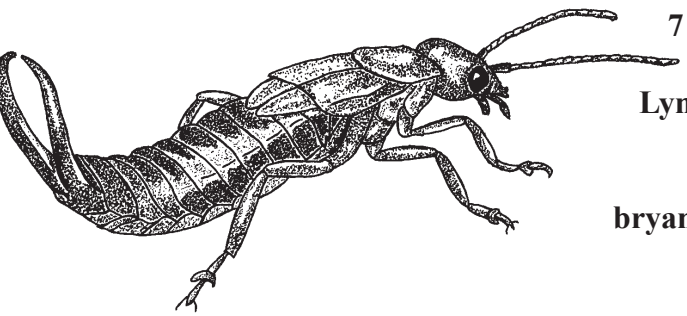
Ballard Nature Reserve
(Ballard Meadow and Wood)

Insect Survey 2026

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1.1 Summary

This report summarises the results of survey work to record the terrestrial insect species present at Ballard Nature Reserve in New Milton, Hampshire.

Six visits were made, one each in April, May, June, July, August and September 2025 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 has been/will be donated to the collections of the National Biodiversity Data Centre, Waterford, Eire and/or Portsmouth City Museum Service. Two previously unrecorded species were added to the species database.

Two Nationally Scarce species were recorded, details of these species are presented in Section 1.5.

An overview of the results is presented in Section 1.6.

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

1.2 Introduction

Ballard Nature Reserve 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) and repeated in 2021, 2022, 2024 and 2025 a regular butterfly transect is also walked. This current survey repeats those earlier surveys. Two previously unrecorded species were added to the site database during this current survey.

Six visits were made to record the terrestrial insects during 2026. The data collected forms the basis of this report. Survey visits were undertaken on16th April, 23rd May, 16th June, 13th July, 13th August and 14th September 2025.

Survey involved sweep-netting the available vegetation and some direct searching at flowers with a standard sweep/insect net.
One Nationally Scarce species was recorded during this survey.

Three species which hadn't previously been recorded here (all hymenoptera) were added to the insect database for the site.

Weather conditions throughout the survey period were rather good but five heatwaves during summer beinglresulted in much of the vegetation becoming dessicated and parched from mid-June onwards, this seems to have impacted insect species and numbers recorded, particularly species with a dependence on plant sap and nectsr/pollen which wasi mpacted through reduced flower production in many plant species. On the whole the summer of 2026 turned out to be rather poor for insects in general with many common and widespread species being notable for their absence in many places, particulary here *(pers obs*).

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 grassland habitats 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(Beegrabbers)
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, 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. As a prelude to the species lists notes on the habitat and plants flowering in each survey area are provided. 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.

Species recorded as new for the site are highlighted with ♯

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*), buttercup (*Ranunculus* sp,), Bluebell (*Hyacinthoides non- scripta*), Lady's Smock (*Cardamine pratensis*) Blackthorn (*Prunus spinosa*), Hawthorn (*Crateagus monogyna*), Dandelion (*Taraxacum officinale* agg.) and Hemlock Water-dropwort (*Oenanthe crocata*). During the middle two months, Bird's Foot Trefoil (*Lotus* sp), Red Clover (*Trifolium pratense*), Hogweed (*Heracleum sphondylium*), Black Knapweed (*Centaurea nigra*), White Clover (*Trifolium repens*), Creeping Thistle (*Cirsium arvense*), Spear Thistle (*Cirsium vulgare*)Bramble (*Rubus fruticosus* agg.) and Meadowsweet (*Filipendula ulmaria*) were dominant. In the final two months of the survey forage resources had diminished markedly, after a succession of heatwaves had left much of the meadow dry, parched and withered leaving just a few small areas of Greater Bird's Foot Trefoil (*Lotus pedunculatus*)Black Knapweed (*Centaurea nigra*), Water Mint (*Mentha aquatica*), and Meadowsweet.

