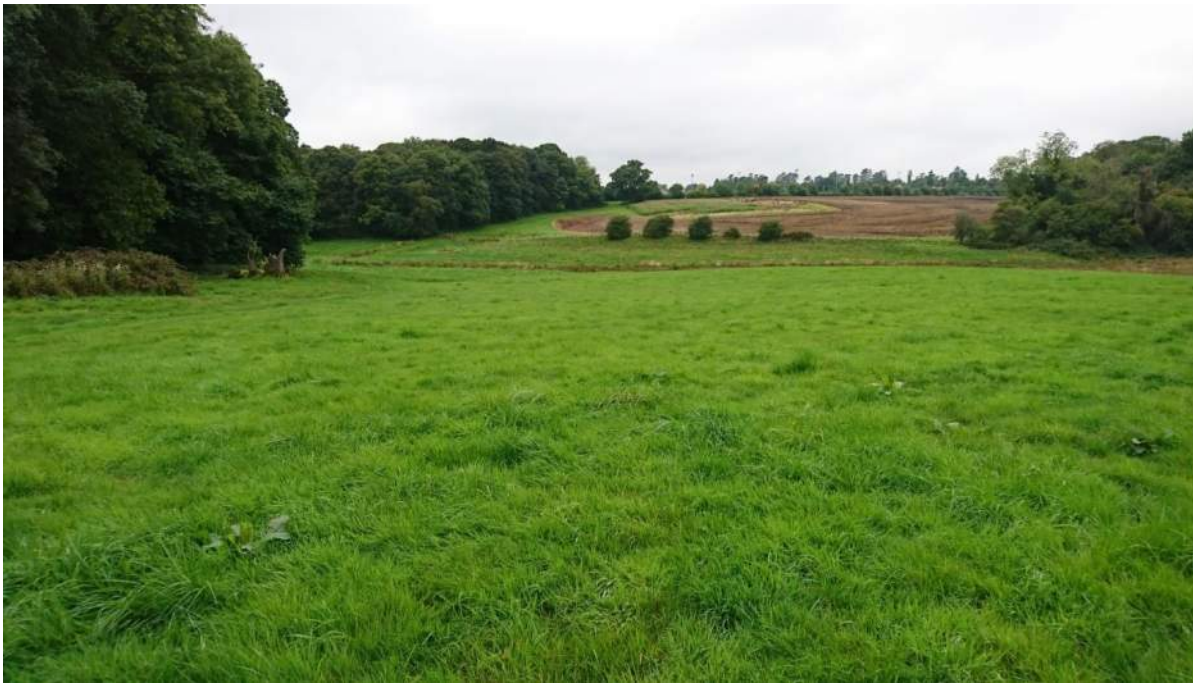
Sandleford Park, Newbury

Appendix F12: Terrestrial Invertebrate Survey Report



Bloor Homes & The Sandleford Farm Partnership

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2	25.01.2018	Dominika Murienova	Tamsin Clark	Update to reflect current application
3	10.12.18	Ben Cooke	Tamsin Clark	Updated to reflect the current proposals
4	14.02.19	Tamsin Clark	N/A	Updated as ES addendum to application 3a

Contents

Executive Summary

Contents	Summary
Site Location	The site is located at Sandleford Park in Newbury, West Berkshire, centred on OS Grid Reference SU 46847 64550. The site comprises agricultural fields with areas of grassland and several copses of ancient woodland. A central valley runs from the north-western corner of the site towards the River Enborne at the site's southern boundary.
Existing Site Information	WYG completed an initial ecological appraisal in 2008 with update surveys completed in 2011, 2013, 2015, 2016 and 2017. In addition, a number of protected species surveys and terrestrial invertebrate surveys have been completed at the site.
Scope of this Survey(s)	Update entomological surveys were undertaken during June, July and September 2018. Prior to this, an invertebrate survey was carried out between June – August 2014 and June -September 2011. Survey methods included visual searching, the use of a hand net or pooter to capture individual species, sweeping vegetation, beating foliage and grubbing. Additionally, two series of pitfall traps were placed on the site. Update moth surveys were completed on 21st June, 13th July, 26th and 28th September. Prior to this moth surveys were completed in 2014 and 2011.
Results	A range of common and widespread terrestrial invertebrates were recorded during the terrestrial surveys, in 2018 none of which are considered notable. However, based on previous surveys, it is considered that the site is of county importance for terrestrial invertebrates. The moth surveys recorded 56 specimens of 23 species, of which a single species is listed on the UK BAP and NERC S41 list. This species is listed as UK Priority Species (research only), and the site is considered to be of at least of local importance for moths.
Recommendations	• All areas of woodland will be retained with a 15 m buffer as these areas are the areas considered to be most beneficial to some of the notable species recorded. The forbes growing on the edges of the woodlands will be also retained as they provide an important resource for the larval food plants as well as providing resting sites for the adults. • A minimum of a 5 m buffer will be retained on both sides of all streams and drains where possible as this will help with the retention of the marsh grasslands and the associated plants growing there. • Hedgerows will be retained with a buffer where possible. Additional hedgerow will also be planted within the final development. • It is recommended that if possible livestock is used as a management tool and poaching in certain areas is allowed. • Goats-beard is recommended to be retained within undeveloped areas of the site. • Retention of hogweed plants within the buffer zones around the woodlands and within the valley wetland corridor and Country Park may be beneficial. • The hydrology of the site has been carefully considered during the design process seeking to retain current water flow within the site. • Should the link road to the A399 be required at a later date, it is recommended that an entomologist be consulted, as a detailed assessment of this area has not yet been completed.

