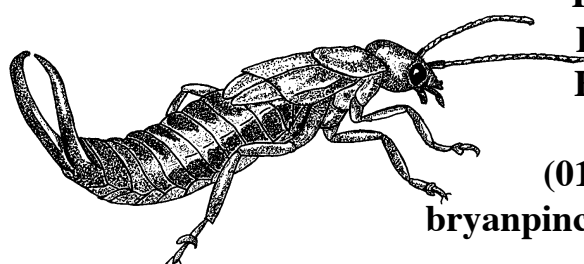


Ballard Meadow

Insect Survey

**Survey and Report by
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**Ballard Meadow,
New Milton, Hampshire**

Insect Survey 2021

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1.1 Summary

This report summarises the results of survey work to record the terrestrial insect species present in Ballard Meadow and adjacent woodland in New Milton, Hampshire.

Six visits were made, one each in April to September 2021 to record terrestrial insects in a number of orders.

Survey involved sweep-netting the available vegetation and some direct searching for species at flowers across the whole site. Insect groups covered by the survey are presented in Section 1.3.

Tables showing the species recorded are presented in Section 1.4.

Species were identified in the field wherever possible, but due to identification difficulties with some species, some were retained and identified with the aid of a microscope. Reference material has been retained in the collection of the surveyor, surplus material will be donated to the collections of the National Biodiversity Data Centre, Waterford, Eire and/or Portsmouth City Museum Service.

Notes on the Red Data Book and Nationally Scarce species are presented in Section 1.5.

An overview of the results is presented in Section 1.6.

Appendices show all species recorded in 2020 and 2021 combined.

This survey was commissioned and funded by the Friends of Ballard Water Meadow and New Milton Town Council.

1.2 Introduction

Ballard Water Meadow and Woodland is a 2.73 hectare grassland and 1.52 hectare woodland located in New Milton, Hampshire. Grid Reference SZ241956.

Both the meadow and woodland are afforded SINC status and are leased by New Milton Town Council for nature conservation and public recreation. The meadow is an example of relic unimproved New Forest grassland, while the woodland is considered to be ancient semi-natural woodland (Lord, 2020).

The major habitats available are the unimproved grassland of meadow, which in places is dry and others wet at certain times of the year. A seasonal stream runs along the eastern border of the site and seasonal ditches divide the site. The woodland strip on the west of the site comprises mainly Oak (*Quercus rober*) with deciduous and evergreen scrub understory. A limited amount of ground flora is present in the woodland. On the whole, the meadow and woodland are on gently sloping ground running from north-west to south-east.

Survey of the terrestrial insects was first undertaken in 2020 (Pinchen) a regular butterfly transect is also walked.

Six visits were made to record the terrestrial insects. The data collected forms the basis of this report. Survey visits were undertaken on 23rd April, 17th May, 16th June, 16th July, 13th August and 13th September 2021.

Survey involved sweep-netting the available vegetation and some direct searching at flowers with a standard sweep/insect net.

One Red Data Book and four Nationally Scarce species were recorded.

Weather conditions throughout the survey period were rather mixed. The spring of 2020 had been warm and dry with higher than average temperatures between March and June, a cool July followed with higher than average temperatures experienced in August and a warm September. Winter 2020/21 was largely mild and wet and the one of the mildest and wettest on record. Prolonged periods of rain and much flooding, this often persisting for many weeks, will have impacted on insect numbers recorded during this survey period (2021).

The summer of 2021 (the survey period) also experienced another period of mixed weather. April saw a frost recorded on each day, was largely dry but with the temperature rarely exceeding 12°C, while May was largely mixed throughout with temperatures fluctuating between the low and high teens Celsius but often dropping overnight to near freezing, and punctuated with periods of wind and rain. June was equally mixed with long periods of high temperatures, rain and wind. July saw temperatures reach the high twenties and low thirties on a number of days, but dropped to cooler conditions into August. September saw a rise in temperatures early in the month, eventually giving way to strong cooling winds and periods of rain. These mixed conditions will have had an impact on insect numbers, causing those species that had struggled to survive the previous mixed summer to complete their life cycles during another period of mixed weather. Daily frosts in April impacted species emerging from hibernation and those which start nesting early in the season (e.g. bumblebees, social wasps), and is possibly the reason for such small species lists in April and May. Similarly, the hot and dry conditions in July seemed to accelerate the life cycles of many species which usually persist into September, but were absent by the time of the August surveys, something which was experienced at a number of southern survey sites in 2021. All of these pressures will have had an almost certain impact on the species recorded during this survey, and likely a lasting effect on insect numbers.

1.3 Survey Groups and Methodology

Survey was largely undertaken by means of sweep-netting the vegetation with the aim of dislodging species resting on foliage or feeding at flowers. Occasionally direct searching (where species with known plant hosts may be present) was employed as the main survey technique. Some species, such as the lepidoptera (butterflies) and odonata (dragonflies and damselflies) were primarily recorded flying through/around the survey area. Without thorough searches for their larval stages many species in these groups, it is often difficult to determine which are breeding on site and those which are casual users of the site for feeding, roosting or hibernating.

The following insect groups were surveyed/recorded and their reason for attention in this survey highlighted:

Mecoptera: Scorpion flies

Only three species are recorded in Britain all can be found in most habitats, adults are often recorded in abundance. Larvae feed on decaying matter.

Neuroptera: Lacewings and allies

The majority of species are aphid feeders in their larval stage, adults can usually be found resting on vegetation during the day.

Odonata: Dragonflies and Damselflies

All species develop in watercourses where they are predatory on other invertebrates. Adult males fly long distances, often away from water to feed, females stay close to water courses and pools. While adults are easy to record in any habitat, breeding on a site can only be proven if searches are made for the larval stages or exuviae.

Orthoptera: Bush Crickets and Grasshoppers and allies

Many species are specific to wetland habitats and structured grassland with some scrub element.

Heteroptera: True Bugs (terrestrial species)

Many species in this group are host plant specific where they feed on plant sap, a number of species are predatory on other insects, they are best surveyed by sweep-netting vegetation.

Trichoptera: Caddisflies

All species are aquatic in their larval stage with adults flying in suitable terrestrial habitat nearby.

Lepidoptera: Butterflies

A number of species are specific to grassland habitat but are usually reliant on established and relatively undisturbed habitats, all species were recorded on a casual basis.

Diptera: Hoverflies

A number of species are specific to wetland, grassland and scrub habitats but the majority are generalist in their habitats.

Diptera: Larger Brachycera (Snipeflies, Horseflies, Soldierflies, Robberflies and Beeflies)

A number of species are specific to wetland habitats. In the larval stages they live either as parasites in and on other insects, within decaying plant matter or in mud.

Diptera: Snail-killing Flies

All of the species feed within the shells of specific snail species and occasionally slugs, usually in wetland habitats, only a few species live in drier habitats where they develop in terrestrial snails.

Diptera: Picture-winged Flies

All of the species are plant host specific developing as maggots within plant stems, flowerheads or seed heads.

Diptera: Conopid Flies

All of the species in this family parasitise solitary and social bees and wasps, either at their nest sites or by searching for adults foraging at flowers.

Diptera: Tachinid Flies

All of the species are parasites that spend their larval stages feeding within or on other insects e.g. lepidoptera caterpillars and shieldbugs.

Hymenoptera: Aculeates

Many bee, ant and wasp species nest in bare soils in warm sunny locations, each female bee or wasp excavates a series of burrows to provision them with nectar and/or pollen or live prey for their growing larvae to feed on. All species feed at flowers for nectar or pollen, while many species also feed on terrestrial invertebrates which are captured at flowers. Ants often nest in warm, highly thermophilic sites in grassland or bare and sparsely vegetated substrates.