1.4.1 South Meadow

Group/ Visit Date	**16 Apr**	**23 May**	**16 Jun**	**13 Jul**	**13 Aug**	**14 Sept**
Neuroptera; Lacewings						
Chrysopa perla		*				
Chrysoperla carnea				*		
Odonata; Dragonflies						
Aeshna cyanea				*		
Orthoptera; Bush Crickets						
Conocephalus fuscus			*	*		
Grasshoppers						
Pseudochorthippus parallelus			*	*	*	*
Chorthippus brunneus				*	*	
Heteroptera; True Bugs						
Closterotomus norwegicus			*			
Capsus ater			*			
Pithanus maerkelii			*			
Stenodema calcarata		*		*		
Coreus marginatus		*		*		
Dolycoris baccarum				*		

Group/ Visit Date	16 Apr	23 May	16 Jun	13 Jul	13 Aug	14 Sept
Aelia acuminata		*				
Palomena prasina	*			*		
Lepidoptera; Butterflies						
Thymelicus sylvestris				*		
Gonepteryx rhamni	*					
Pieris rapae					*	
Anthocharis cardamines	*					
Lycaena phlaeus	*					
Polyommatus icarus				*		
Celastrina argiolus	*					
Vanessa atalanta			*	*		
Vanessa cardui				*		
Polygonia c-album			*			
Pyronia tithonus			*			
Maniola jurtina			*	*	*	
Diptera; Hoverflies						
Episyrphus balteatus						*
Eristalis tenax	*					
Eristalis intricarius		*				
Eumerus funeralis		*				
Eupeodes corollae	*					
Helophilus pendulus	*					
Lejogaster metallina		*				
Platycheirus albimanus	*					
Sphaerophoria scripta		*				
Syrphus ribesii	*					
Larger Brachycera						
Rhagio scolpaceus		*				
Snail-killing Flies						
Pherbellia cinerella			*			*
Tachinid Flies						
Eriothrix rufomaculata				*		
Phasia obesa				*		
Hymenoptera;						
Ruby-tailed (Cuckoo)Wasps						
*Hedychridium cupreum** [#]				1♀		
Ants						
Lasius niger	*	*				
Social Wasps						
Vespula vulgaris			*	*		*
Solitary Wasps						
Solitary Bees						
Lasioglossum calceatum		*				
Andrena fulva	*					
Andrena nitida	*					
*Nomada fucata** [#]			1♂			
Anthophora plumipes	*					
Social Bees						
Bombus hortorum				*		
Bombus lapidarius		*				
Bombus lucorum/terrestris[1]			*		*	

Group/ Visit Date	16 Apr	23 May	16 Jun	13 Jul	13 Aug	14 Sept
Bombus pascuorum			*	*	*	*
Apis mellifera		*	*	*		
Coleoptera;						
Soldier Beetles						
Cantharis flavilabris			*			
Rhagonycha fulva				*		
Ladybirds						
Tytthaspis 16-guttata				*		
Harmonia axyridis			*			
Coccinella 7-punctata			*			

1.4.2 Middle Meadow

Group/ Visit Date	16 Apr	23 May	16 Jun	13 Jul	13 Aug	14 Sept
Neuroptera; Lacewings						
Chrysopa perla		*				
Orthoptera; Bush Crickets						
Grasshoppers						
Pseudochorthippus parallelus			*		*	*
Chorthippus brunneus			*	*	*	*
Heteroptera; True Bugs						
Closterotomus norwegicus			*			
Macrotylus solitarius				*		
Stenodema calcarata				*		
Leptopterna dolobrata				*		
Scolopostethus affinis		*				
Coreus marginatus				*		
Aelia acuminata						*
Dolycoris baccarum		*		*		*
Trichoptera; Caddisflies						
Limnephilus affinis	*					
Lepidoptera; Butterflies						
Thymelicus sylvestris			*			
Thymelicus lineola			*			
Colias croceus						*
Pieris rapae					*	
Polygonia c-album			*			
Maniola jurtina			*			
Diptera; Hoverflies						
Cheilosia albitarsis	*					
Episyrphus balteatus						*
Eristalis tenax	*					
Eumerus funeralis			*			
Eupeodes corollae	*					
Platycheirus albimanus	*					
Sphaerophoria scripta			*			
Syrphus ribesii	*					

