

SUMMARY REPORT OF A SURVEY OF THE TERRESTRIAL INVERTEBRATES OF MILL MEADOWS, HENLEY, 2013

Steve Gregory, November 2013

This report was produced for Henley Wildlife Group

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SUMMARY

- Mill Meadows, Henley, was split into four distinct survey areas: ‘Marsh’, ‘Meadow’, ‘Trees’ and ‘Stream’.
- Two visits were made in late June and early September to sample terrestrial invertebrates within each area by hand-searching, sweeping/beating and hand netting.
- 223 species of terrestrial invertebrate were identified from the samples.
- This includes 21 species of slugs & snails, 30 woodlice, millipedes & centipedes, 45 spiders & allies, 8 grasshoppers & allies, 17 true bugs, 35 true flies, 27 beetles and 26 bees, wasps & ants.
- Ten species are Nationally Scarce (Na or Nb), and are considered to be of conservation significance.
- The harvestman *Opilio canestrinii* is recorded from Oxfordshire (vc23) for the first time.
- Almost twice as many species were collected from the ‘Marsh’ survey area when compared to other survey areas. 23% of species recorded here where found nowhere else on site.
- The ‘Meadow’ and ‘Tree’ survey areas, although less species diverse, also supported species not collected from other survey areas.
- Considering its small size, these results suggest that as a whole the Mill Meadows complex supports a diverse wetland/grassland fauna.
- Coarse herbaceous vegetation, scrub and ‘woodland edge’ are also important habitat components and should be retained.
- It is recommended that grassland, coarse herbaceous vegetation, wetland vegetation and scrub are managed cyclically to prevent domination by coarse vegetation or dense scrub.
- Further survey work, in different seasons, could further enhance the understanding of the site’s fauna.

INTRODUCTION

In 2013, the author was commissioned by Henley Wildlife Group to undertake a general assessment of the terrestrial invertebrates inhabiting the Mill Meadows complex, Henley-on-Thames (c. SU 76- 81-).

Survey Areas

The site is relatively small. It consists of four discrete and rather disjointed areas indicated on Fig. 1 as ‘Marsh’, ‘Meadow’, ‘Trees’ and ‘Stream’. Each comprises a distinct habitat and sampling effort was roughly equal between each of these. These are outlined in more detail below.

Marsh: This comprises the north-western end of Marsh Meadows (SU 767 819). The northern tip (opposite the rowing museum) is marshy with shallow pools and a stream. The vegetation here comprises monocot dominated tall-herb fen. Further south the ground becomes drier and the vegetation is less botanically rich, becoming dominated by tussocky grasses. The remainder of Marsh Meadows is mown regularly, for amenity use, and was not surveyed.

Meadow: A small triangular meadow to the south west of the site (SU 768 817). Surveys were restricted to the rough tussocky grassland, scattered shrubs and overhanging trees around the edge of the field. The central mown area was not surveyed.

Trees: A linear strip of mature trees, mature scrub, with some smaller planted trees, running from south-east to north-west between the two areas described above (centre SU 767 818). Much of this area is densely shaded, with sparse ground flora. However, the trees planted into open grassland along the eastern edge (facing Marsh Meadows) were included within this survey area.