Coleoptera: Only a limited number of coleoptera groups were surveyed for, these were Ladybirds. Soldier Beetles, Malachite Beetles, Click Beetles and Longhorn Beetles, no other beetle groups were encountered during the survey.

Ladybirds

Ladybirds occur in a range of habitats with few species being specific to this habitat. Due to the ease of recording and identifying the group they were recorded on a casual basis.

Soldier Beetles

This group of mainly predatory species contain a number of brightly-coloured adults which can be found, often in numbers at flowers and are often encountered in sweep-net samples.

Malachite Beetles

A small group of attractively coloured beetles that are predatory as larvae but feed on pollen as adults, they are often common in sweep-net samples.

Longhorn Beetles

A large group of often brightly coloured beetles that in most species develop as larvae inside dead timber or plant stems. Adults are often encountered nectaring at flowers.

1.4. Species Recorded

The following tables show all insects recorded during the survey. The species lists and nomenclature follow the most recently available checklists for each group. The hoverfly checklist is currently in the process of being reorganised so for ease, species are presented here in alphabetical order. Species marked with an asterisk (*) are Red Data Book or Nationally Scarce and details of these can be found in Section 1.5.

The Meadow

Major forage resources (nectar and pollen) available across the meadow as a whole during the first two months of the survey period and comprised Lesser Celandine (*Ranunculus ficaria*), Blackthorn (*Prunus spinosa*), Hawthorn (*Crateagus monogyna*), Dandelion (*Taraxacum officinale* agg.), Hemlock Water-dropwort (*Oenanthe crocata*), Buttercup (*Ranunculus* sp). During the middle two months, Bird's Foot Trefoil (*Lotus* sp), Red Clover (*Trifolium pratense*), Hogweed (*Heracleum sphondylium*), Hemlock Water-dropwort, White Clover (*Trifolium repens*), Creeping Thistle (*Cirsium arvense*) and Meadowsweet (*Filipendula ulmaria*) were dominant. In the final two months of the survey forage resources had diminished markedly, leaving just a few small areas of Greater Bird's Foot Trefoil (*Lotus pedunculatus*), Hogweed, Water Mint (*Mentha aquatica*), Black Knapweed (*Centaurea nigra*) and Meadowsweet. By the time of the August visit much of the grassland was dry and parched except for the south-east corner of the South meadow. A section of Middle meadow was cut in late August and cattle were grazing at the time of the September visit.

1.4.1 South Meadow

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
Odonata: Dragonflies						
<i>Sympetrum striolatum</i>					*	
Orthoptera: Bush Crickets						
<i>Conocephalus discolor</i>					*	*
<i>Conocephalus dorsalis</i>					*	
Grasshoppers						
<i>Chorthippus brunneus</i>					*	
<i>Chorthippus parallelus</i>				*	*	*
Dictyoptera: Cockroaches						
<i>Ectobius lapponicus</i> *			*			
Heteroptera: True Bugs						
<i>Deraeocoris ruber</i>					*	
<i>Calocoris roseomaculatus</i>				*		
<i>Closterotomus norvegicus</i>			*	*	*	
<i>Lygus rugulipennis</i>						*
<i>Orthops campestris</i>					*	
<i>Stenotus binotatus</i>			*	*		
<i>Leptopterna dolabrata</i>		*	*			
<i>Notostira elongata</i>				*		
<i>Pithanus maerkelii</i>				*		
<i>Stenodema calcarata</i>		*	*			
<i>Stenodema laevigata</i>			*			
<i>Macrotylus solitarius</i>			*	*	*	

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
<i>Heterotoma planicornis</i>				*	*	
<i>Plagiognathus arbustorum</i>				*	*	
<i>Scolopostethus decoratus</i>				*		
<i>Coreus marginatus</i>			*	*	*	*
<i>Eurygaster testudinaria</i>			*		*	*
<i>Aelia acuminata</i>			*			
<i>Palomena prasina</i>						*
Lepidoptera: Butterflies						
<i>Thymelicus lineola</i>				*	*	
<i>Pieris brassicae</i>				*		*
<i>Pieris rapae</i>						*
<i>Lycaena phlaeus</i>					*	
<i>Vanessa atalanta</i>					*	*
<i>Vanessa cardui</i>						*
<i>Pararge aegeria</i>					*	*
<i>Melanargia galathea</i>				*		
<i>Pyronia tithonus</i>				*	*	
<i>Maniola jurtina</i>			*	*	*	
Diptera: Hoverflies						
<i>Episyrphus balteatus</i>			*	*		
<i>Eristalis arbustorum</i>					*	*
<i>Eristalis tenax</i>	*		*	*		*
<i>Eumerus funeralis</i>				*		
<i>Eumerus strigatus</i>					*	*
<i>Eupeodes corollae</i>				*		
<i>Eupeodes luniger</i>					*	
<i>Helophilus pendulus</i>			*			*
<i>Helophilus trivittatus</i>						*
<i>Melanostoma mellinum</i>		*	*	*		
<i>Melanostoma scalare</i>		*		*	*	*
<i>Merodon equestris</i>			*			
<i>Myathropa florea</i>				*	*	
<i>Platycheirus albimanus</i>	*					*
<i>Platycheirus rosarum</i>					*	
<i>Sphaerophoria scripta</i>		*		*	*	
<i>Syrphus ribesii</i>		*	*			
<i>Syritta pipiens</i>			*			*
<i>Volucella pellucens</i>					*	
<i>Volucella zonaria</i> *					*	
<i>Xylota segnis</i>				*		
Larger Brachycera						
<i>Chrysopilus cristatus</i>			*			
<i>Rhagio lineola</i>				*		
<i>Rhagio scolopaceus</i>			*			
<i>Rhagio tringarius</i>				*		
<i>Beris vallata</i>				*		
<i>Chloromyia formosa</i>			*	*		
<i>Leptogaster cylindrica</i>			*	*		
<i>Dioctria linearis</i>			*			

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
Snail-killing Flies						
<i>Pherbellia ventralis</i>	*					
<i>Elgiva cucularia</i>		*				
<i>Ilione albiseta</i>					*	
Picture-winged Flies						
<i>Urophora jaceana</i>				*		
<i>Euleia heraclei</i>			*			
Conopid Flies						
<i>Conops ceriaeformis</i>					*	
<i>Conops quadrifasciatus</i>				*	*	
<i>Physocephala rufipes</i>					*	
<i>Sicus ferrugineus</i>					*	*
Tachinid Flies						
<i>Eriothrix rufomaculata</i>				*	*	
Hymenoptera: Aculeates						
Ants						
<i>Lasius niger</i>		*				
Spider Wasps						
<i>Anoplius nigerrimus</i>					*	
Social Wasps						
<i>Vespula vulgaris</i>				*	*	*
Solitary Wasps						
<i>Ectemnius cephalotes</i>					*	
<i>Pemphredon lugubris</i>					*	
Solitary Bees						
<i>Hylaeus communis</i>				*		
<i>Andrena scotica</i>	*					
<i>Andrena nitida</i>	*	*	*			
<i>Andrena flavipes</i>				*		
<i>Andrena subopaca</i>			*	*		
<i>Andrena wilkella</i>			*			
<i>Halictus tumulorum</i>			*			
<i>Lasioglossum leucozonium</i>				*		
<i>Lasioglossum calceatum</i>			*			
<i>Lasioglossum morio</i>					*	
<i>Osmia bicornis</i>	*					
Social Bees						
<i>Bombus lapidarius</i>				*	*	
<i>Bombus lucorum/terrestris</i> [^]			*	*	*	
<i>Bombus pascuorum</i>		*		*	*	*
<i>Bombus pratorum</i>		*				
<i>Bombus vestalis</i>			*			
<i>Apis mellifera</i>			*	*	*	*
Coleoptera: Soldier Beetles						
<i>Cantharis flavilabris</i>			*			
<i>Cantharis pallida</i>			*			
<i>Cantharis rustica</i>			*			
<i>Rhagonycha fulva</i>				*	*	
Malachite Beetles						
<i>Malachius bipustulatus</i>			*			

