Appendix 10.1h
Extension Area – Invertebrate Survey Report

LINHAY HILL QUARRY: EXTENSION AREA

INVERTEBRATE SURVEY REPORT

On behalf of E & JW Glendinning Ltd.

MARCH 2016

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SUMMARY

E&JW Glendinning Ltd. is proposing an extension of their existing operation at Linhay Hill limestone quarry, near Ashburton. The site being considered for the extension lies immediately north-east of the existing quarry is currently managed as mixed farmland associated with Alston Farm.

An initial scoping visit to the site was carried out by an experienced entomologist in early June 2014 to assess the quality of habitats present within the site with regards invertebrates. This survey included a habitat assessment which found the site to support a range of key habitat types for invertebrates including flower-rich hay meadows, species-rich hedges and occasional mature trees, cattle-grazed pasture and open / short-herb areas within the farm complex.

To determine the conservation value of the invertebrate population present within the site, three daytime recording visits were made in June, July and August 2014, using a combination of recording techniques including casual observation, netting of flying insects, sweep-netting of ground vegetation and searches at ground level by turning over stones and fallen wood. In addition, water traps and pitfall traps were deployed within suitable habitat across the site.

The surveys identified a total of 219 invertebrate species within the site which included two species of national conservation concern as follows:

- *Sphecodes niger* – a species of solitary bee which is listed as Red Data Book (RDB)3 (Rare) which was recorded close to Alston Farm buildings; and

- Cinnabar *Tyria jacobaeae* – a species of moth which is listed as a Biodiversity Action Plan species (research only) and as a Species of Principle Importance under Section 41 of the NERC Act (2006) which was recorded in the south-west of the site.

Give the abundance and diversity of species recorded, including the presence of two species of national conservation concern, overall the invertebrate population within the site is assessed as being of Local (District) value.

1.0 INTRODUCTION

1.1 OVERVIEW & SURVEY OBJECTIVES

Woodfield Ecology was commissioned to carry out an invertebrate survey on behalf of E&JW Glendinning Ltd. of land to the north-east of Linhay Hill Quarry near Ashburton, Devon. The area of land is being proposed for a quarry extension to extend the operational lifespan of this working limestone quarry.

The land for the proposed extension (hereafter referred to as "the Site") is owned by E&JW Glendinning Ltd., which together with associated screening, infrastructure and mitigation, covers an area of c. 47 hectares situated within the south-eastern edge of Dartmoor National Park, in and around Alston Farm (centred on NGR SX776717).

The purpose of this assessment was to record the invertebrate assemblage within the Site in order to evaluate its importance with regards the invertebrate populations it supports. The results of the invertebrate surveys are detailed within the following report.

1.2 CONSERVATION STATUS & PROTECTION

1.2.1 Conservation Status

The national significance of species recorded in this survey is assessed in this report with reference to the following designations / conservation status:

- Biodiversity Action Plan (BAP) and Species of Principal Importance (SPIs): in the region of 400 invertebrate species are listed as Priority Species under the UK BAP and receive targeted conservation efforts. With only a few exceptions, these same species are also listed as SPIs under Section 41 (S41) of the Natural Environment and Rural Communities (NERC Act, 2006) and the presence of any of these on a development site is a material consideration in the determination of planning decisions;

- Red Data Book Species: Shirt (1987) detailed the status of rare insects based upon IUCN guidelines according to the degree of threat. The following categories are used in descending order of importance: Endangered, Vulnerable, Rare, Out of Danger and Endemic. Since the Red Data Book was published, updates have been published for certain species groups including dragonflies and damselflies, butterflies, beetles and flies; and

- Nationally Scarce A species and Nationally Scarce (Notable) B species: these relate respectively to species recorded from 16-30 and 31-100 10km grid-squares in Great Britain since 1 January 1970 (1980 in the case of moths).

At a county level, the Devon BAP includes Species Action Plans for Freshwater Pearl Mussel *Margaritifera margaritifera*, Great Green Bush-Cricket *Tettigonia viridissima*, Marsh Fritillary *Euphydryas aurinia*, Pearl-bordered Fritillary *Boloria euphrosyne*, Southern Damselfy *Coenagrion mercuriale* and White-clawed Crayfish *Austropotamobius pallipes.*

Key species for conservation within 'Living Dartmoor'[1] include Blue Ground Beetle *Carabus intricatus*, Bog Hoverfly *Eristalis cryptarum*, High Brown Fritillary *Argynnis adippe*, Marsh Fritillary, Pearl-bordered Fritillary and Southern Damselfly.