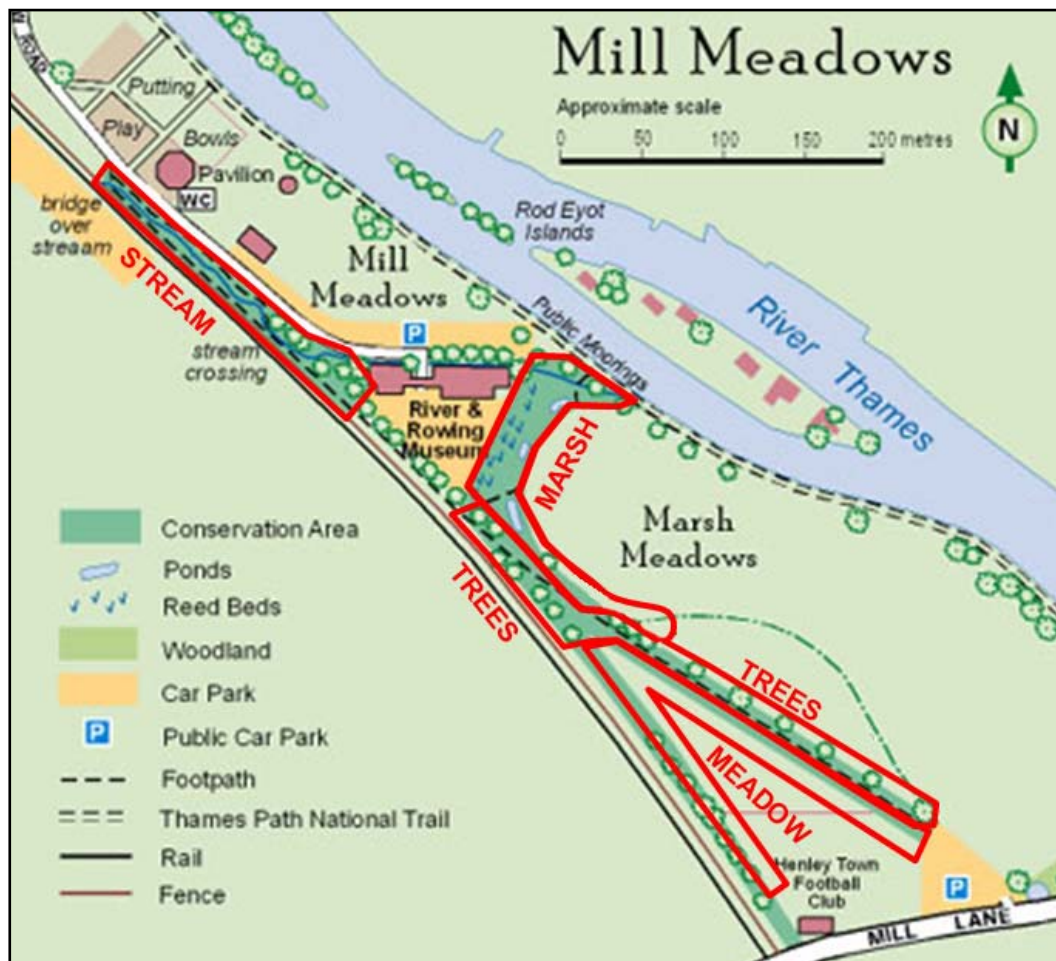


Figure 1: Map of Mill Meadows indicating survey areas

Stream: A linear strip of mature trees and mature scrub bordering a stream (centre SU 765 821). Much of this area is densely shaded, with sparse ground flora. In more open areas tall herbs such as umbels and nettles occur. Near the centre there is a small flushed area. This area had been recently cleared and vegetation had not yet recolonised.

METHODS

Hand-searching, sweeping and beating

Two sites visits, each of about half day duration, were made on 25th June and 2nd September 2013 to collect terrestrial invertebrates (night-flying moths were not collected). Both days were warm (20°C+) with sunny intervals.

The first survey on 25th June concentrated on a mixture of hand searching for ground dwelling invertebrates and sweep netting/beating of vegetation. The second survey on 2nd September concentrated on sweep netting of vegetation and netting of individual insects from flowers.

Identification

Where practical, invertebrates were identified in the field. Many specimens were collected for microscopic examination to ensure accurate identification.

The author undertook identification of most taxa, including slugs & snails (Mollusca), millipedes, centipedes & woodlice (Myriapoda & Isopoda), spiders (Araneae), grasshoppers & allies (Orthoptera), bumblebees & ants (Social Aculeate Hymenoptera), and selected groups of true flies (Diptera), beetles (Coleoptera) and true bugs (Hemiptera). Solitary bees and wasps (Solitary Aculeate Hymenoptera) were kindly identified by Ivan Wright (Shotover Wildlife).

RESULTS

Species recorded

The survey identified 223 species of terrestrial invertebrate including 21 species of slugs & snails, 30 woodlice, millipedes & centipedes, 45 spiders & allies, 8 grasshoppers & allies, 17 true bugs, 35 true flies, 27 beetles and 26 bees, wasps & ants. All species recorded are listed in Appendix I.

Of these 223 species, 177 species are considered ‘Common’, 29 species are ‘Local’ and ten species are Nationally Scarce (Table 1). These are discussed below under the heading ‘Key Invertebrates’.

Common: Taxa that are widespread in Britain and occur in more than 500 hectads (10km OS grid squares).

Local: Taxa with a localised distribution in Great Britain and are known to occur in between 101 and 500 hectads.

Nationally Scarce: Scarce species that do not fall within Red Data Book categories, but which are nonetheless uncommon in Great Britain. They are divided into “Na” for species recorded from 16 to 30 hectads and “Nb” for those recorded from 31 to 100 10-km squares (there are about 3,000 hectads covering Britain).

The Harvestman *Opilio canestrinii* is a new county record for Oxfordshire.

None are listed in the British Red Data Book that documents rare and threatened species.

None are listed under the UK Biodiversity Action Plan.

None are listed under Section 74 of the Countryside and Rights of Way Act 2000.

Species diversity within survey area

The number of species within each conservation status recorded from each of the four survey areas is indicated in Table 1.

Table 1: Number of invertebrate species within each conservation status recorded within each of the four survey areas

Survey Area	GB Species Status				Total species per survey area	‘Endemic’ species to survey area
	Common	Local	Nationally Scarce	unknown		
‘Marsh’	97	23	4	1	125	52 (23%)
‘Meadow’	54	4	4	2	64	24 (11%)
‘Trees’	57	4	3	2	66	31 (14%)
‘Stream’	41	2	1	1	45	4 (2%)
All sites combined	177	29	10	7	223	n/a

The 'Marsh' survey area is by far the most species diverse, with almost twice as many species recorded when compared to other survey areas. 125 species were recorded, including 23 Local and four Nationally Scarce. 52 species (23% of all 223 species recorded) were not recorded elsewhere during this survey.

The 'Meadow' and 'Tree' survey areas were similar to each other. Each supported about half the number of species found in the 'Marsh' with 64 and 66 species respectively, and just four Local species each. However, four (from 'Meadow') and three (from 'Trees') Nationally Scarce species were recorded also at these sites. Respectively 11% and 14% of recorded species were not collected elsewhere.

The 'Stream' survey area was the least productive. 45 species were recorded, including two Local and one Nationally Scarce. Only 4 species (2%) were not collected elsewhere.

KEY INVERTEBRATES

***Trichoniscoides albidus* (Isopoda: Trichoniscidae), Rough Pygmy Woodlouse, Nationally Scarce (Nb)**

In Oxfordshire this woodlouse is a characteristic inhabitant of the Thames Valley, but is elusive and probably under-recorded (Gregory & Campbell, 1995). It inhabits damp friable soil in a variety of habitats, including wet woodland, alluvial meadows and coastal sites. This species depends upon the maintenance of damp (but not water-logged) friable soils irrespective of overlying vegetation (Gregory, 2009).

A singleton female was hand sorted from loose soil beneath dead wood on the bank of the stream at the north of the site ('Stream' survey area) on the 25th June.

***Brachychaeteuma melanops* (Diplopoda: Brachychaeteumatidae), a Silk Millipede, Nationally Scarce (Nb)**

This millipede is another characteristic species of the Thames Valley, but also elusive and probably under-recorded. In Oxfordshire records are typically from rather disturbed sites such as riverside meadows prone to flooding or churchyards, usually on clay (Gregory, 1995). Adults are found in the winter months under large stones or dead wood. This southern species is at the edge of its British range in Oxfordshire. At Mill Meadows it probably requires no specific conservation measures.

