction of a

structured management regime is desirable. The localised management to push back invading scrub, while leaving the centres of the hedges essentially unmanaged, is the preferred option and compatible with the proposed grassland management of grazing supplemented by localised cutting.

- 5.8 To increase invertebrate biodiversity of the new development, it is recommended that native plant species be planted as part of any landscaping plan for the site.
- 5.9 As part of the development proposals for the site the development of a long term (25 year) ecological management plan (EMP) that included management prescriptions for the various habitats in the different compartments would help maintain and possibly enhance the diversity of invertebrates at the site.
- 5.10 The EMP for the development site would provide a mechanism by which the recommendations described here could be incorporated into the scheme design. The EMP would also provide details about the management procedures and measures necessary to ensure the habitats created and features incorporated are maintained in a favourable condition in the long term.

## 6 KEY POINTS AND FINDINGS

- 6.1 Between early April and the end of September 2015 monthly invertebrate surveys took place within the red line boundary of the proposed development site. The surveys followed recognised methods and were considered to provide a robust set of data, suitable to evaluate the presence of invertebrates within the survey areas and identify any potential ecological constraints associated with these invertebrates.
- 6.2 The 2015 invertebrate survey recorded 811 different kinds of invertebrates. Of these, four are Red Data Book, 35 are Nationally Scarce, eighteen are considered to be rare or of only occasional occurrence in the county.
- 6.3 Using various recognised assessment criteria, the site as a whole could be considered of county importance for its invertebrate community in general and its saproxylic beetles.
- 6.4 The presence of four Red Data Book species, namely tree snail *Balea perversa*, the false scorpion *Dendrochernes cyrneus*, the beetle *Notolaemus unifasciatus* and the assassin bug *Empicoris baerensprungi* are also of particular note as being very scarce in the county.
- 6.5 Therefore the site was considered to be of at least county importance for its assemblage of invertebrate species.
- 6.6 The location of the most important areas for invertebrates was identified. This indicated that they were mainly associated with areas in the south west, including boundary features.
- 6.7 This includes the parkland/grassland area in the south west, together with the bordering lengths of the mature woodland, the various interlinking hedgerows and Birch Fen Drove. This is because these areas contain the best examples and largest concentration, of open-grown oaks, mature elms, a range of other trees, and representative areas of closed canopy woodland and hedgerows. It also includes a large and reasonably representative area of grassland. The isolated mature trees close to Birch Fen Drove are also considered of value to the invertebrate assemblage.
- 6.8 It is recognised that the development proposals for the site would result in a number of direct and indirect adverse impacts on the assemblage of invertebrates.
- 6.9 Recommendations have been made that would aim to ensure a representative assemblage of invertebrates were maintained within the site, which would meet local and national planning policy guidance.
- 6.10 Mitigation and enhancement measures that would aim, where possible to maintain existing suitable habitat; improve connectivity between different



habitats and enhance other habitats in the survey area. These measures would be necessary in order to offset the potential effect of habitat loss as a result of the proposed development.

- 6.11 A long term (25 year) Ecological Management Plan (EMP) should be prepared for the site. The EMP would help to ensure the mitigation and enhancement measures described in this report would have the best chance of success. Thereby minimising the potential for the development proposals to have a permanent adverse effect on invertebrates within the site. The EMP should be prepared in-combination with the landscaping plan, to provide a mechanism by which the recommendations described in this report could be incorporated into the scheme design. The EMP would also provide details about the management procedures and measures necessary to ensure the habitats created and features incorporated are maintained in a favourable condition in the long term.

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8 FIGURES

Figure 1.1.: Red line boundary of the proposed development site.

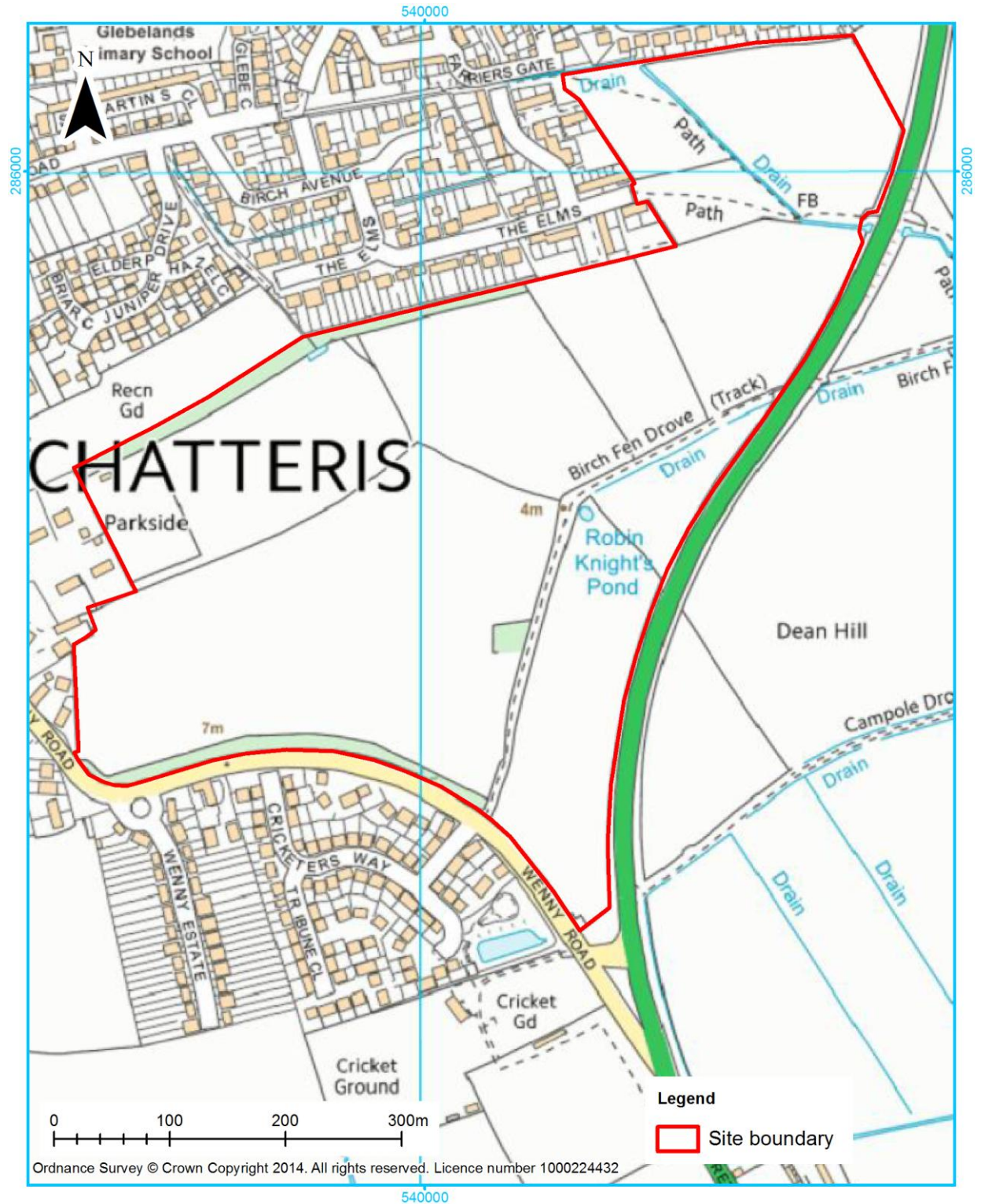


Figure 2.1.: Location of different compartments used to differentiate the areas across the development site during the invertebrate survey.