Glossary

JNCC	Join Nature Conservancy Council
LBAP	Local Biodiversity Action Plan
LNR	Local Nature Reserve
LWS	Local Wildlife Site
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
NERC Act	Natural Environment and Rural Communities Act 2006
RDB	Red Data Book
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site(s) of Special Scientific Interest

1.0 Introduction

1.1 Background

WYG was commissioned by Bloor Homes and the Sandleford Farm Partnership in December 2018 to review the findings of the terrestrial invertebrate surveys at Sandleford Park, with reference to the current proposals.

This report has been prepared by Ben Cooke, and updated by Tamsin Clark MCIEEM.

1.2 Site Location

The site is located at Sandleford Park in Newbury, West Berkshire and is centred at Ordnance Survey National Grid Reference SU 46847 64550. The survey area, hereafter referred to as the 'site' comprises of agricultural fields with areas of grassland and several copses of ancient woodland dispersed throughout. A central valley runs from the north-western corner of the site towards the River Enborne at the site's southern boundary. For details of the development description, please see the main ES chapter.

1.3 Purpose of the Report

The objectives of this is assessment are to carry-out:

- Review survey findings; and
- Complete an update assessment of the potential ecological receptors present on site, any constraints they pose to future development and any recommendations for any further surveys, avoidance, mitigation or enhancement measures that are needed (as appropriate).

Note that Latin names are provided at the first mention of each species and common names (where appropriate) are then used throughout the rest of the report for ease of reading.

2.0 Methodology

2.1 Desk Study

2.1.1 Previous Reports

The first terrestrial invertebrate survey was undertaken during 2011 as a consequence of a recommendation made as part of the extended Phase 1 habitat survey report for this site (WYG, 2011) and subsequent liaison with the County Ecologist. Update terrestrial invertebrate surveys were completed in 2014 and 2018.

2.1.2 Local Ecological Records Centre

Information was requested from the Thames Valley Environmental Record Centre (TVERC) and Hampshire Biodiversity Information Centre (HBIC) in December 2017 for information on any nature conservation designations and protected or notable species records within 2 km of the site.

The data search covers:

- Statutory designated sites for nature conservation, namely SACs, SPAs, Ramsar sites, SSSIs, NNRs and LNRs;
- Non-statutory designated sites for nature conservation, namely LWS;
- Legally protected species, such as great crested newts, bats and badger;
- Notable habitats and species, such as those listed as Habitats or Species of Principal Importance; and,
- Priority habitats or species within the Berkshire LBAP.

The data search did not cover:

- Tree Preservation Orders (TPOs); or
- Conservation Areas designated for their special architectural and historic interest.

2.2 Field Surveys

2.2.1 Habitats (2014)

For the purposes of entomological survey the site was divided into a number of compartments. These are referred to within the report by their field numbers or the names of individual woodland blocks. These compartments are shown on Figure 1.

Semi-improved grassland and arable

The site largely comprises semi - improved grassland habitats and arable fields. At the time of the 2014 survey, fields NG 7699, NG 9214 and NG 2802 were used to cultivate wheat; these fields lacked flower – rich margins and contained few arable weeds.

The remaining fields were dominated by rank semi improved grassland. Many contained white clover (*Trifolium repens*), yarrow (*Achillea millefolium*), black medick (*Medicago lupulina*), vetches *(Vicia* spp.) and hawkweed type yellow composites. Sow-thistles (*Sonchus* spp.) and oxeye daisy (*Leucanthemum vulgare*), ragwort (*Senecio jacobae*), creeping thistle (*Cirsium arvense*) and spear thistle (*Cirsium vulgare*) were also abundant in many areas. In the wetter areas of the site rushes

(*Juncus* spp.) and marsh thistle (*Cirsium palustre*) were frequent. Certain plants were found to have a much more restricted distribution within the site. Field NG 6740 contained large quantities of goats – beard (*Tragopogon pratensis*). Germander speedwell (*Veronica chamaedrys*) was also present in some quantity in NG 6740. Both these plant species were largely absent from the rest of the site. Most of the grassland areas had been cut by the time of the visit in late July 2014.

Several areas of the site had been planted to provide game cover. These contained sweet corn (*Zea mays*), creeping thistle, spear thistle and ragwort. Common fleabane (*Pulicaria dysenterica*) and mayweed (*Matricaria* sp.) were present in some quantity within several of these areas. Areas of game cover were situated in the north – west of NG 2934, the south of NG 7699, the north of NG 4743, the north of NG 5499 and the east of NG 7447.

Woodland

Seven areas of deciduous woodland were present within the survey area. Most of these were dominated by mature oak (*Quercus robur*) and sycamore (*Acer pseudoplatanus*). Birch (*Betula pendula*) was also frequent. Some areas contained ash (*Fraxinus excelsior*), and there were small amounts of horse chestnut (*Aesculus hippocastanum*) and sweet chestnut (*Castanea sativa*). Holly (*Ilex aquifolium*) and hazel (*Corylus avellana*) formed the main understorey components in most areas.

- Gorse Covert contained some rowan (*Sorbus aucuparia*) and elm (*Ulmus* sp.).
- Waterlease Copse contained some large oak and ash, and small quantities of alder (*Alnus glutinosa*) were present.
- Slocketts Copse was dominated by sycamore rather than oak.
- High wood contained some good large mature oaks with a considerable dead wood element, both as standing and fallen timber.