Two immatures were collected from beneath dead wood near the stream margin adjacent to the marshy area of Marsh Meadow ('Marsh' survey area) on the 2nd September.

***Philodromus albidus* (Araneae: Philodromidae), Pallid Foliage Spider, Nationally Scarce (Nb)**

This spider occurs in southern England, and becomes locally common to the east. It is typically found on the lower branches of trees at the edges of clearings in deciduous woodland, but has also been recorded from old hedgerows and green-lanes. Conservation of this species requires the retention of woodland edge through rotational management or periodic scrub control (Harvey, *et al*, 2002).

Two females were swept from planted oak saplings growing within the unmown area of Marsh Meadow ('Trees' survey area) on 25th June.

***Opilio canestrinii* (Opiliones: Phalangidae) a Harvestman, First record for Oxfordshire**

Opilio canestrinii probably originated from Italy, and began to colonise central Europe during the 1970s. It was first discovered in Britain in 1999 and has become established in parts of eastern Britain. Currently, it is undergoing a rapid expansion in range across England (Paul Richards, pers. comm.). Of the 46 records (within 23 hectads) held by the Opiliones Recording Scheme (<http://srs.britishspiders.org.uk>), most are from gardens and parks.

A singleton female was swept from a planted oak sapling growing within the unmown area of Marsh Meadow ('Trees' survey area) on 2nd September (identity confirmed Paul Richards).

Metrioptera roeselii* (Orthoptera: Tettigoniidae) Roesel's Bush-cricket, Nationally Scarce (Nb)

Roesel's Bush-cricket is usually found among tall grassy vegetation, both in moist areas or in drier areas. Formerly it had a restricted distribution, mostly around the Thames estuary, but has been spreading westwards since the 1970s (Haes & Harding, 1997). It is now common across much of Oxfordshire (pers. obsv.). The requirements of this species do not need to be taken into account by the site management plan.

Immatures were swept on 25th June, and adults on 2nd September, from rough grassy areas of the triangular meadow ('Meadow' survey area) and the marshy area of Marsh Meadow ('Marsh').

Conocephalus fuscus* (Orthoptera: Conocephalidae) Long-winged Conehead, Nationally Scarce (Na)

Previously known as *C. discolor*, this bush-cricket was once rare and restricted to southern coastal areas. Since the 1990s it has rapidly spread northwards (Haes & Harding, 1997) and has become widespread across Oxfordshire. It is found in long grassland, both wet and dry. The requirements of this species do not need to be taken into account by the site management plan.

Immatures were swept on 25th June, and adults on 2nd September, from rough grassy areas of the triangular meadow ('Meadow' survey area) and the marshy area of Marsh Meadow ('Marsh').

* This is the official GB threat status for Roesel's Bush-cricket and Long-wing Conehead given in Haes & Harding (1997). In light of their recent rapid expansion across England, both ought to be down-graded to Local status.

***Forficula lesnei* (Dermaptera: Forficulidae) Lesne's Earwig, Nationally Scarce (Nb)**

Lesne's Earwig is very similar to the Common Earwig *Forficula auricularia* but lacks functional wings and is rather smaller and paler. Most known sites, including those in Oxfordshire, are open scrub on calcareous soils. However, its occurrence is unpredictable, and it appears to be restricted to particularly favourable locations (Haes & Harding 1997). Its absence from many areas suggests that very subtle habitat and environmental conditions, no doubt readily disturbed, are essential for its survival. Conservation of this scarce earwig requires the retention of patches of native scrub (e.g. hawthorn, blackthorn) within rough vegetation.

A singleton male was swept on 2nd September from rough grass bordering the triangular meadow ('Meadow' survey area).

***Sesia apiformis* (Lepidoptera: Sesiidae) Hornet Clearwing Moth, Nationally Scarce (Nb)**

This large moth, which mimics a Hornet *Vespa crabro*, is widespread in southern and eastern England. The larvae bore into the base of various Poplar *Populus* species just above ground level,

favouring trees where sparse vegetation allows sun to reach the base of the trunk. Larvae reach maturity after several years and after pupation leave the host tree via a characteristic 'exit hole' (Waring & Townsend, 2003). Often an empty pupal case may be found nearby. Conservation of this moth relies on the presence of mature Poplar trees grown in relatively open vegetation.

Exit holes of unknown age were seen on 25th June in roots of mature Poplars in the tree line west of the 'Marsh' ('Trees' survey area). On 2nd September exit holes were observed at the base of Poplar trees growing on the mown area of Mill Meadow (outside the HWG 'conservation area').

***Hippodamia variegata* (Coleoptera: Coccinellidae) Adonis' Ladybird, Nationally Scarce (Nb)**

This small ladybird has a characteristic arrangement of black spots on its red wing-cases and white rim to the black pronotum. The species feeds on aphids, typically on weedy plants of disturbed or cultivated ground. It is widespread but scarce in England and Wales with most records in the south-east or on the coast (Roy, *et al.*, 2011). However, it appears to be getting more frequent in recent years. Conservation of this scarce ladybird requires the retention of patches of coarse weedy vegetation.

At Mill Meadows a singleton was swept on 2nd September from rough grass bordering the triangular meadow ('Meadow' survey area).

***Xanthandrus comtus* (Diptera: Syrphidae) a hoverfly, Nationally Scarce (Nb)**

This distinctive hoverfly has a patchy distribution across England and Wales, but seems to have become relatively more frequent in recent years (Ball & Morris, 2000). It frequents woodland edge and scrub, where the adult is often found resting on flowers or vegetation. The larvae are predatory on the gregarious micro-moth caterpillars. Conservation of this scarce hoverfly requires the retention of woodland edge through rotational management or periodic scrub control.