Group/ Visit Date	**16 Apr**	**23 May**	**16 Jun**	**13 Jul**	**13 Aug**	**14 Sept**
Larger Brachycera						
Chloromyia formosa			*			
Leptogaster cylindrica				*		
Snail-killing Flies						
Picture-winged Flies						
Terellia ruficauda						*
Sphenella marginata			*			
Conopid Flies						
Physocephala rufipes			*			
Tachinid Flies						
Eriothrix rufomaculata				*	*	
Phasia obesa				*	*	
Hymenoptera;						
Ants						
Lasius flavus			*			*
Lasius niger	*	*	*			*
Social Wasps						
Vespula vulgaris			*		*	
Solitary Wasps						
Solitary Bees						
Lasioglossum albipes					*	
Lasioglossumm calceatum			*			
Andrena dorsata			*			
Andrena nitida	*					
Nomada flava	*					
Anthophora furcata [#]		*				
Social Bees						
Bombus lapidarius		*	*			
Bombus lucorum/terrestris[1]		*	*			
Bombus pascuorum					*	
Bombus pratorum		*				
Apis mellifera		*	*			
Coleoptera;						
Soldier Beetles						
Cantharis flavilabris			*			
Ladybirds						
Harmonia axyridis			*			
Coccinella 7-punctata			*			

1.4.3 North Meadow

Group/ Visit Date	16 Apr	23 May	16 Jun	13 Jul	13 Aug	14 Sept
Neuroptera; Lacewings						
Chrysoperla carnea		*		*		
Odonata; Dragonflies						
Aeshna cyanea				*		
Orthoptera; Bush Crickets						
Conocephalus fuscus				*		
Grasshoppers						
Pseduochorthippus parallelus			*		*	
Chorthippus brunneus				*		
Groundhoppers						
Tetrix subulata		*				
Heteroptera; True Bugs						
Closterotomus norwegicus			*	*		
Coreus marginatus		*				
Trichoptera; Caddisflies						
Limnephilus lunatus	*					
Lepidoptera; Butterflies						
Ochlodes sylvanus			*			
Thymelicus lineola			*	*		
Pieris brassicae				*		
Lycaena phlaeus				*		
Polyommatus icarus		*		*		
Vanessa cardui				*		
Pararge aegeria				*		
Maniola jurtina				*		
Diptera; Hoverflies						
Cheilosia albitarsis	*					
Episyrphus balteatus			*			
Eumerus funeralis		*				
Eupeodes corollae			*			
Melanostoma scalare	*					
Sphaerophoria scripta			*			
Larger Brachycera						
Chrysopilus cristatus		*	*			
Bombylius major	*					
Snail-killing Flies						
Pherbellia cinerella	*					
Tetanocera arrogans			*			
Conopid Flies						
Physocephala rufipes			*			
Conops flavipes				*		
Tachinid Flies						
Phasia obesa		*				
Hymenoptera;						
Ants						
Lasius niger			*			
Myrmica ruginodis			*			

Group/ Visit Date	28 Apr	23 May	16 Jun	13 Jul	13 Aug	14 Sept
Solitary Bees						
Lasioglossum albipes		*	*			
Chelostoma florisomne		*	*			
Social Bees						
Bombus pascuorum			*			
Bombus vestalis				*		
Apis mellifera				*		

The Woodland

Major forage resources (nectar and pollen) were limited throughout the survey period, during the first two months of the survey period Bluebell, Green Alkanet (*Pentaglossis sempervirens*) and Foxglove were the dominant resources with some willowherb (*Epilobium* sp,), Bramble (*Rubus fruticosus* agg.) and Red Campion (*Silene dioica*) dominating during the middle two months. By the final two months of the survey there were virtually no forage resources available save for a little ragwort (S*enecio* sp) and willowherb (*Epilobium* sp,) this was largely as a result of successive heatwaves that had left much of the flora dessicated, parched and withered, this is reflected in the species lists below.

1.4.4 North Woodland

Group/ Visit Date	16 Apr	23 May	16 Jun	13 Jul	13 Aug	14 Sept
Diptera; Hoverflies						
Cheilosia albitarsis		*				
Episyrphus balteatus			*			*
Xylota segnis						*
Hymenoptera;						
Social Wasps						
Vespula vulgaris					*	*
Spider Wasps						
Anoplius nigerrimus		*				
Solitary Bees						
Nomada flava	*					
Social Bees						
Bombus pascuorum	*					

1.4.5 Middle Woodland

Group/ Visit Date	28 Apr	22 May	16 Jun	13 Jul	13 Aug	14 Sept
Diptera; Hoverflies						
Episyrphus balteatus			*			
Syrphus torvus		*				
Larger Brachycera						
Chrysopilus cristatus		*				
Hymenoptera;						
Social Bees						
Bombus lucorum/terrestris[1]			*			

1.4.6 South Woodland

Group/ Visit Date	16 Apr	23 May	16 Jun	13 Jul	13 Aug	14 Sept
Orthoptera; Grasshoppers						
Chorthippus brunneus						*
Lepidoptera; Butterflies						
Vanessa atalanta				*		
Pararge aegeria					*	
Pyronia tithonus				*		
Diptera; Hoverflies						
Episyrphus balteatus			*			
Hymenoptera;						
Solitary Bees						
Osmia bicornis	*					
Social Bees						
Bombus lucorum/terrestris[1]		*	*			
Bombus pascuorum	*	*	*			
Bombus pratorum		*				
Apis mellifera		*	*			

Note: *Bombus lucorum/terrestris*[1] = workers only seen, these two species can only be separated when queens or males are seen.