Bracken (*Pteridium aquilinum*) was abundant in several of the copses.

All of the woodlands were generally densely shaded, with a poor ground flora and very few open areas. The dead wood element varied, but all of the copses contained fallen and standing dead wood, and in places there were considerable amounts of this resource.

The woodland areas have been used for pheasant rearing over some period of time. Whilst this results in the creation of open areas as rearing pens, these have a poor flora due to the presence of many birds, and little other management has taken place within the woodlands. Particularly large pens are present in High Wood and in Waterleaze Copse.

Marshy Areas

A stream runs east to west through the site and a smaller stream runs south through NG 8957. For much of its length the main stream in the valley is bordered by rush pasture which is subject to periodic grazing by cattle. Many parts of this rush habitat are relatively dry. To the south of Slockett's Copse and close to the point where the stream meets the main footpath in NG 1733 there are some very marshy areas. The area to the south of Slockett's Copse forms a mire habitat. Water forget–me knot (*Myosotidis scorpioides*), cuckooflower (*Cardamine pratensis*), water mint (*Mentha aquatic*) and ragged-robin (*Lychnis flos–cuculi*) were present in places, as was marsh thistle.

2.2.2 Entomological Surveys

Entomological surveys were completed during the summer of 2014 by experienced entomologist Adam Wright. Update entomological surveys were completed during the summer of 2018, with visits made on four occasions (not including the placement of pitfall traps) by WYG Senior Ecologist John Simper. All visits over the two survey years were made in good weather conditions suitable to record terrestrial invertebrates.

Survey methods included visual searching, the use of a hand net and / or pooter to capture individual species, sweeping vegetation, beating foliage and grubbing.

Additionally, two series of pitfall traps were placed on the site, following Natural England guidelines (Drake *et al*. 2007). Each series comprised a row of five pitfall traps, spaced approximately two metres apart. Each trap consisted of a plastic half pint tumbler, diameter 7.5 cm and depth 11 cm. Each was filled to a depth of around 2 cm. with undiluted ethylene glycol, to which a few drops of washing–up liquid were added to help reduce surface tension. The traps were buried so that the rim of each trap was slightly below ground level. The traps were covered with wire mesh to prevent small mammals from falling in and drowning.

Series 1 was located in rank grass in the north east of field NG 5499 at SU46736417. Series 2 was located adjacent to the hedgerow at the eastern end of field NG 4743 at SU46666435. The locations of these pitfall traps are shown on Figure 1.

During the initial surveys in 2014 all traps were initially put in place on 5th June. The samples were collected on 24th June, on which date the traps were also refilled with the appropriate fluid. Samples were also taken on 22nd July, when again the traps were refilled. Final collection of samples, trap removal and the infilling of holes created by the installation of pitfall traps was undertaken on 13th August.

In 2018 all traps were left in place for 7 days, the samples were collected on 27th June, 19th July, 26th July and 26th September.

2.2.3 Moth Surveys

The moths of Sandleford were sampled on four nights during the summer of 2014, 16th June, 30th July, 11th and 28th August 2014 by WYG ecologists Simon Knott and Emily Hare, specimens were then identified by entomologist David Goddard MCIEEM.

The update surveys were completed on four nights during the summer of 2018, 21th June, 13th July, 26th and 28th September by WYG ecologists John Simper, Alex Hellyar and Dominika Murienova.

Standard light trapping techniques were used i.e. one 12V 6W Actinic Portable Heath Moth Trap was left out overnight and collected the following morning.

No systematic survey of day-flying Lepidoptera was commissioned although all species encountered during daylight hours were noted.

The surveys aimed to concentrate on features considered to be of greatest potential value to moths such as the woodlands and to select the best available weather conditions. During 2014 moth traps were located at the following OS Grid References:

- SU 46741 64546 - 16th June. The trap was positioned along hedgerow off woodland edge / wet grassland within Dirty Ground Copse.
- SU 467 645 - 30th July. The trap was positioned along hedgerow off woodland edge / wet grassland by Dirty Ground Copse.
- SU 46747 64510 - 11th August. The trap was positioned on edge of woodland / wet grassland within Dirty Ground Copse.
- SU 467 645 - 28th August. The trap was positioned along hedgerow off woodland edge / wet grassland by Dirty Ground Copse.

During the update surveys in 2018 a single moth trap was placed along the northern edge of Dirty Ground Copse at SU 46750 64524.

Identification was made using a variety of published resources such as Waring and Townsend (2009); Skinner (1984); Goater (1986); Riley and Prior (2003); Sterling and Parsons (2012) and internet resources (UK Moths, 2014). The status of each species was checked using the JNCC taxon designations spreadsheet (2014) and the status given in Waring and Townsend (2009).

2.2.4 Status Category Definitions and Criteria of Nationally Rare and Red Data Book Species

The status category definitions and criteria for individual species are those devised by the JNCC and are as follows:

RDB 1 - Endangered

- Taxa in danger of extinction and whose survival is unlikely if causal factors continue operating.
- Species which are known or believed to occur as only a single population within one 10 km square of the National Grid.
- Species which only occur in habitats known to be particularly vulnerable
- Species which have shown a rapid or continuous decline over the last twenty years and are now estimated to exist in five or fewer 10km squares.
- Species which are possibly extinct but have been recorded in the 20th century and if rediscovered would need protection.