A singleton was hand-netted on 2nd September from flowers growing in the marsh at the northern end of Marsh Meadow ('Marsh' survey area).

***Lasius brunneus* (Hymenoptera: Formicidae), Brown Tree Ant, Nationally Scarce (Na)**

This ant is very similar in appearance to the common Black Ant *Lasius niger*. Unlike its congener, *L. brunneus* has a very localised distribution across central southern Britain (Edwards, 1998). It is not uncommon in southern Oxfordshire (pers. obsv.). Typically its nests are deep inside the trunks of mature trees, and it mainly forages from 'farmed' tree aphids in the canopy (though live invertebrates are also taken). Typically several colonies of this elusive ant will occur on several trees within any given area. Conservation of this scarce ant requires the retention of mature and over-mature trees, for nesting, which also support colonies of suitable tree aphids.

A colony was found inhabiting a mature (partially burnt) Poplar tree in the tree line south of the 'marshy' area in Marsh Meadow ('Trees' survey area) on 25th June.

DISCUSSION

Considering the relatively small size of the 'conservation areas' of Mill Meadows, the discovery of ten Nationally Scarce species from 223 species (4 % of the total) from just two site visits suggests a site of moderate conservation interest for invertebrates.

It is quite apparent that the marshy area and adjacent grassland at the north-western tip of Marsh Meadows ('Marsh' survey area) supports the greatest diversity of terrestrial invertebrates and by

far the greatest diversity of the less-common species (Table 1). Almost a quarter (52) of all 223 species recorded during this survey were found ONLY here (and not in other survey areas).

None-the-less, it is apparent that both the triangular 'Meadow' and linear 'Trees' survey areas are important in their own right. A number of Nationally Scarce species (and some more common ones too) were only found in these two areas.

Although little of note was recorded from the 'Stream' survey area it does provide a complementary extension to the remainder of the site. This area had been partially cleared the week before surveys were undertaken. This may partially account for the paucity of records. The invertebrate interest should improve as plants recolonize.

Marsh and damp grassland fauna

There is a typical Thameside fauna which includes Local species such as Rathke's Woodlouse *Trachelipus rathkii*, Lesser Marsh Grasshopper *Chorthippus albomarginatus* and Water Ladybird *Anisosticta 19-punctata*. The Scarce/Nb Woodlouse *Trichoniscoides albidus* and Millipede *Brachychaeteuma melanops* also fall into this category.

Other Local species are typical of wetland habitats, such as Leaf Beetle *Galerucella californiensis* (associated with Purple Loosestrife) and Hoverfly *Platycheirus rosarum*.

Another group of Local species tend to favour open grassland on sandy soils. This may be due to underlying deposits of river alluvium? These include Orb-web Spider *Mangora acalypha*, Welsh Chafer *Hoplia philanthus*, Leaf Beetle *Galeruca tanaceti* and Tachinid Fly *Nowickia ferox*.

The flushed area about half way along the 'Stream' survey area could support species of conservation interest. Small flushed areas such as this, even when dominated by coarse herbaceous vegetation, can support a rare and specialised invertebrate fauna, including Soldierflies (Diptera: Stratiomyidae).

Coarse vegetation and woodland edge fauna

Coarse vegetation and scrub associated with the triangular 'Meadow' survey area support the Scarce/Nb Adonis' Ladybird and Lesne's Earwig (these could occur elsewhere on site).

Small planted trees, such as those along the edges of the main part of Marsh Meadow, and overhanging mature trees, provide a 'woodland edge' habitat for the Scarce/Nb Pallid Foliage Spider. Local species such as Mesh-webbed Spider *Lathys humilis* and the Hoverflies *Chrysotoxum bicinctum*, *Ch. festivum* (both associated with ants) and Scarce/Nb *Xanthandrus comtus* are also typical of scrubby grassland/woodland edge.

Mature trees and deadwood fauna

Two Scarce species, Brown Tree Ant and Hornet Clearwing (latter on Poplars) require mature trees, such as those growing in the 'Trees' survey area. The Local Lesser Stag Beetle *Dorcus parallelipedus* requires dead wood lying on the ground.

RECOMENDATIONS

Marsh and damp grassland

The tall herb marshy areas should be retained. They should not be cut regularly. However, some form of cyclic management, perhaps cutting a quarter every year, may be required to prevent domination by coarse vegetation.

It is important that some areas of shorter grassland are retained.

Any damp flushed areas, or areas with impeded drainage, should be retained. If nature conservation is the primary interest, such areas should not be drained under any circumstances.

Coarse herbaceous vegetation and scrub

Coarse herbaceous vegetation and scrub growing around the edges of the meadows (especially the triangular meadow) should be retained. They should not be cut regularly. It may be necessary to manage this habitat over a four year rotation, to prevent domination by coarse vegetation, and succession to dense shady scrub (of limited conservation interest).

Trees

Although not normally considered to be an essential component of a riverside meadow the mature trees, especially the large Poplars, should be retained (where safe to do so). Dead wood, both fallen and deposited by flood water, should be retained on site.

Further survey work,

Additional surveys in different seasons could further enhance the understanding of the site fauna.

ACKNOWLEDGEMENTS

I am grateful to Sally Rankin (HWG) for providing information about, and access to, this interesting site. I thank Ivan Wright (Aculeate Hymenoptera Recorder for Oxfordshire) for identifying specimens of solitary bees, wasps and sawflies. Darren Mann (Hope Department, OUM) willingly offered informed discussion on the identity of various beetle specimens. Paul Richards confirmed the identity of the harvestman *Opilio canestrinii*. Robin Buxton (ONCF) kindly allowed access to his personal entomology library.

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APPENDIX I: INVERTEBRATE SPECIES RECORDED FROM MILL MEADOWS, HENELY, IN 2013 BY STEVE GREGORY

Identified by Steve Gregory, except * = identified by Ivan Wright (Shotover Wildlife).