1.2.2 Legal Protection

Three invertebrate species are protected under the Conservation of Habitats and Species Regulations (2010) (as amended) and are termed European Protected Species (EPS) as follows: Fisher's Estuarine Moth *Gortyna borelii lunata*, Large Blue Butterfly and Lesser Whirlpool Ramshorn Snail *Anisus vorticulus*. For these species, it is illegal to capture, kill, disturb or injure them; damage or destroy their breeding or resting places or obstruct access to their resting or sheltering places (either deliberately or accidentally).

A total of 40 invertebrate species are afforded protection in the UK under Schedule 5 Section 9.1 of the Wildlife & Countryside Act 1981, as amended which makes it an offence to kill, injure or take any of the species listed. A further four species are afforded protection under Section 9.4 which provides for protection of their habitat and a further 27 species are listed under Section 9.5 which prevents them from being sold or transported.

1.2.3 Planning Policy

The National Planning Policy Framework (NPPF) forms the basis for planning decisions with respect to conserving and enhancing the natural environment. The ODPM circular 06/2005 provides supplementary guidance, including confirmation that the presence of a legally protected species may be a material consideration in the making of planning decisions.

The NPPF sets out, amongst other points, how at an overview level the 'planning system should contribute to and enhance the national and local environment' by:

[1] Living Dartmoor was produced by the Dartmoor Biodiversity Partnership in 2013 following consultation in 2012/13. It sets out to co-ordinate work which will enable a network of healthy, diverse habitats to benefit wildlife, landscapes, people and natural resources over the next ten years

- *recognising the wider benefits of ecosystem services; and*
- *minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures…'*

A list of principles which local planning authorities should follow when determining planning applications is included in the NPPF. They include the following:

- *'if significant harm resulting from a development cannot be avoided…adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *…opportunities to incorporate biodiversity in and around developments should be encouraged.'*

In addition, the Dartmoor National Park Core Strategy and Development Management and Delivery Development Plan Document (DPD) include a number of policies which include for protected and notable species:

- *'protect, maintain or enhance the biodiversity interests, and seek opportunities to restore or recreate habitats or linkages between them;*
- *further the conservation and enhancement of nationally protected species or habitats;*
- *conserve, enhance or restore priority habitats and species;*
- *protect and where appropriate enhance other defined sites, features, habitats, species, networks or natural processes of ecological importance;*
- *ensure that effective avoidance or mitigation measures are implemented (which may include off-site compensation); and*
- *result in no net loss of biodiversity.'*

1.3 PRE-EXISTING SURVEY INFORMATION & RECORDS

In April 2014, an Extended Phase 1 Habitat Survey was completed by Woodfield Ecology which was supported by an ecological desk study exercise.

As part of the desk study, records of legally protected species and species of conservation concern were requested from Devon Biodiversity Records Centre (DBRC) for the Site and within a 2km radius. A total of 22 notable invertebrate species were recorded within the study area and included species listed on the UK, Devon and Dartmoor BAPs, SPIs under the NERC Act (2006) and Nationally Scarce (based on IUCN criteria) and / or in decline at a local (County) level.

The majority of notable records were butterflies and included species such as Brown Argus *Aricia agestis*, Brown Hairstreak *Thecla betulae*, Dark Green Fritillary *Argynnis*

aglaja, Dingy Skipper *Erynnis tages*, Grayling *Hipparchia semele*, Green Hairstreak *Callophyrys rubi*, Grizzled Skipper *Pyrgus malvae*, Pearl-bordered Fritillary, Purple Hairstreak *Quercusia quercus*, Small Heath *Coenonympha pamphilus*, Small Pearl-bordered Fritillary *Boloria selene*, Wall *Lasiommata megera* and White Admiral *Limenitis camilla*.

Notable species of moth recorded within the study area included Buff Ermine *Spilosoma luteum*, Cloaked Carpet *Euphyia biangulata*, Dot Moth *Melanchra persicariae*, Knotgrass *Acronicta rumicis*, Oak Hook-tip *Watsonalla bina*ria and White Ermine *Spilosoma lubricipeda*.

Other notable invertebrate species recorded within the study area included British Cave Shrimp *Niphargellus glenniei*, Keeled Skimmer *Orthetrum coerulescens* (a Nationally Important Key Dragonfly Species) and Great Green Bush Cricket, a Devon BAP species which has been recorded in close proximity to the Site.

The Extended Phase 1 Habitat survey identified a number of habitats of potential value to invertebrates including hay meadows, hedgerows, cattle-grazed pasture and occasional mature trees containing some deadwood. Previously disturbed and unmanaged habitats surrounding the farmyard were also assessed as offering optimal habitat for invertebrates given the mosaic of habitats recorded in this location (including bare or sparsely vegetated slopes) together with its sheltered micro-climate given the protection from surrounding trees and buildings.