RDB 2 - Vulnerable

- Taxa believed likely to move into the endangered category in the near future if the causal factors continue operating.
- Species declining throughout their range.
- Species in vulnerable habitats.

RDB 3 - Rare

- Taxa with small populations that are not at present Endangered or Vulnerable, but are at risk.
- Species which are estimated to exist in only fifteen or fewer post 1970 10 km squares. This criterion may be relaxed where populations are likely to exist in over fifteen 10 km squares but occupy small areas of especially vulnerable habitat.

Nationally Scarce (Na)

- Taxa which do not fall within the RDB categories but which are none-the-less uncommon in Great Britain and thought to occur in 30 or fewer 10 km squares of the National Grid.

Nationally Scarce (Nb)

- Taxa which do not fall within the RDB categories but which are none-the-less uncommon and thought to occur in between 31 and 100 of the 10 km squares of the national grid.

Nationally Scarce (N)

- Species which are estimated to occur within the range of 16 to 100 of the 10 km squares.

2.3 Limitations

The surveys were completed within the optimal survey window and during suitable weather windows. As such this is not considered to be a limitation to the accurate assessment of the species that were visible and identifiable.

It was not possible to access two pheasant pens (one within High Wood and another within Waterleaze Copse).

Moths may be drawn in by the trap, as such their presence on the proposed development site is assumed as it is difficult to prove otherwise.

The moth catch in 2018 was less than that of 2015 – possibly due the prolonged dry spell experienced during this period. As these conditions were experienced nationwide and there is data from previous years it is not considered that this is a limitation overall.

3.0 Baseline Conditions

3.1 Desk Study

HBIC and TVERC provided extensive records of protected and notable terrestrial invertebrates identified within 2km of the site. Table 1 and 2 show NERC (S41) and Vulnerable species that were identified within the data search. For the full list of records see Appendix B in the Ecological Appraisal report (Appendix F1).

Table 1 NERC, Nationally Threatened and Vulnerable Terrestrial Invertebrates Recorded within 2km Provided by TVERC

Species	Scientific Name	Number of Records	Location	National Status
Dingy skipper	*Erynnis tages*	6 (last from 2015)	Greenham Common, Pyle Hill	NERC (S41), vulnerable
Grizzled skipper	*Pyrgus malvae*	3 (last from 2008)	Greenham Common	NERC (S41), vulnerable
Wall	*Lasiommata megera*	1 (1988)	Greenham Common	NERC (S41), nationally threatened
Small heath	*Coenonympha pamphilus*	62 (last from 2015)	Pyle Hill, Greenham Common	NERC (S41), nationally threatened
Grayling	*Hipparchia semele*	17 (last from 2014)	Pyle Hill, Greenham Common	NERC (S41), vulnerable
White admiral	*Limenitis camila*	3 (last from 2007)	Greenham Common	NERC (S41), vulnerable
Purple emperor	*Apatura iris*	5 (last from 2015)	Greenham and Crookham Commons	Nationally threatened
Small blue	*Cupido minimus*	8 (last from 2013)	Greenham Common SSSI, Pyle Hill,	Nationally threatened
Ghost moth	*Hepialus humuli*	1 (2014)	Greenham Common	NERC 41 (S41)
Blood-vein	*Timandra comae*	1 (2014)	Greenham Common	NERC 41 (S41)
Small phoenix	*Ecliptopera silaceata*	1 (2014)	Greenham Common	NERC 41 (S41)
Buff ermine	*Spilosoma lutea*	1 (2014)	Greenham Common	NERC 41 (S41)
Cinnabar	*Tyria jacobaeae*	5 (last from 2014)	Greenham Common	NERC 41 (S41)

Species	Scientific Name	Number of Records	Location	National Status
Mouse moth	*Amphipyra tragopoginis*	1 (2014)	Greenham Common	NERC 41 (S41)
Mottled rustic	*Caradrina morpheus*	2 (last from 2014)	Greenham Common	NERC 41 (S41)
Large nutmeg	*Apamea anceps*	1 (2014)	Greenham Common	NERC 41 (S41)
Dot moth	*Melanchra persicariae*	1 (1998)	Greenham Common	NERC 41 (S41)
Broom moth	*Ceramica pisi*	1 (2014)	Greenham Common	NERC 41 (S41)
Shoulder-stripped wainscot	*Leucania comma*	2 (last from 2014)	Greenham Common	NERC 41 (S41)
Small square spot	*Diarsia rubi*	1 (2014)	Greenham Common	NERC 41 (S41)

Table 2 NERC, Nationally Threatened and Vulnerable Terrestrial Insects Recorded within 2km Provided by HBIC

Species	Scientific Name	Number of Records	Location	National Status
Grey dagger	*Acronicta psi*	1 (2002)	LNR Herbert Plantation	NERC (S41)
Purple emperor	*Apatura iris*	6 (last from 2016)	Newtown Commons, Burghclere, Sydmonton Common	Nationally threatened, HBAP species, county scarce
Latticed heath	*Chiasmia clathrata*	1 (2009)	Newtown Common	NERC (S41), county scarce
Small heath	*Coenonympha pamphilus*	1 (2009)	Burghclere	NERC (S41), nationally threatened
Dingy skipper	*Erynnis tages*	2 (last from 2016)	Burghclere Common, Newtown Common	NERC (S41), vulnerable, county interest
White admiral	*Limenitis camila*	13 (last from 2016)	Brown Hill Plantation, Horris Hill, Newtown Common, Burghclere	NERC (S41), vulnerable

Species	Scientific Name	Number of Records	Location	National Status
Grayling	*Hipparchia semele*	3 (last from 2015)	Newtown Common	NERC (S41), vulnerable
White-letter hairstreak	*Satyrium w-album*	1 (2016)	Newtown Common	NERC (S41), endangered, HBAP, county scarce
Cinnabar	*Tyria jacobaeae*	1 (2003)	Water wash	NERC 41 (S41)

3.2 Weather Conditions

Weather conditions recorded during the surveys are shown in Table 3 to 6.