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
Ladybirds						
<i>Propylea 14-punctata</i>				*	*	
<i>Coccinella 7-punctata</i>				*		
Longhorn Beetles						
<i>Paracorymbia fulva*</i>			*			
<i>Rutpela maculata</i>				*	*	
<i>Stenurella melanura</i>			*			

1.4.2 Middle Meadow

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
Mecoptera: Scorpion flies						
<i>Panorpa communis</i>						*
Odonata: Dragonflies						
<i>Aeshna mixta</i>					*	
<i>Libellula quadrimaculata</i>			*			
<i>Sympetrum striolatum</i>				*		
Orthoptera: Bush Crickets						
<i>Leptophyes punctatissima</i>				*		
Grasshoppers						
<i>Chorthippus brunneus</i>					*	
<i>Chorthippus parallelus</i>		*		*	*	
Dermaptera: Earwigs						
<i>Forficula auricularia</i>			*	*	*	
Heteroptera: True Bugs						
<i>Dicyphus epilobii</i>				*		
<i>Deraeocoris ruber</i>					*	
<i>Closterotomus norvegicus</i>			*	*	*	
<i>Apolygus lucorum</i>						*
<i>Lygus rugulipennis</i>				*		
<i>Orthops campestris</i>					*	
<i>Stenotus binotatus</i>			*	*		
<i>Leptopterna dolabrata</i>			*	*		
<i>Notostira elongata</i>				*		
<i>Pithanus maerkelii</i>			*	*		
<i>Stenodema calcarata</i>			*			
<i>Stenodema laevigata</i>			*		*	
<i>Macrotylus solitarius</i>			*	*		
<i>Stygnocoris rusticus</i>					*	
<i>Coreus marginatus</i>			*	*	*	*
<i>Eurygaster testudinaria</i>			*		*	*
<i>Palomena prasina</i>						*
<i>Acanthosoma haemorrhoidale</i>		*				
Lepidoptera: Butterflies						
<i>Thymelicus lineola</i>				*	*	
<i>Ochlodes sylvanus</i>				*		
<i>Pieris brassicae</i>				*		*
<i>Pieris rapae</i>					*	
<i>Pieris napi</i>		*				

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
<i>Lycaena phlaeus</i>					*	
<i>Polyommatus icarus</i>				*	*	*
<i>Pararge aegeria</i>						*
<i>Melanargia galathea</i>				*		
<i>Pyronia tithonus</i>					*	
<i>Maniola jurtina</i>			*	*	*	
Trichoptera: Caddisflies						
<i>Limnephilus affinis</i>		*				
Diptera: Hoverflies						
<i>Episyrphus balteatus</i>				*		*
<i>Eristalis arbustorum</i>					*	
<i>Eristalis tenax</i>						*
<i>Eumerus funeralis</i>					*	
<i>Helophilus pendulus</i>					*	
<i>Helophilus trivittatus</i>						*
<i>Melanostoma mellinum</i>		*		*		
<i>Melanostoma scalare</i>		*		*	*	*
<i>Merodon equestris</i>			*			
<i>Myathropa florea</i>					*	
<i>Platycheirus rosarum</i>						*
<i>Rhingia campestris</i>		*				
<i>Sphaerophoria scripta</i>				*		*
<i>Syrphus ribesii</i>						*
Larger Brachycera						
<i>Chrysopilus cristatus</i>			*			
<i>Chloromyia formosa</i>			*			
<i>Machimus atricapillus</i>				*	*	
<i>Leptogaster cylindrica</i>			*	*		
<i>Dioctria linearis</i>			*			
Snail-killing Flies						
<i>Pherbellia ventralis</i>		*				
<i>Hydromya dorsalis</i>					*	
<i>Ilione albiseta</i>			*			*
<i>Limnia unguicornis</i>				*		
<i>Tetanocera arrogans</i>						*
Picture-winged Flies						
<i>Tephritis bardanae</i>		*				
<i>Tephritis neesii</i>		*		*		
<i>Chaetostomella cylindrica</i>				*		
<i>Euleia heraclei</i>		*				
Diptera: Conopid Flies						
<i>Leopoldius signatus*</i>					*	
Diptera: Tachinid Flies						
<i>Eriothrix rufomaculata</i>				*		
Hymenoptera: Aculeates						
Ants						
<i>Lasius niger</i>			*			
<i>Myrmica ruginodis</i>						*
Social Wasps						
<i>Vespula vulgaris</i>						*

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
Solitary Bees						
<i>Hylaeus communis</i>				*		
<i>Andrena haemorrhoa</i>	*					
<i>Andrena subopaca</i>		*	*	*	*	
<i>Andrena wilkella</i>		*				
<i>Halictus tumulorum</i>			*	*		
<i>Lasioglossum leucozonium</i>				*		*
<i>Lasioglossum punctatissimum</i>					*	
<i>Lasioglossum villosulum</i>					*	
<i>Lasioglossum morio</i>	*				*	
<i>Sphecodes ephippius</i>		*				
<i>Sphecodes geofrellus</i>		*				
<i>Nomada fabriciana</i>	*	*				
Social Bees						
<i>Bombus lapidarius</i>			*		*	
<i>Bombus lucorum/terrestris</i> [^]			*	*		
<i>Bombus pascuorum</i>			*	*		
<i>Bombus terrestris</i>					*	
<i>Bombus vestalis</i>			*	*		
<i>Apis mellifera</i>			*		*	
Coleoptera: Soldier Beetles						
<i>Cantharis flavilabris</i>			*			
<i>Cantharis rustica</i>		*				
<i>Rhagonycha fulva</i>				*	*	
Malachite Beetles						
<i>Malachius bipustulatus</i>		*	*			
Click Beetles						
<i>Agriotes pallidulus</i>			*			
Ladybirds						
<i>Propylea 14-punctata</i>			*			
<i>Coccinella 7-punctata</i>			*	*		
<i>Tytthaspis 16-punctata</i>			*			
Longhorn Beetles						
<i>Rutpela maculata</i>				*		

1.4.3 North Meadow

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
Odonata: Damselflies						
<i>Enallagma cyathigerum</i>			*			
Dragonflies						
<i>Aeshna mixta</i>					*	
<i>Sympetrum striolatum</i>			*			
Orthoptera: Bush Crickets						
<i>Pholidoptera griseoaptera</i>					*	
<i>Metrioptera roeselii</i>						*
<i>Leptophyes punctatissima</i>					*	