2.0 METHODOLOGY

2.1 HABITAT ASSESSMENT

An initial scoping visit to the Site was carried out by an experienced entomologist in early June 2014 (refer to Section 2.4 below for details) to assess the quality of habitats present within the Site with regards invertebrates. This scoping visit was then used to inform the sampling strategy used, as described below.

2.2 INVERTEBRATE SAMPLING

The adopted survey methodology was prescribed with reference to the guidelines published by English Nature (2005) and more recently by Buglife (2014).

Three daytime recording visits were made in June, July and August 2014, details of which appear in Section 2.3. Recording techniques during these visits consisted of casual observation/netting of flying insects, sweep-netting of ground vegetation and searches at ground level by turning over stones and fallen wood. Some specimens were taken away for subsequent identification under a microscope.

Water traps were left in situ in various parts of the Site; targeting key habitats (refer to Figure 1 for locations). This is a simple but effective method of attracting flower-visiting insects, consisting of brightly coloured, water-filled bowls matching the colours of local nectar plants, containing a small amount of detergent to aid rapid wetting and sinking of any attracted insect. The trapping periods varied between two to six days, coinciding with warm and dry conditions in order to maximise their effectiveness. Four pitfall traps were also left in situ during the July and August surveys, filled with anti-freeze as a killing agent, in order to more effectively sample ground-dwelling invertebrates.

The dates of deployment and numbers of water and pitfall traps used on each occasion are shown in Table 1 below.

Table 1: Trap Deployment Periods

Date	Number of water traps	Number of pitfall traps
14th June–16th June 2014	10	0
23rd July–25th July 2014	14	4
30thAugust– 5th September 2014	8	4

2.3 BASELINE EVALUATION CRITERIA

The ecological valuation is based on the guidelines set out in Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal (CIEEM,

2016). The known or potential value of an ecological resource or feature is determined within the following geographical context:

- International and European;
- National;
- Regional;
- County;
- Local.

2.4 SURVEY DATES, WEATHER CONDITIONS & PERSONNEL

The dates for each of the survey visits and summary weather conditions are shown in Table 1 below.

Table 1: Invertebrate Survey Dates and Weather Conditions

Visit No.	Date	Time of Visit	Weather
Habitat Assessment	06/06/2014	PM	Dry, Beaufort Force 3 south-westerly, 18°C
Survey Visit 1	14/06/2014	10.30-13.00	Dry, Beaufort Force 3 south-westerly, clear, 19°C.
Survey Visit 2	23/07/2014	13.30-18.30	Dry, Beaufort Force 3 southerly, clear, 27°C.
Survey Visit 3	30/08/2014	13.30-18.30	Dry, 5/8 cloud, Beaufort Force 3 westerly, 18°C.

All survey visits were carried out by Mark Tunmore MCIEEM, a consultant ecologist with 25 years' experience of carrying out entomological surveys. Specialist identification assistance was also provided by G.C. Collins and S. Falk.

2.5 LIMITATIONS

Being carried out within a period of just three months of the year this survey will have recorded only a proportion of the species that are present within the Site. Nevertheless it was carried out within the peak part of the season for insects, and whilst some early-flying species will have been missed (particularly carabid beetles and some aculeate species), it is considered to give a reasonable assessment of the Site's value for invertebrates and a representative but not exhaustive species list.

3.0 RESULTS

3.1 HABITAT ASSESSMENT

A number of habitats noted to be present within the Site, are identified as being important for invertebrates by Buglife (2014), including:

- Flower-rich grassland – several of the fields within the Site were conspicuously flower-rich (predominantly ungrazed hay meadows in the northern half of the Site) and were found to be supporting an abundance of nectaring insects at the time of the assessment;

- Hedgerows - the network of species-rich hedgerows present within the Site was extensive and sympathetically managed from an ecological perspective. The hedge structure provided plenty of shelter for invertebrates and the presence of Blackthorn *Prunus spinosa* and Hawthorn *Crataegus monogyna* blossom earlier in the year would provide an abundant nectar source for insects together with wildflowers along many of the hedgebanks. The value of this habitat type within the Site is further enhanced by the proximity to woodland;

- Mature trees - woodland bordering the northern boundary of the Site was noted to provide an additional valuable habitat, which would host additional species and provide a source of deadwood for invertebrates. These areas would also have a significant sheltering effect on the northern part of the Site, enhancing the value of this part of the Site. Mature trees were also present within the network of hedgerows throughout the Site, which further enhances the value of the hedgerow habitat as well as supporting additional species;

- Bare ground and short ephemeral vegetation - within the complex of farm buildings close to the slurry pond there were two areas of sloping banks with short vegetation and bare ground, sheltered by surrounding trees. A number of low-growing nectar plants were present here, including Bird's-foot Trefoil *Lotus corniculatus*, the larval food plant of a number of butterflies and moths.