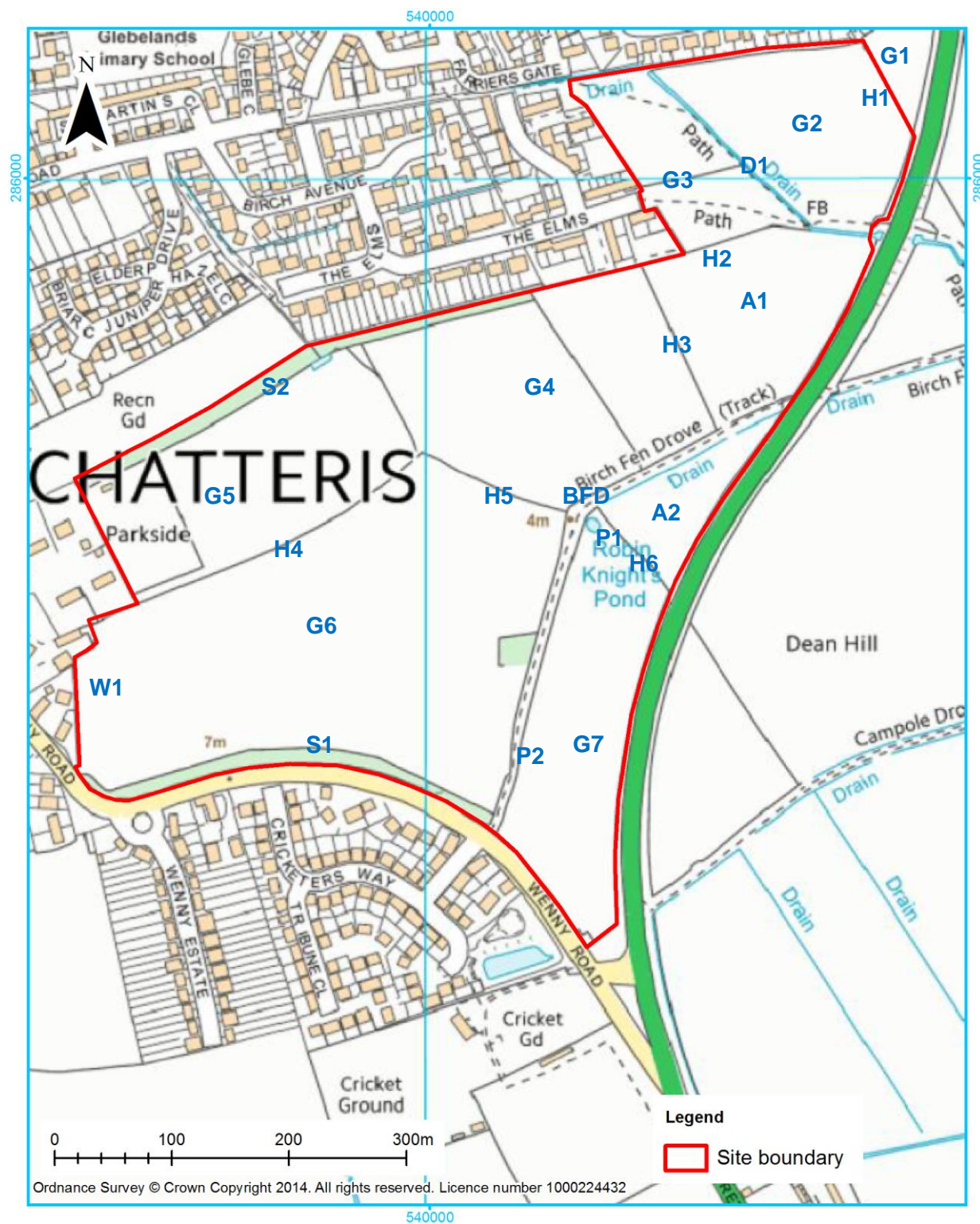
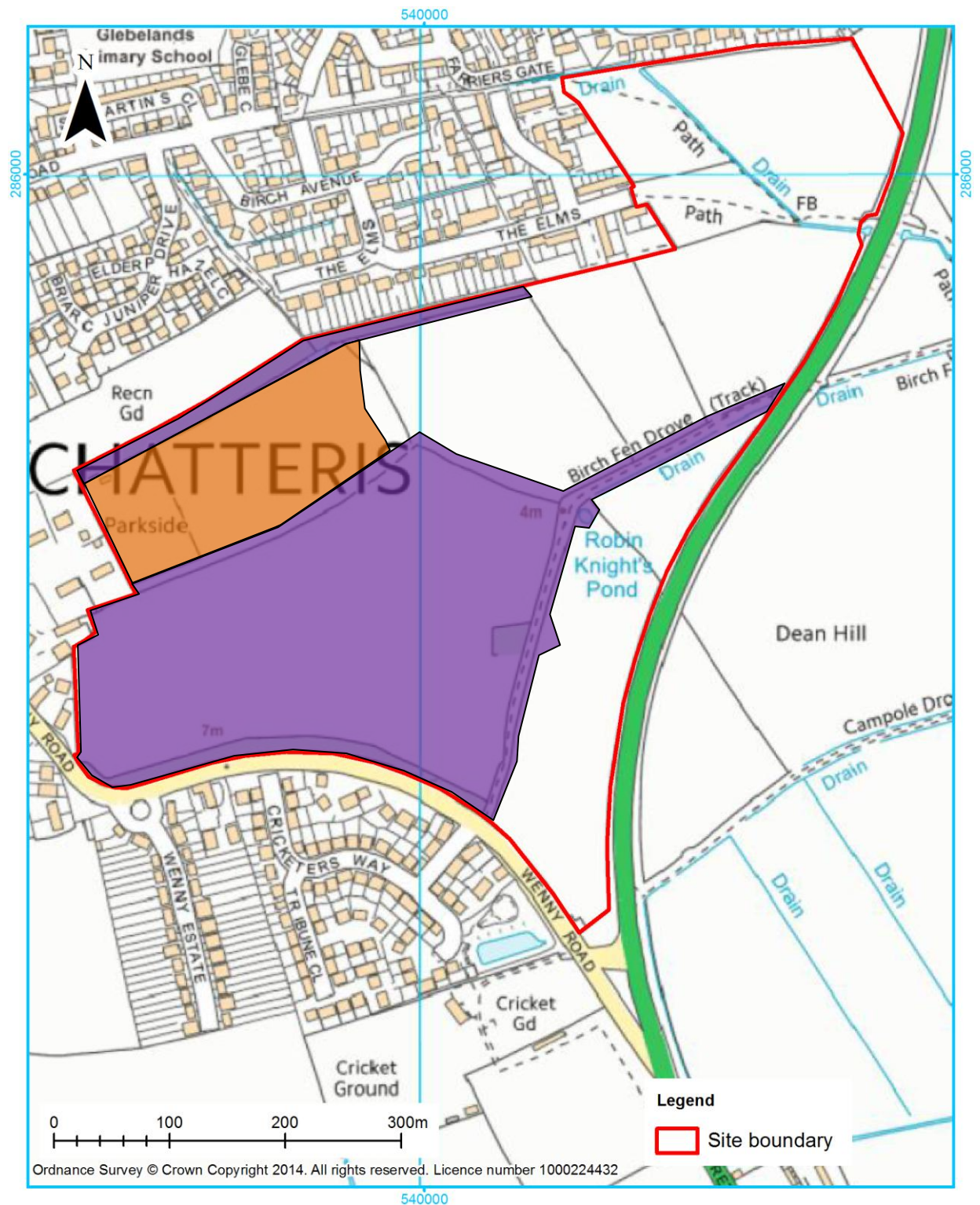


Figure 3.1.: Indicative location of key areas (purple = primary importance; orange = secondary linkage area) for invertebrates found during the 2015 invertebrate survey.