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
Grasshoppers						
<i>Chorthippus parallelus</i>				*	*	*
<i>Chorthippus albomarginatus</i>				*	*	
Heteroptera: True Bugs						
<i>Closterotomus norvegicus</i>					*	
<i>Capsus ater</i>			*			
<i>Lygus rugulipennis</i>					*	
<i>Orthops campestris</i>		*				
<i>Leptopterna dolabrata</i>			*			
<i>Stenodema calcarata</i>			*			
<i>Trignotylus ruficornis</i>					*	
<i>Plagiognathus arbustorum</i>					*	
<i>Plagiognathus chrysanthemi</i>				*		
<i>Anthocoris nemorum</i>	*					
<i>Coreus marginatus</i>			*			*
<i>Eurygaster testudinaria</i>			*	*		*
<i>Palomena prasina</i>					*	
Lepidoptera: Butterflies						
<i>Pieris brassicae</i>				*		*
<i>Lycaena phlaeus</i>						*
<i>Polyommatus icarus</i>			*			*
<i>Vanessa atalanta</i>				*	*	
<i>Aglaia io</i>				*		
<i>Pararge aegeria</i>			*			*
<i>Pyronia tithonus</i>					*	
<i>Maniola jurtina</i>			*	*	*	
Trichoptera: Caddisflies						
<i>Limnephilus affinis</i>		*				
<i>Limnephilus lunatus</i>			*			
Diptera: Hoverflies						
<i>Episyrphus balteatus</i>				*	*	
<i>Eristalis arbustorum</i>						*
<i>Eristalis intricarius</i>			*			
<i>Eristalis tenax</i>				*	*	*
<i>Eumerus strigatus</i>						*
<i>Eupeodes corollae</i>	*				*	
<i>Helophilus pendulus</i>				*	*	*
<i>Melanogaster hirtella</i>			*	*		
<i>Melanostoma mellinum</i>		*		*		
<i>Melanostoma scalare</i>		*		*	*	*
<i>Merodon equestris</i>		*				
<i>Myathropa florea</i>				*	*	
<i>Paragus haemorrhous</i>			*			
<i>Pipiza noctiluca</i>					*	
<i>Platycheirus albimanus</i>	*					*
<i>Sphaerophoria scripta</i>		*			*	*
<i>Syrphus ribesii</i>	*			*		
<i>Volucella pellucens</i>					*	
<i>Xylota sylvarum</i>				*	*	

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
Larger Brachycera						
<i>Chrysopilus cristatus</i>			*			
<i>Rhagio scolopaceus</i>			*			
<i>Beris vallata</i>		*				
<i>Chorisops tibialis</i>						*
Snail-killing Flies						
<i>Elgiva cucularia</i>		*				
<i>Ilione albiseta</i>					*	
<i>Tetanocera arrogans</i>						*
Picture-winged Flies						
<i>Tephritis bardanae</i>		*				
<i>Euleia heraclei</i>	*	*				
Conopid Flies						
<i>Conops quadrifasciatus</i>				*	*	
<i>Physocephala rufipes</i>					*	
<i>Sicus ferrugineus</i>					*	
Tachinid Flies						
<i>Eriothrix rufomaculata</i>					*	
Hymenoptera: Aculeates						
Ants						
<i>Myrmica rubra</i>	*					
Social Wasps						
<i>Vespa crabro</i>				*		
<i>Vespula vulgaris</i>				*	*	*
Solitary Bees						
<i>Hylaeus communis</i>					*	
<i>Andrena scotica</i>	*					
<i>Andrena flavipes</i>			*			
<i>Andrena subopaca</i>			*	*		
<i>Andrena wilkella</i>			*			
<i>Lasioglossum calceatum</i>						*
Social Bees						
<i>Bombus lapidarius</i>				*	*	
<i>Bombus lucorum</i>				*	*	
<i>Bombus lucorum/terrestris</i> [^]			*		*	
<i>Bombus pascuorum</i>		*		*	*	*
<i>Bombus pratorum</i>			*			
<i>Bombus terrestris</i>				*		
<i>Bombus vestalis</i>				*		
<i>Apis mellifera</i>			*	*	*	
Coleoptera: Soldier Beetles						
<i>Cantharis flavilabris</i>			*			
<i>Cantharis pallida</i>			*			
<i>Rhagonycha fulva</i>				*		
Malachite Beetles						
<i>Malachius bipustulatus</i>		*				
Ladybirds						
<i>Coccinella 7-punctata</i>						*
<i>Tytthaspis 16-punctata</i>		*	*		*	

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
Longhorn Beetles <i>Stictoleptura scutellata</i> *				*		
<i>Rutpela maculata</i>				*	*	
<i>Clytus arietis</i>				*		

Bombus lucorum/terrestris[^] = workers only seen, these two species can only be separated when queens or males are seen.

The Woodland

Major forage resources (nectar and pollen) were limited throughout the survey period, during the first two months of the survey period Bluebell (*Endymion non-scriptus*), Green Alkanet (*Pentaglossis sempervirens*) and Foxglove were the dominant sources. Bramble (*Rubus fruticosus* agg.) and Foxglove dominated during the middle two months and by the end of the survey there were no major forage resources available save for a single Buddleia (*Buddleia davidii*).

1.4.4 North Woodland

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
Heteroptera: True Bugs <i>Stenodema calcarata</i>		*				
Lepidoptera: Butterflies <i>Vanessa atalanta</i>				*	*	
<i>Pararge aegeria</i>						*
<i>Maniola jurtina</i>				*		
<i>Pyronia tithonus</i>					*	
Diptera: Hoverflies <i>Episyrphus balteatus</i>			*	*	*	
<i>Myathropa florea</i>				*		
<i>Platycheirus albimanus</i>	*					
<i>Syrphus ribesii</i>						*
<i>Volucella pellucens</i>				*		
<i>Xylota sylvarum</i>				*		
Larger Brachycera <i>Bombylius major</i>	*					
Hymenoptera: Aculeates Social Wasps <i>Vespula vulgaris</i>						*
Solitary Bees <i>Andrena haemorrhoa</i>		*				
<i>Osmia bicornis</i>	*					
Social Bees <i>Bombus lucorum/terrestris</i> [^]				*		
<i>Bombus pascuorum</i>		*				
<i>Apis mellifera</i>				*		
Coleoptera: Click Beetles <i>Stenagostus rhombeus</i>				*		

1.4.5 Middle Woodland

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
Heteroptera: True Bugs <i>Apolygus lucorum</i>				*	*	
Lepidoptera: Butterflies <i>Pyronia tithonus</i>					*	
Diptera: Hoverflies <i>Baccha elongata</i>					*	
<i>Episyrphus balteatus</i>				*	*	*
<i>Merodon equestris</i>				*		
<i>Platycheirus albimanus</i>				*		
<i>Volucella pellucens</i>				*		
Hymenoptera: Aculeates Social Wasps <i>Vespula vulgaris</i>						*
Social Bees <i>Bombus pascuorum</i>					*	
<i>Bombus terrestris</i>				*		
<i>Apis mellifera</i>			*	*	*	

1.4.6 South Woodland

Group/ Visit Date	23 Apr	17 May	16 Jun	16 Jul	13 Aug	13 Sept
Lepidoptera: Butterflies <i>Pieris brassicae</i>				*		
<i>Pieris rapae</i>						
<i>Vanessa atalanta</i>				*		
<i>Pararge aegeria</i>						*
Diptera: Hoverflies <i>Episyrphus balteatus</i>				*		
<i>Eristalis tenax</i>				*		
<i>Myathropa florea</i>				*	*	*
<i>Volucella pellucens</i>					*	
<i>Volucella zonaria</i> *					*	
Hymenoptera: Aculeates Social Wasps <i>Vespula vulgaris</i>	*					
Solitary Bees <i>Andrena subopaca</i>			*			
<i>Osmia bicornis</i>	*					
Social Bees <i>Bombus lapidarius</i>	*					
<i>Bombus pascuorum</i>		*	*		*	
<i>Bombus pratorum</i>	*	*	*			
<i>Bombus vestalis</i>		*	*			
<i>Apis mellifera</i>	*	*		*		

1.5 Red Data Book and Nationally Scarce Species Recorded

One Red Data Book and four Nationally Scarce species were recorded during the survey period. Details of their national statuses are taken from the national reviews listed in the references in Section 1.8. A description of these ratings is given at the end of this text in Section 1.5.1.