2014

Table 3 Daytime Survey Weather Conditions

Date	Temperature (°C)	Weather Conditions
05.06.2014	17-20	Light to moderate breeze; no rain; mainly sunny
24.06.2014	23-25	Light breeze; no rain; hazy sun initially soon clearing to sunny
22.07.2014	26-28	Very light westerly breeze; no rain; bright sunshine
13.08.2014	21-23	Light to moderate north-westerly breeze; brief showers in afternoon; initially sunny with 20% cloud cover with increasing cloud cover later

Table 4 Moth Survey Weather Conditions

Date	Minimum Overnight Temperature (°C)	Weather Conditions
16.06.2014	15	Moderate breeze; no rain; 50% cloud cover
30.07.2014	21	Light breeze; no rain; 0% cloud cover
11.08.2014	16.5	No wind; no rain; 30% cloud cover
28.08.2014	15	Light breeze; no rain; 5% cloud cover

2018

Table 5 Daytime Survey Weather Conditions

Date	Temperature (°C)	Weather Conditions
21.06.2018	20	Light breeze; no rain; 30% cloud cover
13.07.2018	24	Light breeze; no rain; 10% cloud cover
26.09.2018	22	Very light breeze; no rain; 30% cloud cover
28.09.2018	18	Light to moderate north-westerly breeze; no rain; 35% cloud cover

Table 6 Moth Survey Weather Conditions

Date	Temperature (°C)	Weather Conditions
21.06.2018	11	Very light breeze; no rain; 50% cloud cover
13.07.2018	14	Very light breeze; no rain; 5% cloud cover
26.09.2018	9	Very light breeze; no rain; 40% cloud cover
28.09.2018	13	Very light breeze; no rain; 30% cloud cover

3.3 Survey Results

A full list of all insect species recorded during the course of the surveys is appended as Appendix A. A number of the species recorded are considered to be Red Data Book or Nationally Scarce species (see section 2.2.4 for definitions). These are marked as such within Appendix A and are discussed in more detail below. Additionally, one species which is a priority species under NERC (2006) was recorded during daytime surveys, and is also discussed in further detail below. Where such species were found to have a limited distribution on site, the location of these sightings is shown in Figure 2.

3.3.1 Entomological Surveys

2018 Entomological surveys

A range of common and widespread terrestrial invertebrates were recorded during the terrestrial invertebrate surveys, in 2018 (see Appendix A) none of which are considered notable.

2014 Entomological Survey

The surveys produced records of two Nationally Scarce insect species and four Nationally Notable species. Previously Nationally Scarce mining bee (*Lasioglossum pauxillum*) and Natioanlly Scarce Nb jewel beetle (*Agrilus laticornis*) have both increased in both range and frequency over recent years and were reclassified as Notable A and widespread respectively. With the exception of the snail-killing fly (*Psacadina verbekei*), none of the scarce or threatened species were found to be numerous,

suggesting that populations of these species were generally small. These species of conservation concern are discussed below.

The majority of the insect species recorded during the survey were common species which can be found in a variety of habitat types, and few of those found have specific requirements for a particular plant species either for larval development or for pollen and nectar collection. Woodland insects were rather poorly represented, with few xylophagous or saproxylic species recorded, despite the considerable amounts of standing and fallen dead timber present within the copses. The jewel beetle (*Agrilus laticornis*) was the only Nationally Scarce woodland species recorded.

NERC S41 priority species

The Cinnabar moth (*Tyria jacobaeae*)

- Order: *Lepidoptera*
- Status: NERC S41 Priority Species (Research only)
- Records: Larvae were found to be widespread across the site on 22nd July. Larvae were recorded in NG 9829, NG 8449, NG 4743, NG 8957 and NG 7699. Some larvae were also noted during the visit of 13th August.
- Habitat requirements: A common species whose larvae develop on ragwort (*Senecio jacobaea*).
- Distribution: This moth remains widespread and frequent through much of the British Isles. It has, however declined considerably over the last 35 years, and for this reason has been added to the priority species listings for monitoring purposes.

Nationally Notable / Scarce species

A hoverfly (*Pipiza lugubris*)

- Order: *Diptera*
- Status: Nationally Scarce N
- Records: A specimen was recorded visiting a hogweed (*Heracleum sphondyllium*) inflorescence along the southern perimeter of Barn Copse at SU 46446461 on 22nd July. Another specimen of a hoverfly was recorded, also visiting hogweed, beside the main track running through NG 4743 at SU 46346453 on 13th August.
- Habitat requirements: Adults are normally found along woodland edges, but also in wetland situations. Although the habits of the larvae of hoverfly currently remain unknown, it is likely that they are aphidophagus as are other members of the genus.
- Distribution: Records for hoverfly are widely scattered in southern England, with few records further north.
- Sandleford: This species was not recorded during the 2011 survey.