**9 APPENDIX**

**Complete list of invertebrate species recorded during the 2015 survey**



Invertebrate Survey on land proposed for development at Wenny Road, Chatteris,  
Cambridgeshire

Taxon	Status
<b>Tricladida</b>	
<b>Dendrocoelidae</b>	
<i>Dendrocelum lacteum</i>	common
<b>Planariidae</b>	
<i>Polycelis</i> sp.	common
<b>Mollusca</b>	
<b>Clausiliidae</b>	
<i>Balea perversa</i>	rare
<i>Clausilia bidentata</i>	common
<b>Cochlicopidae</b>	
<i>Cochlicopa lubrica</i>	common
<b>Discidae</b>	
<i>Discus rotundatus</i>	common
<b>Helicidae</b>	
<i>Cepaea hortensis</i>	common
<i>Cepaea nemoralis</i>	common
<i>Cornu aspersum</i>	common
<b>Hydrobiidae</b>	
<i>Potamopyrgus antipodarum</i>	common
<b>Hygromiidae</b>	
<i>Monacha cantiana</i>	common
<i>Trochulus striolatus</i>	common
<b>Lymnaeidae</b>	
<i>Galba truncatula</i>	common
<i>Radix balthica</i>	common
<b>Planorbidae</b>	
<i>Anisus leucostoma</i>	frequent
<b>Pupillidae</b>	
<i>Lauria cylindracea</i>	frequent
<b>Sphaeriidae</b>	
<i>Musculium lacustre</i>	common
<i>Pisidium</i> sp.	common
<b>Hirudinea</b>	
<b>Erpobdellidae</b>	
<i>Erpobdella octoculata</i>	common
<b>Glossiphoniidae</b>	
<i>Glossiphonia complanata</i>	common
<b>Hirudidae</b>	
<i>Haemopsis sanguisuga</i>	common
<b>Crustacea</b>	
<b>Armadillidiidae</b>	
<i>Armadillidium vulgare</i>	common
<b>Asellidae</b>	
<i>Asellus aquaticus</i>	common
<b>Crangonyctidae</b>	
<i>Crangonyx pseudogracilis</i>	common
<b>Oniscidae</b>	
<i>Oniscus asellus</i>	common
<b>Philosciidae</b>	
<i>Philoscia muscorum</i>	common
<b>Porcellionidae</b>	
<i>Porcellio scaber</i>	common
<b>Araneae</b>	
<b>Amaurobiidae</b>	
<i>Amaurobius fenestralis</i>	common

Taxon	Status
<i>Amaurobius similis</i>	common
<b>Araneidae</b>	
<i>Araneus diadematus</i>	common
<i>Araneus marmoreus</i>	frequent
<i>Araniella cucurbitina</i>	common
<i>Gibbaranea bituberculata</i>	common
<i>Larinioides cornutus</i>	common
<i>Nuctenea umbratica</i>	common
<i>Zygiella atrica</i>	common
<b>Clubionidae</b>	
<i>Clubiona compta</i>	frequent
<b>Dictynidae</b>	
<i>Nigma walckenaeri</i>	Na
<b>Dysderidae</b>	
<i>Harpactea hombergi</i>	common
<b>Linyphiidae</b>	
<i>Erigone atra</i>	common
<i>Erigone dentipalpis</i>	common
<i>Lepthyphantes tenuis</i>	common
<b>Lycosidae</b>	
<i>Pardosa pullata</i>	common
<b>Lycosidae</b>	
<i>Pirata piraticus</i>	common
<b>Philodromidae</b>	
<i>Tibellus oblongus</i>	common
<b>Pisauridae</b>	
<i>Pisaura mirabilis</i>	common
<b>Segestriidae</b>	
<i>Segestria senoculata</i>	common
<b>Tetragnathidae</b>	
<i>Metellina segmentata</i>	common
<i>Pachygnatha clercki</i>	common
<b>Theridiidae</b>	
<i>Achearanea lunata</i>	frequent
<b>Thomisidae</b>	
<i>Diaea dorsata</i>	frequent
<i>Ozyptila sanctuaria</i>	frequent
<i>Thanatus striatus</i>	occasional
<i>Xysticus cristatus</i>	common
<b>Zoridae</b>	
<i>Zora spinimana</i>	common
<b>Opiliones</b>	
<b>Leiobuninae</b>	
<i>Dicranopalpus ramosus</i>	common
<i>Leiobunum rotundum</i>	common
<b>Pseudoscorpiones</b>	
<b>Chernetidae</b>	
<i>Dendrochernes cyrneus</i>	RDB3
<b>Phalangidae</b>	
<i>Oligolophus tridens</i>	common
<i>Paroligolophus agrestis</i>	common
<b>Coleoptera</b>	
<b>Aderidae</b>	
<i>Euglenes oculatus</i>	occasional
<b>Anthribidae</b>	

Invertebrate Survey on land proposed for development at Wenny Road, Chatteris,  
Cambridgeshire

Taxon	Status
<i>Anthribus fasciatus</i>	Na
<i>Anthribus nebulosus</i>	Nb
<b>Apionidae</b>	
<i>Apion frumentarium</i>	common
<i>Apion gibbirostre</i>	common
<i>Aspidapion aeneum</i>	common
<i>Ceratapion gibbirostre</i>	common
<i>Ceratapion onopordi</i>	common
<i>Ischnopterapion virens</i>	common
<i>Perapion curtirostre</i>	common
<i>Perapion marchicum</i>	common
<i>Perapion violaceum</i>	common
<i>Protapion apricans</i>	common
<i>Protapion assimile</i>	common
<i>Protapion fulvipes</i>	common
<i>Protapion nigrirtarse</i>	common
<i>Protapion trifolii</i>	common
<i>Pseudapion rufirostre</i>	common
<i>Taenapion urticarium</i>	frequent
<i>Trichapion simile</i>	common
<b>Buprestidae</b>	
<i>Agrilus angustulus</i>	NS
<i>Agrilus laticornis</i>	frequent
<i>Agrilus sinuatus</i>	frequent
<b>Byturidae</b>	
<i>Byturus tomentosus</i>	common
<b>Cantharidae</b>	
<i>Cantharis cryptica</i>	common
<i>Cantharis decipiens</i>	common
<i>Cantharis lateralis</i>	common
<i>Cantharis livida</i>	common
<i>Cantharis nigra</i>	common
<i>Cantharis rufa</i>	common
<i>Malthinus balteatus</i>	occasional
<i>Malthinus balteatus</i>	common
<i>Malthinus flaveolus</i>	common
<i>Malthinus frontalis</i>	NS
<i>Malthinus sereipunctatus</i>	common
<i>Malthodes marginatus</i>	common
<i>Malthodes minimus</i>	common
<i>Malthodes pumilus</i>	NS
<i>Rhagonycha fulva</i>	common
<b>Carabidae</b>	
<i>Agonum fuliginosum</i>	common
<i>Amara communis</i>	common
<i>Amara lunicollis</i>	common
<i>Amara ovata</i>	common
<i>Amara similata</i>	common
<i>Calodromius spilotus</i>	common
<i>Curtonotus aulicus</i>	common
<i>Demetrias atricapillus</i>	common
<i>Dromius meridionalis</i>	frequent
<i>Dromius quadrimaculatus</i>	common
<i>Harpalus rufipes</i>	common
<i>Loricera pilicornis</i>	common