Taxa 1	Family	Scientific name	Common name	GB status	'Marsh'		'Meadow'		'Trees'		'Stream'	
					25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep
Mollusca	Agriolimacidae	<i>Deroceras laeve</i>	Marsh Slug	Common	#							
Mollusca	Agriolimacidae	<i>Deroceras reticulatum</i>	Grey Field Slug	Common					#		#	
Mollusca	Arionidae	<i>Arion ater</i>	Great Black Slug	Common					#		#	
Mollusca	Arionidae	<i>Arion hortensis</i> agg.	a garden slug	Common					#		#	
Mollusca	Arionidae	<i>Arion intermedius</i>	Hedgehog Slug	Common			#					
Mollusca	Cochlicopidae	<i>Cochlicopa lubrica</i>	Slippery Moss Snail	Common					#			
Mollusca	Discidae	<i>Discus rotundatus</i>	Rounded Snail	Common					#		#	
Mollusca	Helicidae	<i>Arianta arbustorum</i>	Copse Snail	Common			#				#	
Mollusca	Helicidae	<i>Cepaea hortensis</i>	White Lipped Snail	Common			#	#			#	#
Mollusca	Helicidae	<i>Cornu aspersum</i>	Garden Snail	Common				#	#			#
Mollusca	Helicidae	<i>Monacha cantiana</i>	Kentish snail	Common			#					
Mollusca	Helicidae	<i>Trochulus hispida</i>	Hairy Snail	Common	#							
Mollusca	Helicidae	<i>Trochulus striolatus</i>	Strawberry Snail	Common					#			
Mollusca	Limacidae	<i>Limacus flavus</i>	Yellow Slug	Common					#			
Mollusca	Limacidae	<i>Limax maximus</i>	Leopard Slug	Common					#			
Mollusca	Milacidae	<i>Tandonia budapestensis</i>	Budepest Slug	Common					#		#	
Mollusca	Pupillidae	<i>Lauria cylindracea</i>	Chrysalis Snail	Common					#			
Mollusca	Succineidae	<i>Succinea putris</i>	Amber Snail	Common	#						#	
Mollusca	Vallonidae	<i>Vallonia pulchella</i> seg.	Beautiful Grass Snail	Common								
Mollusca	Zonitidae	<i>Oxychilus navarricus</i>	Slightly Garlic Snail	Common					#			
Mollusca	Zonitidae	<i>Vitrea crystallina</i>	Crystal Snail	Common								
Chilopoda	Cryptopidae	<i>Cryptops hortensis</i>	a cryptid centipede	Common					#			
Chilopoda	Geophilidae	<i>Geophilus flavus</i>	an earth centipede	Common					#			
Chilopoda	Geophilidae	<i>Geophilus truncorum</i>	an earth centipede	Common					#		#	
Chilopoda	Henicopidae	<i>Lamyctes emarginatus</i>	a stone centipede	Common			#					
Chilopoda	Himantariidae	<i>Stigmatogaster subterranea</i>	an earth centipede	Common					#			
Chilopoda	Lithobiidae	<i>Lithobius forficatus</i>	a stone centipede	Common					#		#	
Chilopoda	Lithobiidae	<i>Lithobius melanops</i>	a stone centipede	Common					#		#	
Chilopoda	Lithobiidae	<i>Lithobius microps</i>	a stone centipede	Common					#			
Diplopoda	Blaniulidae	<i>Blaniulus guttulatus</i>	Spotted Snake Millipede	Common					#			

Taxa 1	Family	Scientific name	Common name	GB status	'Marsh'		'Meadow'		'Trees'		'Stream'	
					25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep
Diplopoda	Blaniulidae	Proteroiulus fuscus	Snake Millipede	Common					#		#	
Diplopoda	Brachychaeteumatidae	Brachychaeteuma melanops	a silk millipede	Scarce/Nb		#						
Diplopoda	Craspedosomatidae	Nanogona polydesmoides	False Flat-back Millipede	Common			#		#			
Diplopoda	Julidae	Brachyiulus pusillus	a julid snake millipede	Common								
Diplopoda	Julidae	Cylindroiulus britannicus	a julid snake millipede	Common	#				#			
Diplopoda	Julidae	Cylindroiulus caeruleocinctus	a julid snake millipede	Local			#					
Diplopoda	Julidae	Cylindroiulus punctatus	Blunt-tailed Millipede	Common	#				#		#	
Diplopoda	Julidae	Ophiulus pilosus	a julid snake millipede	Common	#		#				#	#
Diplopoda	Julidae	Tachypodoiulus niger	White-legged Millipede	Common					#		#	
Diplopoda	Polydesmidae	Brachydesmus superus	a flat-back millipede	Common					#		#	
Diplopoda	Polydesmidae	Polydesmus angustus	a flat-back millipede	Common			#					
Diplopoda	Polydesmidae	Polydesmus coriaceus	a flat-back millipede	Common	#				#		#	
Diplopoda	Polydesmidae	Polydesmus inconstans	a flat-back millipede	Common	#							
Isopoda	Armadillidiidae	Armadillidium vulgare	Common Pill-woodlouse	Common			#		#			
Isopoda	Oniscidae	Oniscus asellus	Shiny Woodlouse	Common					#		#	
Isopoda	Platyarthridae	Platyarthrus hoffmannseggii	Ant Woodlouse	Common			#					
Isopoda	Porcellionidae	Porcellio scaber	Rough Woodlouse	Common					#		#	
Isopoda	Trachelipodidae	Trachelipus rathkii	Rathke's Woodlouse	Local	#							
Isopoda	Trichoniscidae	Haplophthalmus mengii s.s.	Menge's Ridgeback	Local	#							
Isopoda	Trichoniscidae	Trichoniscoides albidus	Rough Pygmy Woodlouse	Scarce/Nb								#
Isopoda	Trichoniscidae	Trichoniscus pusillus	Common Pygmy Woodlouse	Common					#		#	
Opiliones	Leiobunidae	Dicranopalpus ramosus	a harvestman	Local						#		#
Opiliones	Leiobunidae	Leiobunum rotundum	a harvestman	Common						#		#
Opiliones	Phalangiidae	Opilio canestinii	a harvestman	Common						#		
Opiliones	Phalangiidae	Paroligolophus agrestis	a harvestman	Common		#				#		#
Opiliones	Phalangiidae	Platybunus triangularis	a harvestman	Common					#			
Araneae	Amaurobiidae	Amaurobius similis	a lace-webbed spider	Common					#		#	
Araneae	Araneidae	Araneus diadematus	Garden Orb-web Spider	Common		#		#				#
Araneae	Araneidae	Araneus quadratus	an orb-weaver spider	Common		#						
Araneae	Araneidae	Araniella cucurbitina	an orb-weaver spider	Common					#			
Araneae	Araneidae	Larinioides cornutus	an orb-weaver spider	Common	#							
Araneae	Araneidae	Mangora acalypha	an orb-weaver spider	Local	#		#					
Araneae	Araneidae	Nuctenea umbratica	an orb-weaver spider	Common						#		