Dictyoptera: Cockroaches

Dusky Cockroach *Ectobius lapponicus* (Nationally Scarce B)

Native to central and southern England and largely associated with scrub and woodland edge habitat on any soil type. A notoriously difficult species to survey, often only being encountered as singletons in sweep net samples or pit-fall traps, most records come from the New Forest and Surrey. A singleton on scrub on the northern-eastern edge of the South Meadow on 16th June.

Diptera: Hoverflies

A Hoverfly *Volucella zonaria* (Nationally Scarce)

Larvae are scavengers and predators in the nests of social wasps where they probably feed on larvae and pupae. A recent colonist in the UK which has begun spreading rapidly, the majority of records coming from the south coast and the London area. Two recorded on the Buddleia in the South Woodland on 13th August.

Diptera: Conopid Flies

A Conopid Fly *Leopoldius signatus* (Nationally Scarce)

Recorded widely in England and Wales from a range of habitats, easily overlooked due to the late flying season, this species is typically to be found at the flowers of Ivy *Hedera helix*. It is thought to parasitise social wasps. A singleton recorded on Water Mint in the Middle Meadow on 13th August.

Coleoptera: Longhorn Beetles

Tawny Longhorn *Paracorymbia fulva* (Red Data Book 3)

Widely distributed in southern England but nowhere in abundance. Typically found in broad-leaved woodland, the larvae probably develop in dead wood. Adults visit a range of plant species for nectar and pollen. A single adult recorded at Creeping Thistle flowers on the South Meadow on 16th June.

Large Black Longhorn *Stictoleptura scutellata* (Nationally Scarce A)

Widely distributed in southern England this is typically a species of ancient broad-leaved woodland and wood pasture. Larvae develop in sun-exposed dead wood and there is a strong association with Beech (*Fagus sylvaticus*), but other deciduous species are also used. Adults occasionally visit flowers. A single male was recorded at Creeping Thistle flowers in the North Meadow on 16th July.

1.5.1 Explanation of rarity ratings

Red Data Book 1 Endangered; currently known from five or fewer 10km squares in Britain and in danger of extinction.

Red Data Book 2 Vulnerable; currently known from between six and ten 10km squares in Britain. Populations declining and considered likely to become endangered.

Red Data Book 3 Rare; currently known from between 11 and 15 10km squares in Britain. Small, thinly scattered local populations, but not at present considered to be vulnerable or endangered.

Nationally Scarce A; Very restricted national distribution, recorded from 16 - 30 10km squares in Britain since 1980.

Nationally Scarce B; Restricted national distribution, recorded from 31 - 100 10km squares in Britain since 1980.

Nationally Scarce; Restricted national distribution, recorded from 16 - 100 10km squares in Britain since 1980.

1.6 Discussion

One consideration that must be taken into account when comparing survey data is the weather, both during the survey period and between surveys. The weather experienced during the survey period in 2021 was largely favourable with dry and warm conditions. However April had seen daily frosts and temperatures barely exceeding 12°C which would have undoubtedly had an impact on the range of species recorded, not just on this reserve but elsewhere (*pers obs*). Despite this, sixty-five new species were recorded for the reserve during this survey. This includes one Red Data Book and four Nationally Scarce species.

The majority of species recorded in this survey can be classified as being common, widespread and generalist in their habitat requirements. Many of the species involved are also highly mobile, enabling them to colonise habitats quickly. The majority of these species will remain in stabilised habitats and it is likely that only a very few of these might be lost through natural dispersal unless the current management regimes are radically altered or entirely neglected. However, any such losses should be countered by the retention of the more specialist species and perhaps the colonisation of other more specialist species from sites nearby.

Table 1 presents the total number of species recorded from each survey group in 2020 and 2021 compared against the total number of species currently recognised as resident in Britain.

Table 1 All species recorded by habitat in 2020 and 2021 against the number of British species.

Survey Group	Meadow	Woodland	Total No. combined	No. of British sp
Mecoptera; Scorpion Flies	1	1	1	3
Neuroptera; Lacewings	2	1	2	46
Odonata; Damselflies	1	0	1	20
Odonata; Dragonflies	4	0	4	23
Orthoptera; Bush Crickets	4	1	4	11
Grasshoppers	3	0	3	11
Dermaptera; Earwigs	1	0	1	4
Dictyoptera; Cockroaches	1	0	1	3
Heteroptera; True Bugs	36	5	37	488*
Trichoptera; Caddisflies	2	0	2	199
Lepidoptera; Butterflies	19	8	19	59
Diptera; Hoverflies	32	18	37	265
Larger Brachycera	13	2	14	159
Snail-killing Flies	6	0	6	67
Picture-winged Flies	7	0	7	73
Conopid Flies	5	0	5	24
Tachinid Flies	2	0	2	247
Hymenoptera; Ants	3	0	3	53
Spider Wasps	1	0	1	41
Social Wasps	5	3	5	9
Solitary Wasps	3	2	4	126
Solitary Bees	27	8	27	224
Social Bees	7	10	11	23
Coleoptera; Soldier Beetles	5	0	5	25
Click Beetles	1	1	2	73
Malachite Beetles	1	0	1	2
Ladybirds	5	0	5	46
Longhorn Beetles	6	1	6	67

*Heteroptera; True Bugs, this total is for terrestrial species only.

1.6.1 Notes on the Insect Groups Recorded

Mecoptera and Neuroptera

There was no change in the number, or species in these two groups recorded.

Odonata

The Four-spotted Chaser (*Libellula quadrimaculata*) was a new addition to the species list, while the Golden-ringed Dragonfly (*Cordulegaster boltonii*), recorded in 2020 was not seen during this survey.

Orthoptera

Both bush cricket species previously recorded were still present and were joined by three other species, Dark, Roesel's and the Short-winged Conehead. All could have been expected to occur, the latter two species are strongly dispersive and occur in most habitats with areas of long sward. While the former species is typical of scrub, woodland edge and scrubby grassland. The three grasshopper species recorded in 2020 are still present and require no further comment. A continuation of the cutting/grazing regime of the grassland and retention of scrub edge should ensure all these species persist on site.

Dictyoptera

The presence of the Nationally Scarce Dusky Cockroach was perhaps not surprising given that it is a species of southern woodland edge, scrub and scrubby grassland habitat with a strong population in the New Forest region. Maintaining the varied habitat types on site should ensure the continued presence of this easily overlooked species.

Trichoptera

A second species of Caddisfly was recorded during this survey, and is another common and widespread species which can be found in almost any habitat. The absence of permanent open water on site will always limit the number of species likely to be recorded here.

Heteroptera

The Heteroptera saw an increase of six species, three are mirid/grass bugs which feed on sap of a range of herbs and grasses while the Hawthorn Shieldbug (*Acanthosoma haemorrhoidale*) is generally found on the host shrub. The two remaining species, *Scolopostethus decoratus* and *Stygnocoris rusticus* are small, easily overlooked ground bugs which are occasionally encountered in sweep-net samples. The former species is more typically found on heathland, while the latter appears to be associated with Chickweed (*Stellaria media*). Almost all remaining species have been recorded in both surveys.

Lepidoptera

Three new butterfly species were recorded, the Small Skipper is easy to overlook amongst the similar-looking Essex Skipper, both were looked for during each survey amongst all the 'small' skippers seen in 2020, but this was the first time confirmation could be determined. The Painted Lady is a migratory species that appears in varying numbers each year, 2021 seemed to be a good year for the species (*pers obs*), while the Marbled White could perhaps have been expected given the grassland available and the presence of populations in the local area. The Purple Hairstreak, seen in 2020 was not recorded during this survey.