Taxon	Status
<i>Nebria brevicollis</i>	common
<i>Notiophilus biguttatus</i>	common
<i>Ophonus rufibarbis</i>	common
<i>Oxypselaphus obscurus</i>	common
<i>Paradromius linearis</i>	common
<i>Paranchus albipes</i>	common
<i>Philorhizus melanocephalus</i>	common
<i>Poecilus cupreus</i>	common
<i>Pterostichus diligens</i>	common
<i>Pterostichus madidus</i>	common
<i>Pterostichus niger</i>	common
<i>Pterostichus nigrita</i>	common
<i>Trechus obtusus</i>	common
<b>Cerambycidae</b>	
<i>Clytus arietis</i>	common
<i>Grammoptera ruficornis</i>	common
<i>Leiopus linnei</i>	frequent
<i>Phymatodes testaceus</i>	occasional
<i>Pogonocherus hispidulus</i>	frequent
<i>Pogonocherus hispidus</i>	frequent
<i>Pseudovadonia livida</i>	frequent
<i>Rutpela maculata</i>	frequent
<i>Stenocorus meridianus</i>	frequent
<i>Stenurella melanura</i>	frequent
<i>Tetrops praeustus</i>	frequent
<b>Chrysomelidae</b>	
<i>Apthona euphorbiae</i>	common
<i>Bruchidius varius</i>	common
<i>Bruchus rufimanus</i>	common
<i>Cassida rubiginosa</i>	common
<i>Chaetocnema concinna</i>	common
<i>Crepidodera aurata</i>	common
<i>Crepidodera fulvicornis</i>	common
<i>Cryptocephalus fulvus</i>	common
<i>Donacia simplex</i>	frequent
<i>Gastrophysa polygoni</i>	frequent
<i>Gastrophysa viridula</i>	common
<i>Lema cyanella</i>	frequent
<i>Longitarsus luridus</i>	common
<i>Neocrepidodera transversa</i>	common
<i>Oulema melanopus</i> agg.	common
<i>Oulema obscura</i>	common
<i>Phaedon tumidulus</i>	common
<i>Phyllotreta atra</i>	common
<i>Phyllotreta nigripes</i>	common
<i>Phyllotreta undulata</i>	common
<i>Phyllotreta vittula</i>	common
<i>Psylliodes affinis</i>	common
<i>Psylliodes chrysocephala</i>	common
<i>Psylliodes dulcamarae</i>	common
<i>Psylliodes napi</i>	common
<i>Sphaeroderma testaceum</i>	common
<b>Ciidae</b>	
<i>Cis alni</i>	frequent
<i>Cis boleti</i>	common

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Taxon	Status
<i>Cis pygmaeus</i>	frequent
<i>Cis vestitus</i>	occasional
<b>Cleridae</b>	
<i>Opilo mollis</i>	NS
<i>Tillus elongatus</i>	NS
<b>Coccinellidae</b>	
<i>Adalia bipunctata</i>	common
<i>Adalia decempunctata</i>	common
<i>Anisosticta novemdecimpunctata</i>	frequent
<i>Calvia quattuordecimguttata</i>	common
<i>Chilocorus renipustulatus</i>	common
<i>Coccidula rufa</i>	common
<i>Coccinella septempunctata</i>	common
<i>Exochomus quadripustulatus</i>	common
<i>Harmonia axyridis</i>	common
<i>Hippodamia variegata</i>	Nb
<i>Propylea quattuordecimpunctata</i>	common
<i>Psyllobora vigintiduopunctata</i>	common
<i>Rhizobius litura</i>	common
<i>Rhyzobius litura</i>	common
<i>Rhyzobius lophanthae</i>	common
<i>Subcoccinella vigintiquatuor punctata</i>	common
<i>Tytthaspis sedecimpunctata</i>	common
<b>Cryptophagidae</b>	
<i>Telmatophilus typhae</i>	common
<b>Curculionidae</b>	
<i>Acalles misellus</i>	frequent
<i>Amalus scortillum</i>	frequent
<i>Anthonomus pedicularius</i>	common
<i>Anthonomus ulmi</i>	Nb
<i>Archarius pyrrhoceras</i>	common
<i>Archarius salicivorus</i>	common
<i>Archarius villosus</i>	Nb
<i>Barypeithes pellucidus</i>	common
<i>Ceutorhynchus assimilis</i>	common
<i>Ceutorhynchus pallidactylus</i>	common
<i>Ceutorhynchus pyrrhorhynchus</i>	common
<i>Ceutorhynchus typhae</i>	common
<i>Ceutorrhynchus assimilis</i>	common
<i>Curculio glandium</i>	common
<i>Curculio venosus</i>	common
<i>Euophryum confine</i>	common
<i>Hadroplontus litura</i>	common
<i>Hylesinus varius</i>	common
<i>Kissophagus hederæ</i>	Nb
<i>Larinus planus</i>	Nb
<i>Magdalis armigera</i>	frequent
<i>Magdalis ruficornis</i>	frequent
<i>Microplontus rugulosus</i>	frequent

Taxon	Status
<i>Nedyus quadrimaculatus</i>	common
<i>Orchestes alni</i>	frequent
<i>Orchestes pubescens</i>	frequent
<i>Orchestes quercus</i>	frequent
<i>Otiorhynchus sulcatus</i>	common
<i>Parethelcus pollinarius</i>	common
<i>Phyllobius argentatus</i>	common
<i>Phyllobius maculicornis</i>	common
<i>Phyllobius pomaceus</i>	common
<i>Phyllobius pyri</i>	common
<i>Phyllobius roboretanus</i>	common
<i>Phyllobius viridaeris</i>	common
<i>Polydrusus cervinus</i>	common
<i>Polydrusus pterygomalis</i>	common
<i>Rhinocyllus conicus</i>	Nb
<i>Rhinoncus bruchoides</i>	frequent
<i>Rhinoncus pericarpus</i>	common
<i>Rhinoncus perpendicularis</i>	common
<i>Rhyncholus lignarius</i>	frequent
<i>Scolytus intricatus</i>	frequent
<i>Scolytus multistriatus</i>	common
<i>Scolytus rugulosus</i>	frequent
<i>Sitona hispidulus</i>	common
<i>Sitona lepidus</i>	common
<i>Sitona lineatus</i>	common
<i>Tychius picirostris</i>	common
<b>Dasytidae</b>	
<i>Dasytes aeratus</i>	frequent
<i>Dasytes plumbeus</i>	NS
<b>Dermestidae</b>	
<i>Anthrenus verbasci</i>	common
<i>Ctesias serra</i>	occasional
<b>Dytiscidae</b>	
<i>Agabus bipustulatus</i>	common
<i>Agabus sturmii</i>	common
<i>Colymbetes fuscus</i>	common
<i>Dytiscus marginalis</i>	common
<i>Hydroporus angustatus</i>	common
<i>Hydroporus palustris</i>	common
<i>Hydroporus planus</i>	common
<i>Hydroporus tessellatus</i>	common
<i>Hygrotus inaequalis</i>	common
<i>Hyphydrus ovatus</i>	common
<b>Elateridae</b>	
<i>Adrastus pallens</i>	common
<i>Agriotes acuminatus</i>	common
<i>Agriotes lineatus</i>	common
<i>Agriotes sputator</i>	common
<i>Aplotarsus incanus</i>	common
<i>Athous bicolor</i>	common
<i>Athous haemorrhoidalis</i>	common
<i>Hemicrepidius hirtus</i>	common
<i>Melanotus castanipes</i>	common
<i>Oedostethus quadripustulatus</i>	Na