Taxa 1	Family	Scientific name	Common name	GB status	'Marsh'		'Meadow'		'Trees'		'Stream'	
					25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep
Araneae	Araneidae	Zygiella x-notata	an orb-weaver spider	Common								#
Araneae	Clubionidae	Clubiona lutescens	a foliage spider	Common	#							
Araneae	Clubionidae	Clubiona reclusa	a foliage spider	Common	#							
Araneae	Dictynidae	Lathys humilis	a mesh webbed spider	Local					#			
Araneae	Dysderidae	Harpactea hombergi	a woodlouse spider	Local					#			
Araneae	Linyphiidae	Bathypantes gracilis	a money spider	Common					#			
Araneae	Linyphiidae	Erigone atra	a money spider	Common	#	#						
Araneae	Linyphiidae	Erigone dentipalpis	a money spider	Common					#			
Araneae	Linyphiidae	Hypomma bituberculatum	a money spider	Common	#						#	
Araneae	Linyphiidae	Lepthyphantes tenuis	a money spider	Common			#	#				#
Araneae	Linyphiidae	Linyphia triangularis	a money spider	Common		#		#				#
Araneae	Linyphiidae	Microlinyphia pusillus	a money spider	Common	#		#					
Araneae	Linyphiidae	Porrhomma pygmaeum	a money spider	Common	#							
Araneae	Lycosidae	Alopecosa pulverulenta	a wolf spider	Common			#					
Araneae	Lycosidae	Pardosa amentata	a wolf spider	Common	#							
Araneae	Lycosidae	Pardosa prativaga	a wolf spider	Common	#		#					
Araneae	Lycosidae	Pardosa pullata	a wolf spider	Common			#					
Araneae	Lycosidae	Trochosa ruricola	a wolf spider	Common			#					
Araneae	Philodromidae	Philodromus albidus	a running crab spider	Scarce/Nb					#			
Araneae	Philodromidae	Philodromus aureolus	a running crab spider	Common					#			
Araneae	Pisauridae	Pisaura mirabilis	a money spider	Common	#		#	#				
Araneae	Tetragnathidae	Metellina mengei	a long-jawed spider	Common			#					
Araneae	Tetragnathidae	Metellina segmentata s.s.	a long-jawed spider	Common		#						#
Araneae	Tetragnathidae	Pachygnatha clercki	a long-jawed spider	Common	#							
Araneae	Tetragnathidae	Pachygnatha degeeri	a long-jawed spider	Common			#					
Araneae	Tetragnathidae	Tetragnatha extensa	a long-jawed spider	Common	#							
Araneae	Tetragnathidae	Tetragnatha montana	a long-jawed spider	Local			#				#	
Araneae	Theridiidae	Enoplognatha ovata	a comb-footed spider	Common	#	#			#			#
Araneae	Theridiidae	Paidiscura pallens	a comb-footed spider	Common					#			
Araneae	Theridiidae	Theridion sisypium	a comb-footed spider	Common			#					
Araneae	Theridiidae	Theridion varians	a comb-footed spider	Common					#			
Araneae	Thomisidae	Misumena vatia	a crab spider	Common	#			#				
Araneae	Thomisidae	Xysticus cristatus	a crab spider	Common	#							