Diptera - Hoverflies

Another good selection of hoverflies was recorded and included nine new species, one, the Nationally Scarce *Volucella zonaria* is now common and widespread and is covered in Section 1.5. The remaining species are also common and widespread and could have been expected to occur here and include two woodland/woodland edge species *Xylota segnis* and *X. sylvarum*, both develop as

larvae in decaying timber, highlighting the importance of leaving dead wood (both standing and fallen) on site.

Diptera - Larger Brachycera (Snipeflies, Horseflies, Soldierflies, Robberflies and Beeflies)

The number of larger brachycera recorded doubled during this survey from seven to fourteen species with eight new species recorded. All the new species can generally be regarded as common and widespread and could have been expected given the habitats present. The Beefly *Bombylius major* was present in the felled area in the Southern Woodland, indicative of suitable breeding habitat in this clear area for its solitary bee hosts. Further clearances with the coppice cycle should ensure that there is always suitable open available habitat for these species. The soldierfly *Sargus flavipes* recorded in 2020 was not seen during this survey but should still be present given the continued presence of suitable habitat and conditions for it.

Diptera - Snail-killing Flies

Four new species of snail-killing fly were added to the list, all are rather generalist in their habitat requirements and have no specific host snails. All four species could have been expected to occur. The two species recorded in 2020 were again present in this survey. There is still scope for further species to be recorded on site.

Diptera - Picture-winged Flies

The picture-winged flies saw an increase by four species also on those recorded in 2020, all the new species were recorded in the meadow. *Urophora jaceana* develops inside the flower/seed heads of Black Knapweed and could have been expected to occur. The two *Tephritis* species *T. bardanae* and *T. neesii* develop inside a range of host plant species, while *Euleia heraclei* develops in umbellifers, with Hemlock Water-dropwort being a known host. All three of these latter species could also have been expected to occur. One species, *Xyphosia miliaria*, was not recorded during 2021 but is likely to be still present as its host still is. It is likely that other species could still be recorded with further survey.

Diptera - Conopid Flies

Conopid flies also saw an increase of four species, one being the Nationally Scarce *Leopoldius signatus* (see Section 1.5). The other three species are all amongst the commoner members of this family and were present in abundance, suggestive of a good breeding season in 2020 which will hopefully be carried over into 2022. The presence of a high number of conopid flies is a good indicator of a strong presence of their host solitary and social bees and wasps and an abundance of forage resources. *Sicus ferrugineus*, recorded in 2020 was present during the current survey.

Diptera - Tachinid Flies

The two species of tachinid fly recorded in 2020 were again present during this survey and require no further comment from the 2020 report. There is still scope for many more species to be recorded.

Hymenoptera - Ants, Bees and Wasps

The hymenoptera were again well represented and saw increases amongst the ants, solitary wasps, solitary bees and social bees. In addition to this, a single member of the spider wasps family was recorded for the first time.

Ants

Two new species of 'red' ant were recorded, both are amongst our commonest species of ant and can be found in most habitats. Ants are often difficult to record in sweep-net samples due to their spending most of their time on the ground. The black ant (*Lasius niger*) was again recorded during this survey and there is scope for further species to be found.

Spider Wasps

Spider wasps catch and paralyse spiders before burying them in nests, typically in bare ground. The species recorded during 2021 (*Anoplius nigerrimus*) is one of the most common and widespread species and could have been expected to occur. There is plenty of scope for more species to be recorded on the reserve.

Social Wasps

Only two species of social wasp were recorded during 2021, both relatively common and widespread species. In general, social wasp numbers were low at many southern survey sites during 2021 (*pers obs*). The prolonged wet winter may have waterlogged hibernation sites, while the daily frosts and generally poor weather in spring came at a time when queens were nest founding, and will have also had an impact on their success.

Solitary Wasps

Solitary wasps were again rather poorly represented considering the available habitats present and the relative abundance of nectar, pollen and potential invertebrate prey. Two new species were recorded but neither of the species recorded in 2020 were seen again. There is still scope for more species to be recorded with further surveys.

Solitary Bees

Nine new species of solitary bee were recorded and eight of the 18 species in 2020 were recorded again. All of the new species could have perhaps been expected and includes two cuckoo species *Sphecodes ephippius* and *Nomada fabriciana*. Many of the solitary bees are small and dark-coloured and require microscopic examination for identification. As a result of this, only a sample of those collected in sweep-net samples are retained for identification, meaning that some species will probably be missed/overlooked each year. It is likely that further species could be recorded.

Social Bees

One new bumblebee species was recorded, the common and widespread *Bombus pratorum*, which, despite the presence of its cuckoo species in 2020 was not recorded then (the cuckoo was not recorded in 2021). *Bombus jonellus* was not seen during survey in 2021 but one was recorded on the southern meadow during a bumblebee identification workshop on 10th July. Once again low numbers of all of the bumblebee species seen, especially *B. lapidarius*, during the survey points to further evidence of their long-term declines (*pers obs*).

Coleoptera - Soldier Beetles

One new species of Soldier beetle was recorded and three of the four species recorded in 2020 were also seen again. All five species now recorded are amongst our most common and widespread species and can be found in almost any habitat.

Click Beetles

Two species were recorded as the first members of this family on the reserve, both are quite contrasting in size, *Agriotes pallidulus* being 4mm long while *Steganostus rhombeus* is 20mm. The former is common and widespread in a range of habitats, the larvae being one of the 'wireworms' that develops on plant matter in the ground. The latter species is widely scattered in distribution but not often encountered, it develops in dead wood where it feeds on beetle larvae, including those of Longhorn Beetles, it probably also feeds on decaying wood.

Ladybirds

Three of the five ladybird species recorded in 2020 were recorded again, while the remaining two, the Harlequin and the Twenty-four spot are likely to still be present. The former shows large fluctuations in populations from year to year, while the latter is largely unobtrusive, feeding on mould in the thatch layer.

Longhorn Beetles

Four new species of longhorn beetle were recorded and included the Red Data Book *Paracorymbia fulva* and the Nationally Scarce *Stictoleptura scutellata*. Both are species which develop as larvae inside dead wood, and feed at flowers as adults. The former species has a wide distribution but is nowhere commonly encountered, while the latter species has a known population in the New Forest, where it can sometimes be found in numbers during a short adult season. The remaining two new species are generally common and widespread in a range of habitats. *Grammoptera ruficornis*, recorded in 2020 was not seen during this survey. This is a species that may be swept from scrub in numbers on one day, then not seen at all the following day, it is likely to still be present.

Spiders

Although spiders are not part of the survey or the speciality of this surveyor, the distinctive Wasp Spider *Argiope bruennichi* was recorded as a singleton in the Middle Meadow on 13th August. This species colonised from the continent and is a major predator of the orthoptera and lepidoptera.

Conclusion

These changes in species numbers and composition illustrates how important regular survey is and that single season surveys will be affected by a range of variables. Previous summer and winter weather, as well as that in the days leading up to the survey, and in some cases, even the weather on the day of the survey will all have an impact. In regards this survey, each visit was conducted using the same survey technique - sweep-netting/general searching as in 2020. The best available day for survey was chosen, and, where possible, followed a run of a few fine days to ensure insect numbers would be at their maximum, thus giving the best chance of recording the highest number of species.

Overall, the increase in species numbers, and the discovery of Red Data Book and Nationally Scarce species illustrates how important this reserve is. If further survey were undertaken it is highly likely that a greater number of insect species could be recorded.

1.7 Acknowledgements

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1.8 References

The following references were used for identification of species recorded during the survey and their national statuses. The NBN Atlas website was also accessed at various times during the survey www.nbnatlas.org

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Appendices

Appendix 1 All species recorded in the meadow in 2020 and 2021 combined

Appendix 2 All species recorded in the woodland in 2020 and 2021 combined

Appendix 3 All species recorded in 2020 and 2021 combined

Appendix 1 All species recorded in the meadow in 2020 and 2021 combined

The following is a list of all the species recorded in the North, Middle and South Meadows in both 2020 and 2021 combined.