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Taxon	Status
<b>Erotylidae</b>	
<i>Dacne bipustulata</i>	frequent
<i>Dacne rufifrons</i>	frequent
<b>Gyrinidae</b>	
<i>Gyrinus substriatus</i>	common
<i>Halipilus lineatocollis</i>	common
<i>Halipilus ruficollis</i>	common
<b>Helophoridae</b>	
<i>Helophorus grandis</i>	common
<i>Helophorus minutus</i>	common
<i>Helophorus obscurus</i>	common
<b>Histeridae</b>	
<i>Dendrophilus punctatus</i>	frequent
<i>Hister unicolor</i>	common
<i>Peranus bimaculatus</i>	common
<i>Plegaderus dissectus</i>	Nb
<b>Hydraenidae</b>	
<i>Ochthebius minimus</i>	common
<b>Hydrophilidae</b>	
<i>Anacaena limbata</i>	common
<i>Berosus signaticollis</i>	occasional
<i>Cercyon melanocephalus</i>	common
<i>Cercyon pygmaeus</i>	common
<i>Cercyon quisquilius</i>	common
<i>Cryptopleurum crenatum</i>	N
<i>Enochrus quadripunctatus</i>	NS
<i>Hydrobius fuscipes</i>	common
<i>Laccobius bipunctatus</i>	common
<b>Kateretidae</b>	
<i>Brachypterus glaber</i>	common
<i>Brachypterus urticae</i>	common
<b>Laemophloeidae</b>	
<i>Notolaemus unifasciatus</i>	Na
<b>Latridiidae</b>	
<i>Cartodere bifasciata</i>	common
<i>Cartodere nodifer</i>	common
<i>Corticaria gibbosa</i>	common
<i>Enicmus histrio</i>	common
<b>Lucanidae</b>	
<i>Dorcus parallelepipedus</i>	frequent
<i>Sinodendron cylindricum</i>	occasional
<b>Malachiidae</b>	
<i>Cordylepherus viridis</i>	common
<i>Malachius bipustulatus</i>	common
<b>Megalopodidae</b>	
<i>Orsodacne cerasi</i>	NS
<b>Melandryidae</b>	
<i>Abdera biflexuosa</i>	NS
<i>Conopalpus testaceus</i>	occasional
<b>Mordellidae</b>	
<i>Mordellistena humeralis</i>	NS
<i>Mordellistena variegata</i>	NS
<b>Nitidulidae</b>	
<i>Glisrochilus hortensis</i>	common
<i>Meligethes aeneus</i>	common

Taxon	Status
<i>Meligethes rufipes</i>	common
<i>Pria dulcamarae</i>	frequent
<b>Oedemeridae</b>	
<i>Ischnomera cyanea</i>	occasional
<i>Oedemera lurida</i>	common
<i>Oedemera nobilis</i>	common
<b>Phalacridae</b>	
<i>Olibrus liquidus</i>	frequent
<i>Phalacrus fimetarius</i>	frequent
<b>Ptinidae</b>	
<i>Anobium fulvicorne</i>	common
<i>Anobium inexpectatum</i>	Nb
<i>Anobium punctatum</i>	common
<i>Ochina ptinoides</i>	frequent
<i>Ptilinus pectinicornis</i>	common
<i>Xestobium rufovillosum</i>	occasional
<b>Rhynchitidae</b>	
<i>Tatianaerhynchityes aequatus</i>	common
<b>Salpingidae</b>	
<i>Lissodema denticolle</i>	Nb
<i>Lissodema denticolle</i>	NS
<i>Rhinosimus ruficollis</i>	frequent
<i>Salpingus planirostris</i>	frequent
<i>Vincinzelus ruficollis</i>	frequent
<b>Scarabaeidae</b>	
<i>Aphodius equestris</i>	occasional
<i>Aphodius fimetarius</i>	common
<i>Aphodius haemorrhoidalis</i>	common
<i>Aphodius rufipes</i>	common
<i>Aphodius rufus</i>	common
<i>Aphodius sphacelatus</i>	common
<b>Scirtidae</b>	
<i>Cyphon laevipennis</i>	common
<i>Microcara testacea</i>	common
<b>Scaptiidae</b>	
<i>Anaspis fasciata</i>	common
<i>Anaspis frontalis</i>	common
<i>Anaspis maculata</i>	common
<i>Anaspis pulicarius</i>	common
<i>Anaspis regimbarti</i>	common
<i>Anaspis rufilabris</i>	common
<b>Staphylinidae</b>	
<i>Acrolocha sulcula</i>	frequent
<i>Anotylus rugosus</i>	common
<i>Anotylus sculpturatus</i>	common
<i>Anotylus tetracarinatus</i>	common
<i>Autalia rivularis</i>	common
<i>Bisnius fimetarius</i>	common
<i>Cypha longicornis</i>	common
<i>Drusilla canaliculata</i>	common
<i>Gabrius breviventer</i>	common
<i>Leptacinus batycrus</i>	common
<i>Megarthus depressus</i>	common
<i>Oxytelus laqueatus</i>	common

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Taxon	Status
<i>Philonthus sanguinolentus</i>	common
<i>Philonthus varians</i>	common
<i>Platystethus arenarius</i>	common
<i>Quedius cruentus</i>	frequent
<i>Stenus cicindeloides</i>	common
<i>Stenus impressus</i>	common
<i>Stenus providus</i>	common
<i>Tachinus signatus</i>	common
<i>Tachyporus hypnorum</i>	common
<i>Tachyporus obtusus</i>	common
<i>Xantholinus linearis</i>	common
<i>Xantholinus longiventris</i>	common
<b>Tenebrionidae</b>	
<i>Lagria hirta</i>	common
<i>Prionychus ater</i>	occasional
<i>Scaphidema metallicum</i>	occasional
<b>Tetratomidae</b>	
<i>Tetratoma fungorum</i>	frequent
<b>Dermaptera</b>	
<b>Forficulidae</b>	
<i>Forficula auricularia</i>	common
<b>Diptera</b>	
<b>Anisopodidae</b>	
<i>Sylvicola cinctus</i>	common
<i>Sylvicola fenestralis</i>	common
<b>Asilidae</b>	
<i>Dioctria atricapilla</i>	common
<i>Dioctria linearis</i>	common
<i>Dioctria rufipes</i>	common
<i>Leptogaster cylindrica</i>	common
<b>Bibionidae</b>	
<i>Bibio anglicus</i>	frequent
<i>Bibio johannis</i>	frequent
<i>Bibio marci</i>	common
<i>Dilophus febrilis</i>	common
<i>Dilophus femoratus</i>	common
<b>Clusiidae</b>	
<i>Clusiodes albimana</i>	common
<b>Conopidae</b>	
<i>Sicus ferrugineus</i>	common
<i>Thecophora atra</i>	frequent
<b>Culicidae</b>	
<i>Aedes rusticus</i>	common
<b>Dolichopodidae</b>	
<i>Campsicnemus curvipes</i>	common
<i>Campsicnemus scambus</i>	common
<i>Chrysotus gramineus</i>	common
<i>Dolichopus festivus</i>	common
<i>Dolichopus griseipennis</i>	common
<i>Dolichopus plumipes</i>	common
<i>Dolichopus simplex</i>	common
<i>Dolichopus trivialis</i>	common
<i>Dolichopus unguulatus</i>	common
<i>Medetera truncorum</i>	common
<i>Neurigona quadrifasciata</i>	common