1.5 Nationally Scarce Species Recorded

Two Nationally Scarce species were recorded during the survey period, both hymenoptera that live as Cuckoo species on other hymenopterans. Details of their national status is taken from the national review by Falk (1991). A description of status ratings is given at the end of this text in Section 1.5.1.

Hymenoptera: Aculeates

Cuckoo (Ruby-tailed) Wasps

A Ruby-tailed Wasp *Hedychridium cupreum* (Nationally Scarce B)
Widely distibuted across much of England in a vsriety of habitats including dunes, heathland and grassland This species is a parasitoid of larvae of the sphecid was *Astata boops* which nests in bare ground and is itself a parsitoid of shieldbugs.
A single female recorded in the Southern Meadow on 13th July.

Solitary Bees

Painted Nomada Bee *Nomada fucata* (Nationally Scarce A)
Widely distributed in southern England in a variety of habitats, including grassland, heathland and soft rock cliffs. This species is a cleptoparasite of the widespread Yellow-legged Mining bee *Andrena flavipes*. Adults visit a wide range of flower species. The host bee requires areas of bare ground for nesting and a range of flower species for pollen. A single male recorded inthe South Meadow on 16th June.

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

The summer of 2026 was an exceptional one in terms of weather experienced during the survey period with five heatwaves and a number of 'Red Heat Alerts' declared by the Met Office as temperatures regularly exceeded 30^{o}C. Temperatures in excess of 35^{o}C in June and into early July appeared to have a negative impact on insect populations as the vegetation they are dedpendent upon struggled to cope in scorching conditions.

There appeared to be a clear decline in insect numbers after the first heatwave in June when much of the vegetation became parched, withered and dessicated. This has made direct comparisons with previous surveys difficult, but on the whole insects were not as numerous as previously with two usually common and abundant hoverflies *Melanostoma mellinum* and *M. scalare* being notable by their absences in most of the sweep-net samples. These two species typically occur in low double figures on a regular basis on many grassland sites in sweep-net samples but this was not the case during this survey. So too the snail-killing fly *Pherbellia cinerella* which was largely absent from the samples in this survey with perhaps the heat making conditions difficult for their molluscan hosts.

Three species which hadn't previously been recorded on the reserve were recorded during the course of this survey, all three are hymenopterans and interestingly two are Nationally Scarce; the Ruby-tailed Wasp *Hedychridium cupreum* a species that lives as a cuckoo in the nests of the solitary wasp *Astata boops* which has not yet been recorded on the reserve but could yet be found in the future, the prsence of this cuckoo species would suggest that the host occurs somewhere in the vicinity. The second species, the Painted Nomad Bee is detailed in section 1.5 above. It is perhaps not surprising that two of the new species are nationally scarce, which , by virtue of their scarcity would not be expected to turn up with any regularity anywhere, while the third new species the Fork-tailed Flower Bee *Anthophora furcata* is a common and widespread species with a scattered distribuion across much of southen England where it as a preference for a variety of herb-rich habitats where it nests in dead wood and rotting stumps in woodland or woodland edge, this species could have been expected to occur here given that its broad habitat requirements are all met on the reserve.

Overall, despite the difficult conditions caused by the extreme weather events the insect populations on the reserve appear to be in a positive and healthy condition with many of the species persisting. Hopefully future survey in less extreme weather conditions can continue to discover new species and confirm the continued presence of the previously recorded species as a continuing testament to the positive management and protection of the site as a nature reserve.

1.7 Acknowledgements

I would like to thank the Friends of Ballard Nature Reserve and New Milton Town Council for commissioning and funding this survey and Bob Lord for useful discussions regarding the Meadow throughout the duration of the survey. I would also like to thank Ann Gorman for driving me to and from the meadow each month in order that I could complete the survey.

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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