Mecoptera: Scorpion flies

Panorpa communis

Neuroptera: Lacewings

Chrysopa perla

Chrysoperla carnea

Odonata: Damselflies

Enallagma cyathigerum

Dragonflies

Brachytron pratense

Aeshna mixta

Sympetrum striolatum

Libellula quadrimaculata

Orthoptera: Bush Crickets

Pholidoptera griseoaptera

Conocephalus discolor

Conocephalus dorsalis

Leptophyes punctatissima

Grasshoppers

Chorthippus albomarginatus

Chorthippus brunneus

Chorthippus parallelus

Dermaptera: Earwigs

Forficula auricularia

Dictyoptera: Cockroaches

*Ecobius lapponicus**

Heteroptera: True Bugs

Dicyphus epilobii

Deraeocoris ruber

Calocoris roseomaculatus

Closterotomus norvegicus

Capsus ater

Apolygus lucorum

Apolyguss spinolae

Lygocoris pabulinus

Lygus rugulipennis

Orthops campestris

Stenotus binotatus

Leptopterna dolabrata

Notostira elongata

Pithanus maerkelii

Stenodema calcarata

Stenodema laevigata

Trignotylus ruficornis

Macrotylus solitarius

Heterotoma planicornis

Plagiongnathus arbustorum

Plagiognathus chrysanthemi

Nabis flavommarginatus

Anthocoris nemorum

Scolopostethus decoratus

Stygnocoris rusticus

Coreus marginatus

Rhopalus subrufus

Myrmus miriformis

Eurygaster testudinaria

Podops inuncta

Aelia acuminata

Dolycoris baccarum

Palomena prasina

Piezodorus lituratus

Zicrona caerulea

Acanthosoma haemorrhoidale

Lepidoptera: Butterflies

Thymelicus sylvestris

Thymelicus lineola

Ochlodes sylvanus

Pieris brassicae

Pieris rapae

Pieris napi

Anthocharis cardamines

Neozephyrus quercus

Lycaena phlaeas

Polyommatus icarus

Celastrina argiolus

Vanessa atalanta

Vanessa cardui

Aglais io

Polygonia c-album

Pararge aegeria

Melanargia galathea

Pyronia tithonus

Maniola jurtina

Trichoptera: Caddisflies

Limnephilus affinis

Limnephilus lunatus

Diptera: Hoverflies

Cheilosia albitarsis

Cheilosia illustrata

Cheilosia pagana

Episyrphus balteatus

Eristalis arbustorum

Eristalis intricarius

Eristalis pertinax

Eristalis tenax

Eumerus funeralis

Eumerus strigatus

Eupeodes corollae

Eupeodes luniger

Helophilus pendulus

Helophilus trivittatus

Melanogaster hirtella

Melanostoma mellinum

Melanostoma scalare

Merodon equestris

Myathropa florea

Paragus haemorrhous

Pipiza noctiluca

Platycheirus albimanus

Platycheirus rosarum

Rhingia campestris

Scaeva pyrastris

Sphaerophoria scripta

Syrirta pipiens

Syrphus ribesii

Volucella pellucens

*Volucella zonaria**

Xylota segnis

Xylota sylvarum

Larger Brachycera

Chrysopils asiliformis

Chrysopilus cristatus

Rhagio lineola

Rhagio scolopaceus

Rhagio tringarius

Beris vallata

Chorisops tibialis

Chloromyia formosa

Sargus flavipes

Machimus atricapillus

Machimus cingulatus

Leptogaster cylindrica

Dioctria linearis

Snail-killing Flies

Pherbellia ventralis
Elgiva cucularia
Hydromya dorsalis
Ilione albiseta
Limnia unguicornis
Tetanocera arrogans

Picture-winged Flies

Urophora jaceana
Tephritis bardanae
Tephritis neesii
Chaetostomella cylindrica
Terellia colon
Xyphosia miliaria
Euleia heraclei

Conopid Flies

Conops ceriaeformis
Conops quadrifasciatus
*Leopoldius signatus**
Physocephala rufipes
Sicus ferrugineus

Tachinid Flies

Eriothrix rufomaculata
Phasia obesa

Hymenoptera: Aculeates**Ants**

Lasius niger
Myrmica rubra
Myrmica ruginodis

Spider Wasps

Anoplius nigerrimus

Social Wasps

Vespa crabro
Dolichovespula media
Vespula rufa
Vespula germanica
Vespula vulgaris

Solitary Wasps

Ectemnius cephalotes
Pemphredon lugubris
Nysson spinosus

Solitary Bees

Hylaeus communis
Hylaeus confusus
Andrena scotica
Andrena nigroaenea
Andrena nitida
Andrena haemorrhoa
Andrena flavipes
Andrena subopaca
Andrena dorsata
Andrena wilkella
Halictus tumulorum
Lasioglossum leucozonium
Lasioglossum albipes
Lasioglossum calceatum

Lasioglossum minutissimum
Lasioglossum punctatissimum
Lasioglossum villosulum
Lasioglossum morio
Sphecodes ephippius
Sphecodes geofrellus
Osmia bicornis
Osmia leaiana
Osmia spinulosa
Megachile willughbiella
Nomada fabriciana
Nomada flava
Nomada flavoguttata

Social Bees

Bombus lapidarius
Bombus lucorum
Bombus pascuorum
Bombus pratorum
Bombus terrestris
Bombus vestalis
Apis mellifera

Coleoptera: Soldier Beetles

Cantharis flavilabris
Cantharus nigricans
Cantharis pallida
Cantharis rustica
Rhagonycha fulva

Malachite Beetles

Malachius bipustulatus

Click Beetles

Agriotes pallidulus

Ladybirds

Propylea 14-punctata
Harmonia axyridis
Coccinella 7-punctata
Tytthaspis 16-punctata
Subcoccinella 24-punctata

Longhorn Beetles

Grammoptera ruficornis
*Paracorymbia fulva**
*Stictoleptura scutellata**
Rutpela maculata
Stenurella melanura
Clytus arietis

Appendix 2 All species recorded in the woodland in 2020 and 2021 combined

The following is a list of all the species recorded in the woodland in both 2020 and 2021 combined.

Mecoptera: Scorpion flies

Panorpa communis

Neuroptera: Lacewings

Chrysoperla carnea

Orthoptera: Bush Crickets

Leptophyes punctatissima

Heteroptera: True Bugs

Stenodema calcarata

Apolygus lucorum

Heterotoma planicornis

Psallus quercus

Anthocoris nemorum

Lepidoptera: Butterflies

Pieris brassicae

Pieris napi

Pieris rapae

Celastrina argiolus

Pararge aegeria

Vanessa atalanta

Maniola jurtina

Pyronia tithonus

Diptera: Hoverflies

Baccha elongata

Dasysyrphus albobriatus

Epistrophe eligans

Episyrphus balteatus

Eristalis tenax

Eupeodes corollae

Helophilus pendulus

Melanostoma scalare

Merodon equestris

Myathropa florea

Platycheirus albimanus

Sphaerophoria scripta

Syrphus ribesii

Syrphus torvus

Syrphus vitrepennis

Volucella pellucens

*Volucella zonaria**

Xylota sylvarum

Larger Brachycera

Chrysopilus cristatus

Bombylius major

Hymenoptera: Aculeates

Solitary Wasps

Trypoxylon figulus

Ectemnius cephalotes

Social Wasps

Vespa crabro

Vespula germanica

Vespula vulgaris

Solitary Bees

Hylaeus communis

Hylaeus confusus

Andrena haemorrhoa

Andrena flavipes

Andrena subopaca

Andrena dorsata

Osmia bicornis

Nomada flava

Social Bees

Bombus hortorum

Bombus hypnorum

Bombus jonellus

Bombus lapidarius

Bombus pascuorum

Bombus pratorum

Bombus sylvestris

Bombus terrestris

Bombus vestalis

Apis mellifera

Coleoptera: Click Beetles

Stenagostus rhombeus

Longhorn Beetles

Rutpela maculata

Appendix 3 All species recorded in 2020 and 2021

The following list covers all species recorded across the whole site in 2020 and 2021 combined. Recent name changes amongst some of the species have been incorporated so in some instances names differ from the list included in the 2020 report.