A picture-winged fly (*Orellia falcata*)

- Order: *Diptera*
- Status: Nationally Notable N
- Records: Two specimens were recorded by sweeping goat's-beard in field NG6740 around SU 46726433 on 5th June.
- Habitat requirements: Larvae of picture-winged fly are stem and root borers in goat's-beard.
- Distribution: A picture-winged fly is primarily a species of southern England, particularly the south-east, although there are a few records for Wales and northern England, and an isolated

record for Scotland. It appears to be extremely scarce in south-west England. Clemons (2014) maps records from about 30 post year 2000 10 km. squares nationally.
- Sandleford: Picture-winged hoverfly was not recorded during the 2011 survey. In 2014, goat's-beard was much more abundant in the field NG6740 than it was at the time of the 2011 survey, and also in other areas of the site.

A snail-killing fly (*Psacadina verbekei*)

- Order: *Diptera*
- Status: Nationally Notable N
- Records: Several specimens of this fly were swept from marshy vegetation bordering the stream to the south of Slocketts Copse at SU 46706464 on 5th June.
- Habitat requirements: Snail-killing fly (*P.verbekei*) primarily associated with fens, wet heaths, riversides or dune slacks. Larvae are parasitic on aquatic snails, particularly *Lymnaea* spp., and are adapted to live at the margins of standing water.
- Distribution: Snail-killing fly (*P.verbekei*) is widely recorded in England as far North as Yorkshire, and is also known in Wales.
- Sandleford: Several specimens were recorded from the same area during the survey undertaken in 2011.

A snail-killing fly (*Tetanocera punctifrons*)

- Order: *Diptera*
- Status: Nationally Notable N
- Records: A single specimen was recorded from the mire area around SU 46706464 on 22nd July.
- Habitat requirements: Snail-killing fly (*T.punctifrons*) is a wetland species whose larvae are thought to be predatory or parasitic upon gastropod molluscs.
- Distribution: Records are widely scattered across England, Wales and Scotland.
- Sandleford: This species was also recorded in the same area during the 2011 survey.

A mining bee (*Lasioglossum pauxillum*)

- Order: *Hymenoptera*
- Status: Notable A
- Records: This species was recorded from an area of game cover in NG 9829 and also in the mire to the South of Slocketts Copse. Both specimens were recorded on 22nd July.
- Habitat requirements: Mining bees nest in sparsely vegetated light soils in warm, sunny conditions. It may be found in a variety of habitats including calcareous grassland, soft rock coastal cliffs and heathland.
- Distribution: Previously, mining bee was a scarce species restricted to south-east England, but in the last decade it has increased in frequency and expanded its range northwards and westwards (Edwards & Broad, 2005). Its current Nationally Scarce (Na) status now requires downgrading.
- Sandleford: Mining bee was less frequent at Sandleford Park during the current survey than it was in 2011.

A soldier beetle (*Cantharis fusca*)

- Order: *Coleoptera*
- Status: Nationally Scarce

- Records: A single specimen was swept from rank vegetation in field NG 2934 around SU47296439 on 5th June.
- Habitat requirements: This predatory beetle is normally associated with tall grassy vegetation on permanently damp soils.
- Distribution: Hyman & Parsons (1992) and Alexander (2003) state that this species has undergone considerable recent decline in England, and has been lost from many inland localities and is now much less widespread than it was historically. It is now largely confined to a few southern coastal counties and some sites in Yorkshire. The Sandleford Park record is outside the main current areas of distribution for a soldier beetle. Strongholds soldier beetles are North Somerset, South Hampshire, East Sussex and Kent.

2011 Entomological surveys

The site was also surveyed in 2011 and these surveys produced records of two Red Data Book and ten Nationally Scarce insect species, although both Red Data Book species and two of the scarce species have undergone recent expansions in terms of range and frequency and thus require downgrading.

In addition to the species recorded during the 2014 survey, the species in Table 5 were recorded in 2011.

Table 7 Terrestrial Insects recorded during the 2011 Entomological Survey not recorded in 2014

Common Name	Scientific Name	Status
Picture–winged fly	*Myopites inulaedyssentericae*	Rare RDB 3
Long-winged Conehead	*Conocephalus discolor*	Common
Social wasp	*Dolichovespula saxonica*	RDB K
Mining bee	*Andrena fulvago*	Notable A
Mining bee	*Lasioglossum puncticolle*	Notable B
Nomad bee	*Nomada flavopicta*	Notable B
Ground Beetle	*Brachinus crepitans*	Red List – Least Concern

3.3.2 Moth Survey

2018 Moth Survey

The moth surveys recorded 56 individuals of 23 species of *Lepidoptera* during the 2018 surveys, of which a single species is listed on the NERC S41 list. A summary table of all *Lepidoptera* species recorded appears in Appendix A. All records of species of conservation concern are detailed below.

NERC S41 priority species

Blood-vein *Timandra comae* (Schmidt, 1931)

- Bradley & Fletcher: 1682
- Status: NERC S41 (Research only).
- Record: one individual recorded at 12V actinic light trap placed along woodland edge / wet grassland at SU 46750 64524 on 31st July 2018.
- Habitat requirements: Widespread and fairly common throughout Britain, inhabiting a wide range but particularly damp places with rank, herb-rich vegetation, including hedgerows, ditches, woodland rides, wet meadows and gardens. The larvae feed on low-growing plants such as dock (Rumex sp.).