More generally, the south-facing aspect of the Site, high degree of habitat connectivity with hedgerows and woodland linking up, and the presence of cattle with the resulting dung input, are additional factors considered to enhance the ecological value of the Site for invertebrates.

3.2 INVERTEBRATE SAMPLING

A total of 219 invertebrate species were recorded across the survey visits, full details of which are presented in Appendix A.

The species list included 32 species of *Coleoptera* (beetles), one species of *Dermaptera* (earwigs), 92 species of *Diptera* (flies), 17 species of *Hemiptera* (bugs), 26 species of *Hymenoptera* (bees, wasps, ants and sawflies), one species of *Isopoda* (woodlice), 38 species of *Lepidoptera* (butterflies and moth), six species of *Odonata* (dragonflies and damselflies) and six species of *Orthoptera* (grasshoppers and crickets).

With reference to the criteria detailed in Section 1.2.1, two species recorded during the survey are recognised as having particular conservation value and are detailed further below (refer to Figure 2 for locations of sightings).

Sphecodes niger (a solitary bee)

A single specimen of the solitary bee *Sphecodes niger* was recorded on 5th September 2014 was caught in a water trap situated on bare and sparsely vegetated ground close to the main complex of farm buildings.

Sphecodes niger is listed as a RDB3 (Rare) and occurs locally in southern England from Devon east to Kent and north to Buckinghamshire and Lincolnshire[2]. It inhabits chalk grassland, soft-rock cliffs and disturbed situations on light and heavy soils, where it is a cleptoparasite of mining bees of the genus *Lasioglossum* (Falk, 1991). Its presence on Site likely reflects the warm south-facing conditions, presence of flower-rich grassland and presence of bare and sparsely vegetated ground. Habitat loss and scrub encroachment are listed as the main threats to this species (Falk, 1991).

Cinnabar Tyria jacobaeae

Cinnabar *Tyria jacobaeae* is a common and widespread species of moth which is listed as a Biodiversity Action Plan species (research only) and as a Species of Principle Importance under Section 41 of the NERC Act (2006). A single example was seen day-flying on 23rd July 2014 in the south-west corner of the Site.

The population of this species in the UK declined by 83% between 1968 and 2002 (Fox et al., 2006). It inhabits well drained rabbit-grazed grassland and other open habitats where the main larval foodplant, Common Ragwort *Senecio jacobaea*, is found (Waring & Townsend, 2003). The reasons for the decline of this species are not fully understood, but likely to include habitat loss and inappropriate management.

[2] http://www.bwars.com/index.php?q=bee/halictidae/sphecodes-niger

Other Species of Note

Whilst not listed as species of conservation concern using any of the criteria defined in Section 1.2.1, the presence of Silver-washed Fritillary *Argynnis paphia* and Marbled White *Melanargia galathea* was also considered significant, both being local in their distribution and indicative of habitat quality (refer to Figure 2 for location of sightings).

Silver-washed Fritillary is a woodland species and will occur in habitats close to oak woodland in particular, the main larval food plant being Common Dog-violet *Viola riviniana*. At least four examples of this species were seen on 23rd July 2014 with one seen nectaring on Butterfly-bush *Buddleja davidii* near to the farm buildings and a further three individuals were seen along the woodland edge in the north of the Site.

Marbled White is an indicator of less improved grassland habitats with a tall sward, the larval food plant being species of grass including Red Fescue *Festuca rubra*. A single example of this butterfly was seen in the grassland to the east of the farm buildings on 23rd July 2014.

4.0 VALUATION AND CONCLUSIONS

The habitat assessment found that the Site supports a range of key habitat types for invertebrates which includes flower-rich hay meadows, species-rich hedges and occasional mature trees, cattle-grazed pasture and open / short-herb areas within the farm complex. The overall value of these habitats to invertebrates is further enhanced by the proximity to areas of mature woodland (which have a sheltering effect on much of the northern part of the Site) as well as the south-facing aspect.

While a number of desk study records of notable invertebrates were obtained (in particular butterflies and moths), none of these were identified on site during surveys. This is considered likely to be due to the fact that many of these are associated with habitat types found within the wider Dartmoor Natural Area that are not present within or in close proximity to the Site.

The findings of the habitat assessment were corroborated by the abundance and diversity of species encountered during the sampling surveys which also included the presence of two nationally significant species. A key area for invertebrates highlighted by these surveys was the area surrounding the farmyard which offers a warm, sheltered micro-climate ideal for aculeate *Hymenoptera* as well as butterflies such as Common Blue *Polyommatus Icarus* and the record of *Sphecodes niger* also came from this area.

Overall the invertebrate population within the Site is assessed as being of Local (District) value.