Species highlighted with an asterisk (*) are Red Data Book or Nationally Scarce species, species highlighted with an 'N' are new species recorded for the first time in 2021.

Mecoptera:

Scorpion flies 1 species

Panorpa communis

Neuroptera:

Lacewings 2 species

Chrysopa perla

Chrysoperla carnea

Odonata:

Damselflies 1 species

Enallagma cyathigerum

Dragonflies 4 species

Brachytron pratense

Aeshna mixta

Libellula quadrimaculata N

Sympetrum striolatum

Orthoptera:

Bush Crickets 5 species

Pholidoptera griseoaptera N

Metrioptera roselii N

Conocephalus discolor

Conocephalus dorsalis N

Leptophyes punctatissima

Grasshoppers 3 species

Chorthippus albomarginatus

Chorthippus brunneus

Chorthippus parallelus

Dermaptera:

Earwigs 1 species

Forficula auricularia

Dictyoptera:

Cockroaches 1 species

*Ectobius lapponicus** N

Heteroptera:

True Bugs 37 species

Dicyphus epilobii

Deraeocoris ruber

Calocoris roseomaculatus

Closterostomus norvegicus

Capsus ater

Apolygus lucorum

Apolygus spinolae

Lygocoris pabulinus

Lygus rugulipennis

Orthops campestris N

Stenotus binotatus

Leptopterna dolabrata

Notostira elongata

Pithanus maerkelii

Stenodema calcarata

Stenodema laevigata N

Trignotylus ruficornis

Heterotoma planicornis

Macrotylus solitarius

Plagiognathus arbustorum

Plagiognathus chrysanthemi N

Psallus quercus

Nabis flavomarginatus

Anthocoris nemorum

Scolopostethus decoratus N

Stygnocoris rusticus N

Coreus marginatus

Rhopalus subrufus

Myrmus miriformis

Eurygaster testudinaria

Aelia acuminata

Podops inuncta

Dolycoris baccarum

Piezodorus lituratus

Palomena prasina

Zicrona caerulea

Acanthosoma haemorrhoidale N

Lepidoptera:

Butterflies 19 species

Thymelicus sylvestris

Thymelicus lineola N

Ochlodes sylvanus

Pieris brassicae

Pieris rapae

Pieris napi

Anthocharis cardamines

Lycaena phlaeus

Neozephyrus quercus

Polyommatus icarus

Celastrina argiolus

Vanessa atalanta

Vanessa cardui N

Aglaia io

Polygonia c-album

Pararge aegeria

Melanargia galathea N

Pyronia tithonus

Maniola jurtina

Trichoptera:

Caddisflies 2 species

Limnephilus affinis N

Limnephilus lunatus

Diptera:

Hoverflies 37 species

Baccha elongata

Cheilosia albitarsus

Cheilosia illustrata

Cheilosia pagana

Dasysyrphus albobristatus

Epistrophe eligans

Episyrphus balteatus

Eristalis arbustorum

Eristalis intricarius

Eristalis pertinax

Eristalis tenax

Eumerus funeralis

Eumerus strigatus N

Eupeodes corollae

Eupeodes luniger

Helophilus pendulus

Helophilus trivittatus N

Melanogaster hirtella N

Melanostoma mellinum

Melanostoma scalare

Merodon equestris N

Myathropa florea

Paragus haemorrhous

Pipiza noctiluca N

Platycheirus albimanus

Platycheirus rosarum

Rhingia campestris N

Scaeva pyrastris

Sphaerophoria scripta

Syrphoctonus pipiens

Syrphoctonus ribesii

Syrphoctonus torvus

Syrphoctonus vitrepennis

Volucella pellucens

*Volucella zonaria** N

Xylota segnis N

Xylota sylvarum N

Larger Brachycera 14 species

Chrysopilus asiliformis

Chrysopilus cristatus

Rhagio lineola N

Rhagio scolopaceus

Rhagio tringarius N

Beris vallata N

Chorisops tibialis N

Chloromyia formosa

Sargus flavipes

Bombylius major N

Machimus atricapillus N

Machimus cingulatus

Leptogaster cylindrica
Dioctria linearis N

Snail-killing Flies 6 species

Pherbellia ventralis N
Elgiva cucularia N
Hydromya dorsalis N
Ilione albiseta
Limnia unguicornis N
Tetanocera arrogans

Picture-winged Flies 7 species

Urophora jaceana N
Tephritis bardanae N
Tephritis neesii N
Chaetostomella cylindrica
Terellia colon
Xyphosia miliaria
Euleia heraclei N

Conopid Flies 5 species

Conops ceriaeformis N
Conops quadrifasciatus N
Leopoldius signatus* N
Physocephala rufipes N
Sicus ferrugineus

Tachinid Flies 2 species

Eriothrix rufomaculata
Phasia obesa

Hymenoptera: Aculeates

Ants 3 species

Lasius niger
Myrmica rubra N
Myrmica ruginodis N

Spider Wasps 1 species

Anoplius nigerrimus N

Social Wasps 5 species

Vespa crabro
Dolichovespula media
Vespula rufa
Vespula germanica
Vespula vulgaris

Solitary Wasps 4 species

Trypoxylon figulus
Ectemnius cephalotes
Pemphredon lugubris N
Nysson spinosus N

Solitary Bees 27 species

Hylaeus communis
Hylaeus confusus
Andrena scotica N
Andrena nigroaenea
Andrena nitida N
Andrena haemorrhoa
Andrena flavipes
Andrena subopaca
Andrena dorsata
Andrena wilkella N

Halictus tumulorum
Lasioglossum leucozonium N
Lasioglossum albipes
Lasioglossum calceatum
Lasioglossum minutissimum
Lasioglossum punctatissimum N
Lasioglossum villosulum N
Lasioglossum morio
Sphecodes ephippius N
Sphecodes geofrellus
Osmia bicornis N
Osmia leaiana
Osmia spinulosa
Megachile willughbiella
Nomada fabriciana N
Nomada flava
Nomada flavoguttata

Social Bees 11 species

Bombus hortorum
Bombus hypnorum
Bombus jonellus
Bombus lapidarius
Bombus lucorum
Bombus pascuorum
Bombus pratorum N
Bombus sylvestris
Bombus terrestris
Bombus vestalis
Apis mellifera

Coleoptera:

Soldier Beetles 5 species

Cantharis flavilabris (=nigra)
Cantharis nigricans
Cantharis pallida N
Cantharis rustica
Rhagonycha fulva

Malachite Beetles 1 species

Malachius bipustulatus

Click Beetles 2 species

Agriotes pallidulus N
Stenagostus rhombeus N

Ladybirds 5 species

Propylea 14-punctata
Harmonia axyridis
Coccinella 7-punctata
Tytthaspis 16-punctata
Subcoccinella 24-punctata

Longhorn Beetles 6 species

Grammoptera ruficornis
Paracorymbia fulva* N
Stictoleptura scutellata* N
Rutpela maculata
Stenurella melanura N
Clytus arietis N