Taxon	Status
<i>Poecilobothrus nobilitatus</i>	common
<i>Scellus notatus</i>	frequent
<i>Sciapus platypterus</i>	common
<i>Sympycnus desoutteri</i>	common
<i>Syntormon pallipes</i>	common
<i>Xanthochlorus ornatus</i>	common
<i>Xanthochlorus tenellus</i>	common
<b>Empididae</b>	
<i>Empis caudatula</i>	common
<i>Empis femorata</i>	common
<i>Empis livida</i>	common
<i>Empis nigripes</i>	common
<i>Empis nigritarsis</i>	frequent
<i>Empis nuntia</i>	common
<i>Empis stercorea</i>	common
<i>Empis tessellata</i>	common
<i>Empis trigramma</i>	common
<i>Hilara curtisii</i>	frequent
<i>Rhamphomyia atra</i>	common
<i>Rhamphomyia sulcata</i>	common
<b>Hybotidae</b>	
<i>Bicellaria vana</i>	common
<i>Oedalea holmgreni</i>	common
<i>Platypalpus agilis</i>	common
<i>Platypalpus longicornis</i>	common
<i>Platypalpus minuta</i>	common
<b>Lauxaniidae</b>	
<i>Peplomyza litura</i>	common
<i>Sapromyza obsoleta</i>	frequent
<b>Limoniidae</b>	
<i>Dicranomyia chorea</i>	common
<i>Eriocnopa trivialis</i>	common
<i>Limonia nubeculosa</i>	common
<i>Limonia phragmitidis</i>	common
<i>Molophilus cinereus</i>	common
<i>Rhipidia maculata</i>	common
<i>Symplecta stictica</i>	common
<b>Lonchaeidae</b>	
<i>Semisqualonchaea fumosa</i>	common
<b>Muscidae</b>	
<i>Stomoxys calcitrans</i>	common
<b>Opomyzidae</b>	
<i>Geomyza tripunctata</i>	common
<i>Opomyza florum</i>	common
<i>Opomyza germinationis</i>	common
<b>Psilidae</b>	
<i>Psila merdaria</i>	common
<b>Ptychopteridae</b>	
<i>Ptychoptera contaminata</i>	common
<i>Ptychoptera minuta</i>	frequent
<b>Rhagionidae</b>	
<i>Chrysopilus asiliformis</i>	common
<i>Chrysopilus cristatus</i>	common
<i>Rhagio lineola</i>	common
<i>Rhagio tringarius</i>	common

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Taxon	Status
<b>Scathophagidae</b>	
<i>Norellisoma spinimanum</i>	common
<i>Trichopalpus fraterna</i>	frequent
<b>Sciomyzidae</b>	
<i>Colobaea bifasciella</i>	N
<i>Limnia paludicola</i>	common
<i>Pherbellia cinerella</i>	common
<i>Pherbina coryleti</i>	common
<i>Sepedon sphegea</i>	common
<i>Sepedon spinipes</i>	common
<i>Tetanocera arrogans</i>	common
<i>Tetanocera ferruginea</i>	common
<b>Stratiomyidae</b>	
<i>Beris chalybeata</i>	common
<i>Beris vallata</i>	common
<i>Chloromyia formosa</i>	common
<i>Chorisops nagatomii</i>	N
<i>Chorisops tibialis</i>	common
<i>Microchrysa flavicornis</i>	common
<i>Microchrysa polita</i>	common
<i>Oplodontha viridula</i>	frequent
<i>Pachygaster atra</i>	common
<i>Pachygaster leachii</i>	common
<b>Syrphidae</b>	
<i>Anasimyia contracta</i>	frequent
<i>Baccha elongata</i>	common
<i>Cheilosia albitarsis</i>	common
<i>Cheilosia bergenstammi</i>	common
<i>Cheilosia illustrata</i>	common
<i>Cheilosia latifrons</i>	frequent
<i>Cheilosia pagana</i>	common
<i>Cheilosia ranunculi</i>	frequent
<i>Chrysotoxum bicinctum</i>	frequent
<i>Dasysyrphus albostrigatus</i>	common
<i>Epistrophe eligans</i>	common
<i>Episyrphus balteatus</i>	common
<i>Eristalis interruptus</i>	common
<i>Eristalis pertinax</i>	common
<i>Eristalis tenax</i>	common
<i>Eupeodes corollae</i>	common
<i>Eupeodes latifasciatus</i>	frequent
<i>Eupeodes luniger</i>	common
<i>Helophilus pendulus</i>	common
<i>Leucozona lucorum</i>	common
<i>Melanostoma mellinum</i>	common
<i>Melanostoma scalare</i>	common
<i>Merodon equestris</i>	common
<i>Myathropa florea</i>	common
<i>Neoascia tenur</i>	common
<i>Pipiza noctiluca</i>	frequent
<i>Pipizella viduata</i>	common
<i>Platycheirus albimanus</i>	common
<i>Platycheirus scambus</i>	common
<i>Rhingia campestris</i>	common
<i>Scaeva pyrastris</i>	common

Taxon	Status
<i>Sphaerophoria scripta</i>	common
<i>Syrirta pipiens</i>	common
<i>Syrphus ribesii</i>	common
<i>Volucella bombylans</i>	common
<i>Volucella pellucens</i>	common
<i>Volucella zonaria</i>	frequent
<i>Xylota sylvarum</i>	frequent
<b>Tabanidae</b>	
<i>Chrysops relictus</i>	common
<b>Tephritidae</b>	
<i>Anomoia purmunda</i>	common
<i>Euleia heraclei</i>	common
<i>Goniglossum wiedemanni</i>	N
<i>Myoleja caesio</i>	common
<i>Tephritis divisa</i>	frequent
<i>Tephritis formosa</i>	common
<i>Tephritis neesii</i>	common
<i>Terellia ruficauda</i>	common
<i>Terellia serratulae</i>	common
<i>Urophora cardui</i>	common
<i>Urophora stylata</i>	common
<i>Xyphosia miliaria</i>	common
<b>Tipulidae</b>	
<i>Ctenophora pectinicornis</i>	N
<i>Nephrotoma appendiculata</i>	common
<i>Nephrotoma flavescens</i>	common
<i>Nephrotoma flavipalpis</i>	common
<i>Nephrotoma quadrifarea</i>	common
<i>Tipula lateralis</i>	common
<i>Tipula lunata</i>	common
<i>Tipula oleracea</i>	common
<i>Tipula vernalis</i>	common
<b>Ulidiidae</b>	
<i>Melieria omissa</i>	frequent
<b>Ephemeroptera</b>	
<b>Baetidae</b>	
<i>Cloeon dipterum</i>	common
<b>Hemiptera</b>	
<b>Acanthosomatidae</b>	
<i>Acanthosoma haemorrhoidale</i>	common
<b>Anthocoridae</b>	
<i>Anthocoris confusus</i>	common
<i>Anthocoris gallarum-ulmi</i>	occasional
<i>Anthocoris gallarum-ulmi</i>	frequent
<i>Anthocoris nemoralis</i>	common
<i>Anthocoris nemorum</i>	common
<i>Buchananiella continua</i>	common
<i>Buchananiella continua</i>	frequent
<i>Cardiastethus fasciventris</i>	common
<i>Orius majusculus</i>	common
<i>Orius niger</i>	common
<i>Orius vicinus</i>	common
<i>Temnostethus gracilis</i>	common
<i>Temnostethus pusillus</i>	common