REFERENCES

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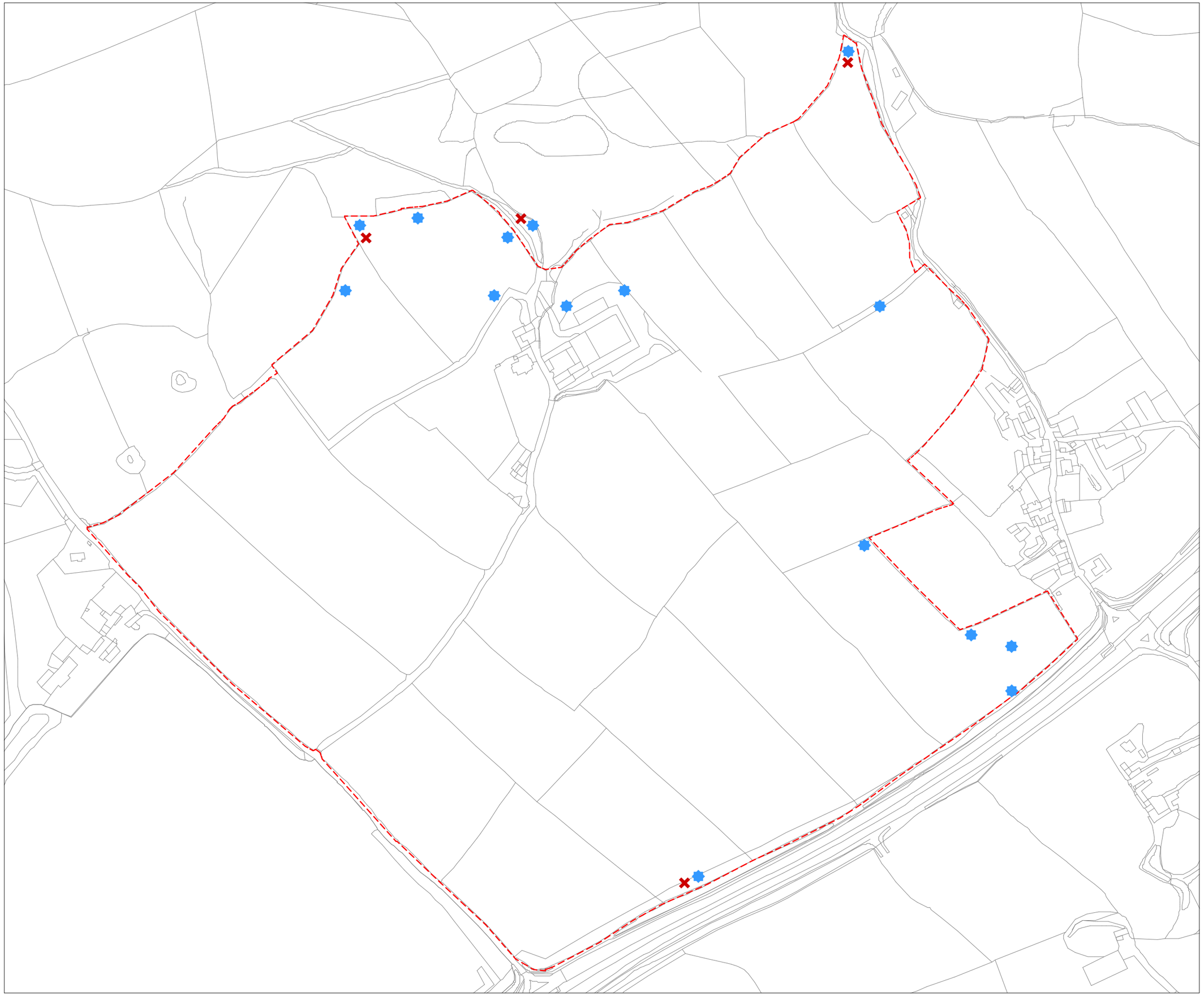
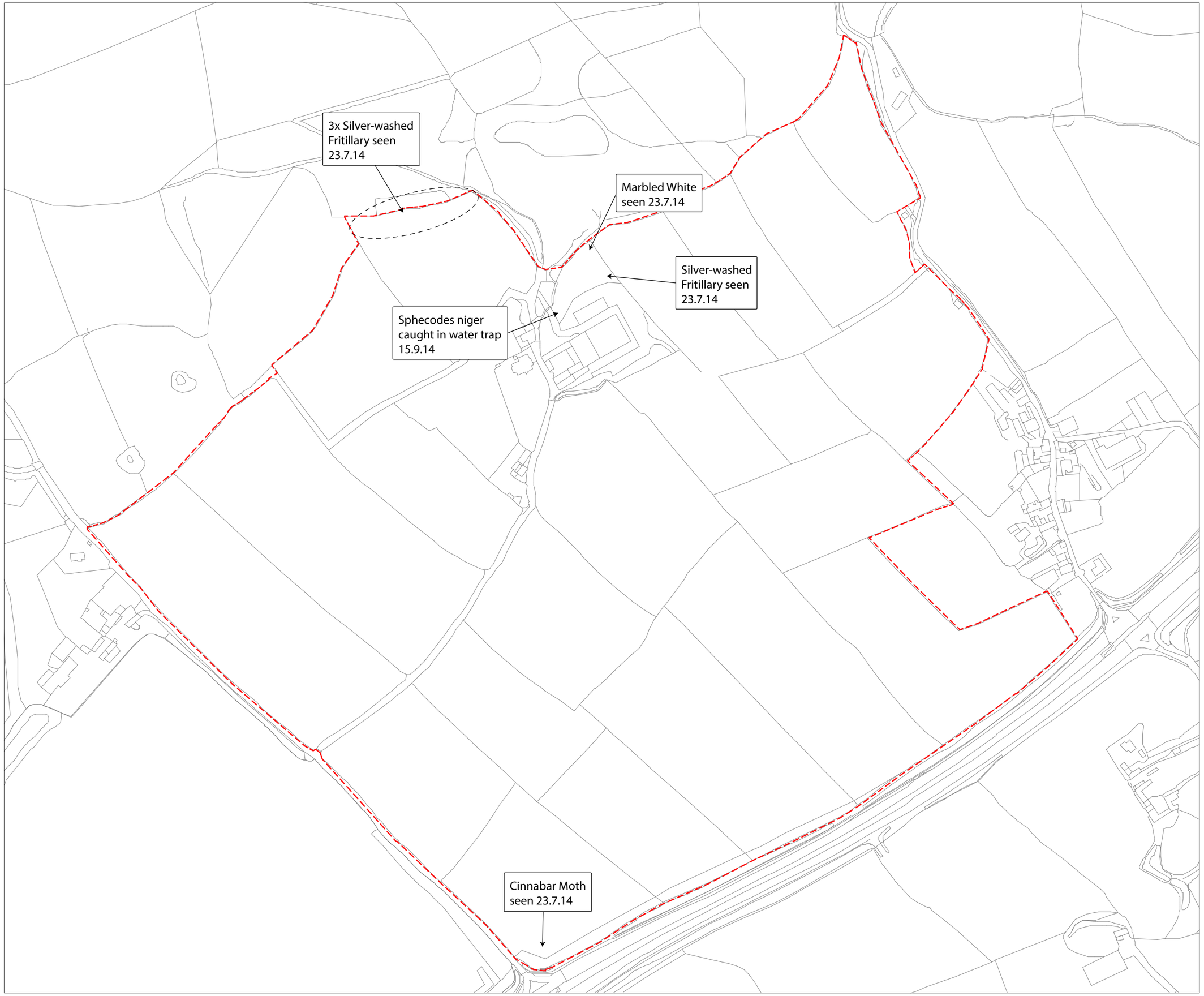