2014 Moth Survey

The moth surveys recorded 56 individuals of 23 species of *Lepidoptera* during the 2014 surveys, of which seven species are listed on the NERC S41 list. These seven species are associated with native deciduous woodland, the foliage of trees or shrubs or with the understorey herbs, hedgerows, or marshy more open habitats where their larval food plants grow. A summary table of all *Lepidoptera* species recorded appears in Appendix A. All records of species of conservation concern are detailed below.

Mottled rustic *Caradrina morpheus* (Hufnagel, 1766)

- Bradley & Fletcher: 2387
- Status: NERC S41 (Research only).
- Records: One individual recorded at 12V actinic light trap placed adjacent to deciduous woodland / wet grassland at SU 467 645 on 28th August 2014.
- Habitat requirements: Occupies a range of habitats including suburban areas. The larvae feed on a number of herbaceous plants, especially nettle (*Urtica* sp.) and dandelion (*Taraxacum* sp.).

Small Square-spot *Diarsia rubi* (Vieweg, 1790)

- Bradley & Fletcher: 2123
- Status: NERC S41, (Research only).
- Records: Eleven individuals recorded at 12V actinic light trap placed adjacent to deciduous woodland / wet grassland at SU 467 645 on 16th June and 28th August 2014.
- Habitat requirements: Occurring in any suitable habitat, but perhaps preferring damp and marshy places. The larval food plants are a range of herbaceous species.

Small phoenix *Ecliptopera silaceata* ([Denis & Schiffermüller], 1775)

- Bradley & Fletcher: 1759
- Status: NERC S41, (Research only).
- Records: One individual recorded at 12V actinic light trap placed along hedgerow off woodland edge / wet grassland at SU 467 645 on 30th July 2014.
- Habitat requirements: inhabits a range of woodland and open habitats. The main larval food plants are willow herbs (Epilobium spp.).

Rustic *Hoplodrina blanda* ([Denis & Schiffermüller], 1775)

- Bradley & Fletcher: 2382

- Status: NERC S41, (Research only).
- Records: Three individuals recorded at 12V actinic light trap placed along hedgerow off woodland edge / wet grassland at SU 467 645 on 28th August 2014.
- Habitat requirements: Most lowland habitats including urban areas. Larvae feed on low plants such as dock (Rumex sp.) and plantain (Plantago sp.).

White ermine *Spilosoma lubricipeda* (Linnaeus, 1758)

- Bradley & Fletcher: 2060
- Status: NERC S41, (Research only).
- Records: One individual recorded at 12V actinic light trap placed along hedgerow off woodland edge / wet grassland at SU 467 645 on 28th August 2014.
- Habitat requirements: Widely distributed and fairly common over much of Britain. The hairy larvae feed on a variety of herbaceous plants including nettle (Urtica sp.) and docks (Rumex sp.).

Buff ermine *Spilosoma luteum* (Hufnagel, 1766)

- Bradley & Fletcher: 2061
- Status:
- Records: One individual recorded at 12V actinic light trap placed adjacent to deciduous woodland / wet grassland at SU 467 645 on 16th June.
- Habitat requirements: A common resident in most of Britain, using most habitat including gardens, hedgerows, parks and woodland. The dark brown caterpillar is covered with reddish-orange hairs, and feeds in autumn on herbaceous plants, bushes and trees.

Blood-vein *Timandra comae* (Schmidt, 1931)

- Bradley & Fletcher: 1682
- Status: NERC S41, (Research only).
- Records: two individuals recorded at 12V actinic light trap placed along hedgerow off woodland edge / wet grassland at SU 467 645 on 11th and 28th August 2014.
- Habitat requirements: Widespread and fairly common throughout Britain, inhabiting a wide range but particularly damp places with rank, herb-rich vegetation, including hedgerows, ditches, woodland rides, wet meadows and gardens. The larvae feed on low-growing plants such as dock (Rumex sp.).

Localised Species

Waring and Townsend (2009) state that black arches *Lymantria monacha*, old Lady *Mormo Maura* and barred hook-tip *Watsonalla cultraria* are all localised species i.e. they are local or with a patchy distribution. These species were found during the survey.

2011 Moth Survey

The previous surveys undertaken during 2011 recorded dotted border wave (*Idaea sylvestraria)* a nationally scarce Nb species and suspected *Parastichtis suspecta* which is a localised species.

The habitat for the dotted border wave is open heath areas with scattered bushes whilst the habitat for the suspected is carr and woodlands.

An additional twelve species were recorded during the 2011 surveys which were not recorded during the 2014 surveys; these are shown in Table 6 below.