Taxa 1	Family	Scientific name	Common name	GB status	'Marsh'		'Meadow'		'Trees'		'Stream'	
					25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep
Odonata	Aeshnidae	Aeshna cyanea	Southern Hawker	Common		#						
Odonata	Aeshnidae	Aeshna grandis	Brown Hawker	Common		#						
Odonata	Agriidae	Calopteryx splendens	Banded Demoiselle	Local	#							
Odonata	Coenagriidae	Enallagma cyathigerum	Common Blue Damselfly	Common	#							
Odonata	Libellulidae	Sympetrum striolatum	Common Darter	Common		#						
Orthoptera	Acrididae	Chorthippus albomarginatus	Lesser Marsh Grasshopper	Local		#						
Orthoptera	Acrididae	Chorthippus parallelus	Meadow Grasshopper	Common	#	#	#	#				
Orthoptera	Conocephalidae	Conocephalus fuscus	Long-winged Conehead	Scarce/Na	#	#	#	#				
Orthoptera	Phaneropteridae	Leptophyes punctatissima	Speckled Bush Cricket	Common	#		#					
Orthoptera	Tettigoniidae	Metrioptera roeselii	Roesel's Bush Cricket	Scarce/Nb	#	#	#	#				
Orthoptera	Tettigoniidae	Pholidoptera griseoaptera	Dark Bush Cricket	Common	#		#					
Dermaptera	Forficulidae	Forficula auricularia	Common Earwig	Common			#		#			
Dermaptera	Forficulidae	Forficula lesnei	Lesne's Earwig	Scarce/Nb				#				
Hemiptera	Aphrophoridae	Aphrophora alni	a froghopper	Common	#							
Hemiptera	Aphrophoridae	Philaenus spumarius	Cuckoo-spit Insect	Common		#	#	#				#
Hemiptera	Coreidae	Coreus marginatus	Dock Bug	Common	#	#		#				
Hemiptera	Lygaeidae	Heterogaster urticae	Nettle Groundbug	Common				#				
Hemiptera	Lygaeidae	Kleidocerys resedae	a ground bug	Common								#
Hemiptera	Miridae	Capsus ater	a plantbug or grassbug	Common			#					
Hemiptera	Miridae	Deraeocoris lutescens	a plantbug or grassbug	Common						#		#
Hemiptera	Miridae	Deraeocoris ruber	a plantbug or grassbug	Common		#						
Hemiptera	Miridae	Leptopterna dolabrata	a plantbug or grassbug	Common	#		#					
Hemiptera	Miridae	Liocoris tripustulatus	a plantbug or grassbug	Common		#	#	#				#
Hemiptera	Miridae	Lygocoris pabulinus	Common Green Capsid	Common			#					
Hemiptera	Miridae	Stenodema laevigatum	a plantbug or grassbug	Common	#	#	#					#
Hemiptera	Miridae	Stenotus binotatus	Timothy Grassbug	Common	#							
Hemiptera	Nabidae	Nabis limbatus	Marsh Damselbug	Common		#						
Hemiptera	Pentatomidae	Eysarcoris fabricii	a shield bug	Common					#			
Hemiptera	Pentatomidae	Palomena prasina	a shield bug	Common			#					
Hemiptera	Pentatomidae	Pentatoma rufipes	Forest Bug	Common					#			
Neuroptera	Chrysopidae	Chrysopa perla	a green lacewing	Common					#			
Coleoptera	Cantharidae	Cantharis pallida	a soldier beetle	Local	#							
Coleoptera	Cantharidae	Cantharis rustica	a soldier beetle	Common	#							

Taxa 1	Family	Scientific name	Common name	GB status	'Marsh'		'Meadow'		'Trees'		'Stream'	
					25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep
Coleoptera	Cantharidae	Malthodes minimus	a soldier beetle	Common					#			
Coleoptera	Cantharidae	Rhagonycha fulva	a soldier beetle	Common	#						#	
Coleoptera	Carabidae	Amara apricaria	a ground beetle	Common				#				
Coleoptera	Carabidae	Demetrias atricapillus	a ground beetle	Common		#						
Coleoptera	Carabidae	Leistus ferrugineus	a ground beetle	Common	#							
Coleoptera	Carabidae	Nebria brevicollis	a ground beetle	Common					#			
Coleoptera	Carabidae	Notiophilus biguttatus	a ground beetle	Common	#							
Coleoptera	Carabidae	Pterostichus madidus	a ground beetle	Common					#			
Coleoptera	Chrysomelidae	Chalcoides aurata	Willow Flea Beetle	Common					#			
Coleoptera	Chrysomelidae	Galeruca tanaceti	a leaf beetle	Local		#						
Coleoptera	Chrysomelidae	Galerucella calmariensis	a leaf beetle	Local		#						
Coleoptera	Coccinellidae	Anisosticta 19-punctata	Water Ladybird	Local		#						
Coleoptera	Coccinellidae	Coccinella septempunctata	Seven-spot Ladybird	Common	#			#				
Coleoptera	Coccinellidae	Harmonia axyridis	Harlequin Ladybird	unknown								#
Coleoptera	Coccinellidae	Hippodamia variegata	Adonis' Ladybird	Scarce/Nb				#				
Coleoptera	Coccinellidae	Micrapsis 16-punctata	16-spot Ladybird - local	Local	#			#				
Coleoptera	Coccinellidae	Propylea 14-punctata	14-spot Ladybird	Common				#				
Coleoptera	Curculionidae	Cionus scrophulariae	Figwort Weevil	Common	#							
Coleoptera	Curculionidae	Mecinus labilis	a weevil	Local		#						
Coleoptera	Curculionidae	Phyllobius pomaceus	a weevil	Common	#		#					
Coleoptera	Lucanidae	Dorcus parallelipedus	Lesser Stag Beetle	Local						#		
Coleoptera	Melyridae	Malachius bipustulatus	Malachite Beetle	Common	#		#					
Coleoptera	Oedemeridae	Oedemera nobilis	a thick-legged flower beetle	Common	#		#					
Coleoptera	Pyrochroidae	Pyrochroa serraticornis	Common Cardinal Beetle	Common					#			
Coleoptera	Scarabaeidae	Hoplia philanthus	Welsh Chafer	Local	#							
Lepidoptera	Gracillariidae	Cameraria ohridella	Horse-chestnut Leaf-miner	unknown							#	
Lepidoptera	Lycaenidae	Polyommatus icarus	Common Blue	Common		#						
Lepidoptera	Pieridae	Gonepteryx rhamni	Brimstone	Common		#						
Lepidoptera	Pieridae	Pieris napi	Green-veined White	Common		#						
Lepidoptera	Sesiidae	Sesia apiformis	Hornet Clearwing Moth	Scarce/Nb					#	#		
Lepidoptera	Sphingidae	Deilephila elpenor	Elephant Hawk Moth	Common		#						
Mecoptera	Panorpidae	Panorpa communis	a scorpion fly	Common	#		#					
Diptera	Bibionidae	Dilophus febrilis	Fever Fly	Common		#				#		