Linhay Hill Quarry:
Extension Area

Invertebrate Surveys:
Water and Pitfall Trap Locations

Figure 1

WOODFIELD ECOLOGY



Survey Area

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Linhay Hill Quarry: Extension Area

Invertebrate Surveys: Locations of Notable Invertebrate Species

Figure 2

WOODFIELD ECOLOGY

APPENDIX A: INVERTEBRATES RECORDED DURING SURVEY

Species	Common name (if applicable)	Type of insect
COLEOPTERA		
Agriotes obscurus		click beetle
Amara communis		ground beetle
Anaspis pulicaria		tumbling flower beetle
Anthrenus verbasci		larder beetle
Bembidion quadrimaculatum		ground beetle
Carabus violaceus	Violet Ground Beetle	ground beetle
Chrysolina banksii		leaf beetle
Coccinella septempunctata	Seven-spot Ladybird	ladybird
Gastrophysa viridula		dock beetle
Isomira murina		darkling beetle
Nebria brevicollis		ground beetle
Nicrophorus vespillo		sexton beetle
Ocypus olens	Devil's Coach-horse	rove beetle
Oedemera lurida		thick-legged flower beetle
Oedemera nobilis		thick-legged flower beetle
Ontholestes murinus		rove beetle
Onthophagus coenobita		dung beetle
Philonthus splendens		rove beetle
Phyllopertha horticola	Garden Chafer	chafer
Poecilus cupreus		ground beetle
Propylea 14-punctata	14-spot Ladybird	ladybird
Protapion apricans		clover seed weevil
Protapion trifolii		clover seed weevil
Pseudovadonia livida		longhorn beetle
Pterostichus madidus		ground beetle
Pterostichus melanarius		ground beetle
Quedius semiobscurus		rove beetle
Rhagonycha fulva		soldier beetle
Rhinoncus pericarpius		weevil
Scymnus frontalis		ladybird
Tasgius morsitans		rove beetle
Tyhaspis sedecimpunctata	16-spot Ladybird	ladybird
DERMAPTERA		
Forficula auricularia		earwig