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Taxon	Status
<b>Aphrophoridae</b>	
<i>Aphrophora alni</i>	common
<i>Neophilaenus campestris</i>	frequent
<i>Neophilaenus lineatus</i>	common
<i>Philaenus spumarius</i>	common
<b>Cercopidae</b>	
<i>Cercopis vulnerata</i>	common
<b>Cicadellidae</b>	
<i>Acericerus horvathi</i>	common
<i>Adarrus ocellaris</i>	common
<i>Agallia consobrina</i>	common
<i>Alebra albostriella</i>	common
<i>Alebra wahlbergi</i>	common
<i>Allygus mixtus</i>	common
<i>Allygus modestus</i>	common
<i>Arthaldeus pascuellus</i>	common
<i>Balclutha punctata</i>	common
<i>Cicadella viridis</i>	common
<i>Cicadula persimilis</i>	common
<i>Edwardsiana crataegi</i>	common
<i>Edwardsiana rosae</i>	common
<i>Empoasca decipiens</i>	common
<i>Empoasca vitis</i>	common
<i>Eupteryx aurata</i>	common
<i>Eupteryx urticae</i>	common
<i>Eupteryx vittata</i>	common
<i>Eurhadina pulchella</i>	common
<i>Euscelis incisus</i>	common
<i>Evacanthus interruptus</i>	common
<i>Iassus lanius</i>	common
<i>Iassus scutellaris</i>	Nb
<i>Lamprotettix nitidulus</i>	frequent
<i>Ledra aurita</i>	frequent
<i>Macropsis scotti</i>	common
<i>Macropsis scutellata</i>	common
<i>Macrosteles laevis</i>	common
<i>Macrosteles viridigriseus</i>	common
<i>Mocytia crocea</i>	common
<i>Oncopsis flavicollis</i>	common
<i>Oncopsis tristis</i>	common
<i>Populicerus confusus</i>	common
<i>Psammotettix confinis</i>	common
<i>Ribautiana debilis</i>	frequent
<i>Ribautiana scalaris</i>	frequent
<i>Ribautiana tenerrima</i>	common
<i>Ribautiana ulmi</i>	common
<i>Streptanus sordidus</i>	common
<i>Typhlocyba quercus</i>	common
<i>Zyginidia scutellaris</i>	common
<b>Cixiidae</b>	
<i>Cixius nervosus</i>	common
<i>Tachycixius pilosus</i>	common
<b>Coreidae</b>	
<i>Coreus marginatus</i>	common
<i>Coriomeris denticulatus</i>	common

Taxon	Status
<b>Corixidae</b>	
<i>Hesperocorixa sahlbergi</i>	common
<b>Delphacidae</b>	
<i>Conomelus anceps</i>	common
<i>Criomorphus albomarginatus</i>	common
<i>Dicranotropis hamata</i>	common
<i>Javesella pellucida</i>	common
<i>Muellerianella brevipennis</i>	frequent
<i>Stenocranus minutus</i>	common
<b>Gerridae</b>	
<i>Gerris lacustris</i>	common
<b>Hydrometridae</b>	
<i>Hydrometra stagnorum</i>	common
<b>Lygaeidae</b>	
<i>Chilacis typhae</i>	frequent
<i>Cymus clavicolus</i>	common
<i>Cymus melanocephalus</i>	common
<i>Drymus sylvaticus</i>	common
<i>Heterogaster urticae</i>	common
<i>Ischnodemus sabuleti</i>	common
<i>Kleidocerys resedae</i>	common
<i>Nysius huttoni</i>	common
<i>Peritrechus geniculatus</i>	common
<i>Scolopostethus affinis</i>	common
<i>Scolopostethus thomsoni</i>	common
<i>Stygnocoris fuliginosus</i>	common
<i>Taphropeltus contractus</i>	frequent
<b>Microphysidae</b>	
<i>Loricula elegantula</i>	common
<b>Miridae</b>	
<i>Amblytylus nasutus</i>	common
<i>Apolygus spinolae</i>	common
<i>Atractotomus mali</i>	common
<i>Campyloneura virgula</i>	common
<i>Capsus ater</i>	common
<i>Closterotomus norwegicus</i>	common
<i>Cyllocoris histrionicus</i>	common
<i>Deraeocoris flavilinea</i>	common
<i>Deraeocoris lutescens</i>	common
<i>Deraeocoris ruber</i>	common
<i>Deraeocoris flavilinea</i>	common
<i>Dicyphus epilobii</i>	common
<i>Dryophilocoris flavoquadrimaculatus</i>	common
<i>Fieberocapsus flaveolus</i>	frequent
<i>Harpocera thoracica</i>	common
<i>Heterotoma planicornis</i>	common
<i>Leptopterna dolabrata</i>	common
<i>Liocoris tripustulatus</i>	common
<i>Lygocoris pabulinus</i>	common
<i>Lygus pratensis</i>	RDB3
<i>Lygus rugulipennis</i>	common
<i>Megacoelum infusum</i>	common
<i>Megaloceraea recticornis</i>	common

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Taxon	Status
<i>Neolygus contaminatus</i>	common
<i>Notostira elongata</i>	common
<i>Orthocephalus saltator</i>	common
<i>Orthonotus rufifrons</i>	frequent
<i>Orthops campestris</i>	common
<i>Orthops kalmii</i>	common
<i>Orthotylus flavosparsus</i>	common
<i>Orthotylus marginalis</i>	common
<i>Orthotylus ochrotrichus</i>	common
<i>Orthotylus prasinus</i>	frequent
<i>Orthotylus tenellus</i>	common
<i>Pantilius tunicatus</i>	frequent
<i>Phylus melanocephalus</i>	common
<i>Phytocoris longipennis</i>	common
<i>Phytocoris tiliae</i>	common
<i>Phytocoris ulmi</i>	common
<i>Phytocoris varipes</i>	common
<i>Pinalitus cervinus</i>	common
<i>Plagiognathus arbustorum</i>	common
<i>Plagiognathus chrysanthemii</i>	common
<i>Psallus anaemicus</i>	frequent
<i>Psallus assimilis</i>	common
<i>Psallus confusus</i>	common
<i>Psallus flavellus</i>	common
<i>Psallus helenae</i>	frequent
<i>Psallus lepidus</i>	common
<i>Psallus perrisi</i>	common
<i>Psallus varians</i>	common
<i>Psallus wagneri</i>	common
<i>Pseudoloxops coccineus</i>	frequent
<i>Rhabdomiris striatellus</i>	common
<i>Stenodema calcarata</i>	common
<i>Stenodema laevigata</i>	common
<i>Stenotus binotatus</i>	common
<i>Teratocoris saundersi</i>	frequent
<i>Tytthus pygmaeus</i>	frequent
<b>Nabidae</b>	
<i>Himacerus apterus</i>	common
<i>Himacerus major</i>	common
<i>Nabis fesus</i>	common
<i>Nabis flavomarginatus</i>	common
<i>Nabis limbatus</i>	common
<i>Nabis rugosus</i>	common
<b>Notonectidae</b>	
<i>Notonecta glauca</i>	common
<b>Pemphigidae</b>	
<i>Tetraneura ulmi</i>	frequent
<b>Pentatomidae</b>	
<i>Aelia acuminata</i>	common
<i>Dolycoris baccarum</i>	frequent
<i>Palomena prasina</i>	common
<i>Pentatoma rufipes</i>	common
<b>Reduviidae</b>	
<i>Empicoris baerensprungi</i>	Na