Taxa 1	Family	Scientific name	Common name	GB status	'Marsh'		'Meadow'		'Trees'		'Stream'	
					25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep
Diptera	Conopidae	Conops flavipes	a conopid fly	Common		#						
Diptera	Conopidae	Physocephala rufipes	a conopid fly	Local		#						
Diptera	Conopidae	Sicus ferrugineus	a conopid fly	Local	#							
Diptera	Rhagionidae	Chrysopilus cristatus	a snipe fly	Common	#							
Diptera	Stratiomyidae	Beris vallata	Orange Legionnaire	Common	#							
Diptera	Stratiomyidae	Chloromyia formosa	Broad Centurion	Common	#		#					
Diptera	Stratiomyidae	Praomyia leachii	Yellow-legged Black	Common				#				
Diptera	Syrphidae	Cheilosia albitarsis	a hoverfly	Common	#							
Diptera	Syrphidae	Cheilosia pagana	a hoverfly	Common	#							
Diptera	Syrphidae	Cheilosia vernalis	a hoverfly	Common	#							
Diptera	Syrphidae	Chrysotoxum bicinctum	a hoverfly	Local	#							
Diptera	Syrphidae	Chrysotoxum festivum	a hoverfly	Local								
Diptera	Syrphidae	Episyrphus balteatus	a hoverfly	Common	#							
Diptera	Syrphidae	Eristalis arbustorum	a hoverfly	Common		#						
Diptera	Syrphidae	Eristalis interruptus	a hoverfly	Common		#						
Diptera	Syrphidae	Eristalis intricarius	a hoverfly	Common		#						
Diptera	Syrphidae	Eristalis pertinax	a hoverfly	Common	#							
Diptera	Syrphidae	Eristalis tenax	a hoverfly	Common		#						#
Diptera	Syrphidae	Helophilus pendulus	a hoverfly	Common		#						#
Diptera	Syrphidae	Melangyna labiatarum	a hoverfly	Common		#						
Diptera	Syrphidae	Melanogaster hirtella	a hoverfly	Common	#							
Diptera	Syrphidae	Melanostoma scalare	a hoverfly	Common	#		#					
Diptera	Syrphidae	Myathropa florea	a hoverfly	Common		#						#
Diptera	Syrphidae	Platycheirus albimanus	a hoverfly	Common	#			#				
Diptera	Syrphidae	Platycheirus angustatus	a hoverfly	Common	#							
Diptera	Syrphidae	Platycheirus granditarsus	a hoverfly	Common		#						
Diptera	Syrphidae	Platycheirus rosarum	a hoverfly	Local	#	#						
Diptera	Syrphidae	Syritta pipiens	a hoverfly	Common	#							
Diptera	Syrphidae	Xanthandrus comtus	a hoverfly	Scarce/Nb		#						
Diptera	Tabanidae	Haematopota pluvialis	Common Cleg	Common	#							
Diptera	Tachinidae	Eriothrix rufomaculata	a parasitic fly	Common		#						
Diptera	Tachinidae	Nowickia ferox	a parasitic fly	unknown		#						
Diptera	Tipulidae	Tipula oleracea	a crane fly	Common	#		#					

Taxa 1	Family	Scientific name	Common name	GB status	'Marsh'		'Meadow'		'Trees'		'Stream'	
					25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep	25 Jun	02 Sep
Diptera	Tipulidae	Tipula paludosa	a cranefly	Common				#				
Hymenoptera	Apidae	* Andrena chrysoseles	a solitary bee	Local	#							
Hymenoptera	Apidae	* Hylaeus communis	a solitary bee	Local	#							
Hymenoptera	Apidae	* Hylaeus confusus	a solitary bee	Local	#							
Hymenoptera	Apidae	* Lasioglossum calceatum	Slender Mining Bee	Common		#						
Hymenoptera	Apidae	* Lasioglossum leucozonium	a solitary bee	Common		#						
Hymenoptera	Apidae	* Osmia leaiana	a solitary bee	Common	#							
Hymenoptera	Apidae	* Sphecodes ephippius	a solitary bee	Common	#							
Hymenoptera	Apidae	Bombus hortorum	Small Garden Bumble Bee	Common	#							
Hymenoptera	Apidae	Bombus hypnorum	Tree Bumblebee	Local	#	#						
Hymenoptera	Apidae	Bombus lapidarius	Large Red-tailed Bumble Bee	Common			#					
Hymenoptera	Apidae	Bombus pascuorum	Common Carder Bee	Common	#	#	#					#
Hymenoptera	Apidae	Bombus pratorum	Early Bumble Bee	Common	#							
Hymenoptera	Apidae	Bombus terrestris	Buff-tailed Bumble Bee	Common		#						
Hymenoptera	Crabronidae	* Ectemnius continuus	a solitary wasp	Common		#						
Hymenoptera	Cynipidae	Andricus quercuscalicis	Knopper Gall	unknown						#		
Hymenoptera	Formicidae	Lasius brunneus	Brown Ant	Scarce/Na					#			
Hymenoptera	Formicidae	Lasius flavus	Yellow Meadow Ant	Common	#		#					
Hymenoptera	Formicidae	Lasius niger	Small Black Ant	Common	#		#					
Hymenoptera	Symphyta	* Athalia bicolor	a sawfly	unknown			#					
Hymenoptera	Symphyta	* Athalia rosae	a sawfly	Local		#						
Hymenoptera	Symphyta	* Cephus pygmeus	a sawfly	unknown			#					
Hymenoptera	Symphyta	* Tenthredo amoena	a sawfly	unknown	#							
Hymenoptera	Symphyta	* Tenthredo mesomelas	a sawfly	Common	#		#					
Hymenoptera	Symphyta	* Tenthredo nassata	a sawfly	Common	#							
Hymenoptera	Vespinae	Vespa crabro	The Hornet	Local		#						
Hymenoptera	Vespinae	Vespula vulgaris	Common Wasp	Common		#		#				
		Total 223 species	number species per survey:		83	54	50	22	56	11	24	23