Species	Common name (if applicable)	Type of insect
DIPTERA		
Ametastegia glabrata		sawfly
Brachicoma devia		fleshfly
Calliphora vicina		blow-fly
Calliphora vomitoria		blow-fly
Campsicnemus curvipes		dolichopodid fly
Campsicnemus loripes		dolichopodid fly
Cheilosia albitarsis		hoverfly
Cheilosia illustrata		hoverfly
Chloromyia formosa		soldierfly
Chrysogaster solstitialis		hoverfly
Chrysopilus asiliformis		snipe fly
Chrysotus cilipes		dolichopodid fly
Chrysotus gramineus		dolichopodid fly
Coenosia tigrina		muscid fly
Dolichopus festivus		dolichopodid fly
Dolichopus plumipes		dolichopodid fly
Dolichopus popularis		dolichopodid fly
Dolichopus trivialis		dolichopodid fly
Dolichopus ungulates		dolichopodid fly
Empis livida		empidid fly
Empis lutea		empidid fly
Episyrphus balteatus		hoverfly
Eristalis arbustorum		hoverfly
Eristalis horticola		hoverfly
Eristalis nemorum		hoverfly
Eristalis pertinax		hoverfly
Eristalis tenax		hoverfly
Eudasyphora cyanella		muscid fly
Eudasyphora cyanicolor		muscid fly
Eumerus funeralis		hoverfly
Eupeodes latifasciatus		hoverfly
Exorista rustica		parasitic fly
Helophilus pendulus		hoverfly
Hebecnema fumosa		muscid fly
Helina depuncta		muscid fly
Helina evecta		muscid fly
Hydrotaea cyrtoneurina		muscid fly

Species	Common name (if applicable)	Type of insect
Lonchoptera bifurcata		spear-winged fly
Lucilia caesar		blow-fly
Lucilia sericata		blow-fly
Machimus cingulatus	Brown Heath Robberfly	robberfly
Melinda viridicyanea		blow-fly
Merodon equestris		hoverfly
Mesembrina meridian		muscid fly
Morellia simplex		muscid fly
Musca autumnalis		muscid fly
Muscina levida		muscid
Myathropa florea		hoverfly
Myospila meditabunda		muscid
Neoascia podagrica		hoverfly
Neomyia viridescens		muscid fly
Norellisoma spinimanum		dung fly
Opomyza germinationis		opomyzid fly
Orthonevra nobilis		hoverfly
Phaonia errans		muscid fly
Phaonia fuscata		muscid fly
Phaonia incana		muscid fly
Phaonia pallida		muscid fly
Phaonia rufiventris		muscid fly
Phaonia tuguriorum		muscid fly
Platycheirus albimanus		hoverfly
Platycheirus clypeatus		hoverfly
Platycheirus granditarsus		hoverfly
Platycheirus rosarum		hoverfly
Platypalpus optivus		hybotid fly
Polietes lardarius		muscid fly
Pollenia angustigena		blow-fly
Pollenia pediculata		blow-fly
Pollenia rudis		blow-fly
Rhagio tringarius		snipe fly
Rhingia campestris		hoverfly
Saltella sphondylii		sepsid fly
Sarcophaga aratrix		flesh fly
Sarcophaga carnaria		Flesh fly
Sarcophaga crassimargo		flesh fly

Species	Common name (if applicable)	Type of insect
Sarcophaga haemorrhoa		flesh fly
Sarcophaga incisilobata		flesh fly
Sarcophaga melanura		flesh fly
Sarcophaga nigriventris		flesh fly
Sarcophaga subvicina		flesh fly
Sarcophaga variegata		flesh fly
Sargus flavipes		soldierfly
Scathophaga stercoraria		dung fly
Sepsis fulgens		sepsid fly
Sericomyia silentis		hoverfly
Siphona geniculate		parasitic fly
Stethomostus fuliginosus		sawfly
Syritta pipiens		hoverfly
Tenthredopsis coquebertii		sawfly
Tipula paludosa		cranefly
Volucella bombylans		hoverfly
HEMIPTERA		
Aelia acuminate	Bishop's Mitre	shieldbug
Aphrodes makarovi		leaf-hopper
Apolygus spinolai		plantbug
Cicadella viridis		leafhopper
Closterotomus norvegicus		plantbug
Coreus marginatus		leatherbug
Dolycoris baccarum	Sloe Bug	shieldbug
Euscelis incises		leaf-hopper
Euscelis lineolatus		leaf-hopper
Javesella dubia		plant-hopper
Leptopterna dolabrata		plantbug
Megophthalmus scanicus		leaf-hopper
Palomena prasina	Green Shieldbug	shieldbug
Philaenus spumarius		frog-hopper
Piezodorus lituratus	Gorse Shieldbug	shieldbug
Psammotettix confinis		leaf-hopper
Streptanus sordidus		leaf-hopper
HYMENOPTERA		
Andrena angustior		solitary bee
Anoplius nigerrimus		spider-hunting wasp
Arge pagana		sawfly