Taxon	Status
<i>Empicoris culiciformis</i>	frequent
<i>Empicoris vagabundus</i>	frequent
<i>Empicoris vagadundus</i>	frequent
<b>Rhopalidae</b>	
<i>Corizus hyoscyami</i>	frequent
<i>Rhopalus subrufus</i>	common
<i>Stictopleurus punctatonervosus</i>	common
<b>Saldidae</b>	
<i>Saldula saltatoria</i>	common
<b>Tingidae</b>	
<i>Derephysia foliacea</i>	occasional
<i>Physatocheila dumetorum</i>	common
<i>Tingis ampliata</i>	common
<i>Tingis cardui</i>	common
<b>Triozidae</b>	
<i>Triozia urticae</i>	common
<b>Hymenoptera</b>	
<b>Andrenidae</b>	
<i>Andrena bicolor</i>	common
<i>Andrena minuta</i>	common
<b>Apidae</b>	
<i>Apis mellifera</i>	common
<i>Bombus hortorum</i>	common
<i>Bombus hypnorum</i>	common
<i>Bombus lapidarius</i>	common
<i>Bombus lucorum/terrestris</i>	common
<i>Bombus pascuorum</i>	common
<i>Bombus pratorum</i>	common
<i>Bombus terrestris</i>	common
<i>Bombus vestalis</i>	common
<i>Nomada goodeniana</i>	common
<b>Chrysididae</b>	
<i>Pseudomalus auratus</i>	common
<b>Colletidae</b>	
<i>Hylaeus brevicornis</i>	common
<i>Hylaeus communis</i>	common
<i>Hylaeus confusus</i>	common
<b>Crabronidae</b>	
<i>Cerceris arenaria</i>	occasional
<i>Crossocerus annulipes</i>	common
<i>Crossocerus megacephalus</i>	common
<i>Crossocerus podagricus</i>	common
<i>Crossocerus pusillus</i>	frequent
<i>Crossocerus varus</i>	common
<i>Ectemnius continuus</i>	common
<i>Ectemnius lapidarius</i>	common
<i>Passaloecus gracilis</i>	common
<i>Pemphredon lethifer</i>	common
<i>Pemphredon lugubris</i>	common
<i>Phlanthus triangulum</i>	RDB2
<i>Psenulus pallipes</i>	common
<i>Rhopalum clavipes</i>	common
<i>Spilomena sp.</i>	
<i>Stigmus solskyi</i>	frequent



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Taxon	Status
<i>Trypoxylon attenuatum</i>	common
<b>Cynipidae</b>	
<i>Andricus foecundatrix</i>	common
<i>Andricus kollari</i>	common
<i>Andricus quercuscalicis</i>	common
<i>Biorhiza pallida</i>	common
<i>Neuroterus numismalis</i>	common
<i>Neuroterus quercusbaccarum</i>	common
<b>Formicidae</b>	
<i>Lasius brunneus</i>	Na
<i>Lasius flavus</i>	common
<i>Lasius niger</i>	common
<i>Myrmica ruginodis</i>	common
<i>Myrmica scabrinodis</i>	common
<b>Halictidae</b>	
<i>Halictus tumulorum</i>	common
<i>Lasioglossum calceatum</i>	common
<i>Lasioglossum morio</i>	common
<b>Megachilidae</b>	
<i>Chelostoma florissomne</i>	frequent
<i>Megachile centuncularis</i>	frequent
<b>Pompilidae</b>	
<i>Dipogon subintermedius</i>	frequent
<b>Tenthredinidae</b>	
<i>Macrophya annulata</i>	common
<i>Rhogogaster viridis</i>	common
<i>Tenthredo mesomela</i>	common
<i>Tenthredopsis nassata</i>	common
<b>Vespidae</b>	
<i>Ancistocerus parietinus</i>	common
<i>Ancistrocerus gazella</i>	common
<i>Symmorphus gracilis</i>	common
<i>Vespula vulgaris</i>	common
<b>Lepidoptera</b>	
<b>Adelidae</b>	
<i>Nemophora degeerella</i>	common
<b>Crambidae</b>	
<i>Agriphila tristella</i>	common
<i>Crambus pascuellus</i>	common
<b>Geometridae</b>	
<i>Abraxas grossulariata</i>	frequent
<i>Camptogramma bilineata</i>	common
<b>Gracillariidae</b>	
<i>Cameraria ohridella</i>	common
<b>Hesperiidae</b>	
<i>Ochlodes sylvanus</i>	common
<i>Thymelicus lineola</i>	common
<i>Thymelicus sylvestris</i>	common
<b>Lycaenidae</b>	
<i>Aricia agestis</i>	frequent
<i>Celastrina argiolus</i>	common
<b>Lymantriidae</b>	
<i>Orgyia antiqua</i>	common
<b>Noctuidae</b>	

Taxon	Status
<i>Acrionicta rumicis</i>	common BAP
<i>Autographa gamma</i>	common
<i>Noctua pronuba</i>	common
<i>Phlogophora meticulosa</i>	common
<b>Notodontidae</b>	
<i>Phalera bucephala</i>	common
<b>Nymphalidae</b>	
<i>Aglais urticae</i>	common
<i>Aphantopus hyperantus</i>	common
<i>Cynthia cardui</i>	common
<i>Inachis io</i>	common
<i>Maniola jurtina</i>	common
<i>Pararge aegeria</i>	common
<i>Polygonia c-album</i>	common
<i>Pyronia tithonus</i>	common
<i>Vanessa atalanta</i>	common
<b>Pieridae</b>	
<i>Anthocharis cardamines</i>	common
<i>Pieris brassicae</i>	common
<i>Pieris napi</i>	common
<i>Pieris rapae</i>	common
<b>Mecoptera</b>	
<b>Panorpidae</b>	
<i>Panorpa communis</i>	common
<b>Neuroptera</b>	
<b>Chrysopidae</b>	
<i>Chrysopa perla</i>	common
<i>Chrysoperla carnea</i> agg.	common
<i>Nineta flava</i>	common
<b>Hemerobiidae</b>	
<i>Hemerobius humulinus</i>	common
<i>Hemerobius lutescens</i>	common
<i>Hemerobius micans</i>	common
<i>Micromus variegatus</i>	common
<i>Wesmaelius subnebulosus</i>	common
<b>Odonata</b>	
<b>Aeshnidae</b>	
<i>Aeshna cyanea</i>	common
<i>Aeshna grandis</i>	common
<i>Aeshna mixta</i>	common
<i>Anax imperator</i>	frequent
<i>Brachytron pratense</i>	frequent
<b>Coenagriidae</b>	
<i>Coenagrion puella</i>	common
<i>Enallagma cyathigerum</i>	common
<i>Ischnura elegans</i>	common
<i>Pyrrhosoma nymphula</i>	frequent
<b>Libellulidae</b>	
<i>Libellula fulva</i>	NT
<i>Libellula quadrimaculata</i>	frequent
<i>Sympetrum striolatum</i>	common
<b>Orthoptera</b>	
<b>Acrididae</b>	
<i>Chorthippus</i>	common

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<b>Taxon</b>	<b>Status</b>
<i>albomarginatus</i>	
<i>Chorthippus brunneus</i>	common
<i>Chorthippus parallelus</i>	common
<b>Tetrigidae</b>	
<i>Tetrix subulata</i>	common
<i>Tetrix undulata</i>	common
<b>Tettigoniidae</b>	
<i>Conocephalus fuscus</i>	Na
<i>Leptophyes punctatissima</i>	common
<i>Meconema thalassinum</i>	common
<i>Metrioptera roeselii</i>	Nb
<b>Psocoptera</b>	
<b>Caeciliusidae</b>	
<i>Valenzuela flavidus</i>	common
<b>Ectopsocidae</b>	
<i>Ectopsocus briggsi</i>	common
<i>Ectopsocus petersi</i>	common
<b>Mesopsocidae</b>	
<i>Mesopsocus unipunctatus</i>	common
<b>Peripsocidae</b>	
<i>Peripsocus milleri</i>	common
<b>Psocidae</b>	
<i>Loensia variegata</i>	common
<b>Stenopsocidae</b>	
<i>Graphopsocus cruciatus</i>	common
<b>Trichoptera</b>	
<b>Limnephilidae</b>	
<i>Limnephilus auricularia</i>	common
<i>Limnephilus flavicornis</i>	common
<i>Limnephilus lunatus</i>	common
<b>Phryganeidae</b>	
<i>Agrypnia pagetana</i>	common