Species	Common name (if applicable)	Type of insect
Athalia circularis		sawfly
Bombus hortorum	Small Garden Bumblebee	bumblebee
Bombus hypnorum	Tree Bumblebee	bumblebee
Bombus lapidarius	Red-tailed Bumblebee	bumblebee
Bombus pascuorum	Common Carder-bee	bumblebee
Bombus terrestris	Buff-tailed Bumblebee	bumblebee
Bombus pratorum	Early Bumblebee	bumblebee
Dolichovespula sylvestris		social wasp
Halictus tumulorum		solitary bee
Halictus rubicundus		solitary bee
Lasioglossum calceatum		solitary bee
Lasioglossum morio		solitary bee
Lasius niger		ant
Megachile willughbiella		leafcutter bee
Mellinus arvensis		solitary wasp
Myrmica scabrinodis		ant
Osmia caerulescens		solitary bee
Osmia leaiana		solitary bee
Passaloecus singularis		solitary wasp
Pompilus cinereus		spider-hunting wasp
Sphecodes niger		solitary bee
Vespula germanica	German Wasp	social wasp
Vespula vulgaris	Common Wasp	social wasp
ISOPODA		
Oniscus asellus		woodlouse
LEPIDOPTERA		
Aglais urticae	Small Tortoiseshell	butterfly
Agriphilla straminella		moth
Anthocharis cardamines	Orange-tip	butterfly
Anthophila fabriciana	Nettle-tap Moth	moth
Aphantopus hyperantus	Ringlet	butterfly
Argynnis paphia	Silver-washed Fritillary	butterfly
Asthena albulata	Small White Wave	moth
Autographa gamma	Silver Y	moth
Campaeini margaritaria	Light Emerald	moth
Camptogramma bilineata	Yellow Shell	moth
Celypha lacunana		moth
Chrysoteuchia culmella		moth

Species	Common name (if applicable)	Type of insect
Colias croceus	Clouded Yellow	butterfly
Crambus perlella		moth
Diachrysia chrysitis	Burnished Brass	moth
Epirrhoe alternate	Common Carpet	moth
Gonepteryx rhamni	Brimstone	butterfly
Inachis io	Peacock	butterfly
Lycaena phlaeas	Small Copper	butterfly
Macroglossum stellatarum	Humming-bird Hawk-moth	moth
Maniola jurtina	Meadow Brown	butterfly
Melanargia galathea	Marbled White	butterfly
Ochlodes sylvan	Large Skipper	butterfly
Pararge aegeria	Speckled Wood	butterfly
Petrophora chlorosata	Brown Silver-line	moth
Pieris brassicae	Large White	butterfly
Pieris napi	Green-veined White	butterfly
Pieris rapae	Small White	butterfly
Plutella xylostella	Diamond-back moth	moth
Polygonia c-album	Comma	butterfly
Polyommatus icarus	Common Blue	butterfly
Pyronia tithonus	Gatekeeper	butterfly
Rivula sericealis	Straw Dot	moth
Thymelicus sylvestris	Small Skipper	butterfly
Tyria jacobaeae	Cinnabar	moth
Udea ferrugalis	Rusty-dot Pearl	moth
Xanthorhoe montanata	Silver-ground Carpet	moth
Zygaena filipendulae	6-spot Burnet	moth
ODONATA		
Aeshna mixta	Migrant Hawker	dragonfly
Anax imperator	Emperor	dragonfly
Cordulegaster boltonii	Golden-ringed Dragonfly	dragonfly
Libellula depressa	Broad-bodied Chaser	dragonfly
Orthetrum cancellatum	Black-tailed Skimmer	dragonfly
Sympetrum striolatum	Common Darter	dragonfly
ORTHOPTERA		
Chorthippus brunneus	Common Field Grasshopper	grasshopper
Chorthippus parallelus	Meadow Grasshopper	grasshopper
Conocephalus discolor	Long-winged Conehead	grasshopper
Leptophyes punctatissima	Speckled Bush-cricket	grasshopper

Species	Common name (if applicable)	Type of insect
Omocestus viridulus	Common Green Grasshopper	grasshopper
Tetrix undulata	Common Ground-hopper	grasshopper

DOCUMENT CONTROL INFORMATION

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