Table 8 Moth Species Recorded During 2011 Survey not Recorded in 2014

Common Name	Scientific Name	Authority	Status
Common wave	*Cabera exanthemata*	(Scopoli, 1763)	Common
Green carpet	*Colostygia pectinataria*	(Knoch, 1781)	Common
Maiden's blush	*Cyclophora punctaria*	(Linnaeus, 1758)	Localised
Juniper pug	*Eupithecia pusillata*	(Denis & Schiffermüller, 1775)	Common
Dotted border wave	*Idaea sylvestraria*	(Hübner, 1799)	Nationally Notable B
Flounced rustic	*Luperina testacea*	(Denis & Schiffermüller, 1775)	Common
Brown-line bright-eye	*Mythimna conigera*	(Denis & Schiffermüller, 1775)	Common
Clay	*Mythimna ferrago*	(Fabricius, 1787)	Common
Common wainscot	*Mythimna pallens*	(Linnaeus, 1758)	Common
Lesser yellow underwing	*Noctua comes*	Hübner, 1813	Common
Suspected	*Parastichtis suspecta*	(Hübner, 1817)	Localised
Setaceous hebrew character	*Xestia c-nigrum*	(Linnaeus, 1758)	Common

4.0 Relevant Legislation

A number of invertebrate species are protected by European and UK legislation, such as those listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and in the Conservation of Species and Habitats Regulations 2017. As a result, some species are protected from some or all of the following (amongst others):

- killing, injuring or taking;
- possession or control;
- damage to, destruction of or obstruction of access to any places used for shelter or protection; and
- disturbance while using such a structure.

411 invertebrate species are listed as Priority Species under Section 41 of the Natural Environment and Rural Communities Act (2006).

5.0 Discussion

5.1 Importance of Terrestrial Invertebrates on Site

Based on survey results, it is fair to conclude that Sandleford Park supports a rather limited range of scarce and threatened invertebrates. The long history of arable use of much of the site, with small or negligible field margins in most areas, combined with woodland management are likely to be contributory factors.

5.1.1 Entomological Surveys

Using the invertebrate habitat significance criteria defined by Colin Plant (undated) this site has been assessed as being of up to **County** importance due to the diversity of terrestrial invertebrates recorded with the potential for the habitats to support other protected or notable species.

Both areas in which this species was found are within the proposed valley and wetland conservation area or the proposed Country Park and are thus not subject to proposed development.

5.1.2 Moth Surveys

Using the invertebrate habitat significance criteria defined by Colin Plant (undated) this site has been assessed as being of **Local** importance due to the diversity of moths recorded with the potential for the habitats to support other protected or notable species.

The results of the survey indicate that all areas of broadleaved woodland, hedgerows and marshy grassland are likely to be of high value to moths for the moths recorded. The arable fields and improved grassland areas are unlikely to be of more than very limited value for moths.

5.2 Recommendations

The proposed development has potential to impact upon terrestrial invertebrates, as such ecological input has been ongoing into the design process. To avoid negative impacts on such species, the following recommendations are made to prevent breaching relevant wildlife legislation;

- All areas of woodland and marshy grassland will be retained as these areas are the areas considered to be most beneficial to some of the notable species recorded. The woodlands will be retained together with a 15 metre buffer surrounding them. This means that the forbes growing on the edges of the woodlands will also be retained as they provide an important resource for the larval food plants as well as providing resting sites for the adults.
- It is recommended that a minimum of an 8m buffer is retained on both sides of all streams and drains as this will help with the retention of the marsh grasslands and the associated plants growing there. This will help to provide the required habitats for the notable species recorded e.g. the hoverfly *Pipiza lugubris*, or for the prey species for the snail-killing flies *Psacadina verbekei* and *Tetanocera punctifrons* also the moths small square-spot *Diarsia rubi* and blood-vein *Timandra comae.* The road which will go across the valley has been designed as a bridge to allow for the retention of vegetation and associated species.
- Any hedgerow lost due to the proposed development will be replaced where possible using a mixture of six or seven species of native locally sourced species.

- It is recommended that a 5 m buffer is retained along hedgerows where possible, and that the forbes growing at the bottom of the hedgerows are also retained as they provide an important resource for the larval food plants as well as providing resting sites for the adults.
- Specimens of the Nationally Notable picture-winged fly (Orellia falcate) were recorded in area scheduled for development within the current proposal. Larvae of picture-winged fly develop in the roots and stems of goat's-beard, which was abundant in this field, but scarce or absent from the rest of the survey area. In order to attempt to preserve picture-winged fly within the site, it will be necessary to ensure that the host plant is retained in undeveloped areas of the site prior to the development of this field. Translocation of goat's-beard plants, or alternatively collection of seed and its scattering to the proposed Country Park may allow the host plant to successfully establish in these areas. If this is undertaken prior to development occurring the chances of success are likely to be increased.
- The Nationally Scarce hoverfly (*Pipiza lugubris*) was recorded on two occasions from field NG 4743, which is scheduled for development within the current proposals. One specimen was found within the buffer zone to the south of Barn Copse, but the breeding site is not known. *Pipiza lugubris* is most frequently associated with woodland and wetland habitats. The biology of the larval stage of *Pipiza lugubris* is unknown, although it is likely to be aphidophagous in common with other members of the genus. Several of the other species in the genus have larvae which feed on aphids on hogweed. Adult *Pipiza lugubris* have a liking for this plant, and both the adults recorded during the current survey were found visiting hogweed flowers. In the absence of firm data regarding the larval requirements it is not possible to accurately mitigate for this hoverfly, but **retention of hogweed plants** within the buffer zones around the woodlands and within the valley wetland corridor and Country Park may be beneficial.

5.3 Enhancements

- Management by grazing is recommended to be implemented (if possible) in areas adjacent to the drain and stream e.g. twice a year by cattle or an appropriate breed of sheep. This is because cattle create areas of poaching that are a particular microhabitat which is favourable to terrestrial invertebrates. Poaching keeps these areas in an early successional stage which will provide habitats for snails which the snail-killing flies *Psacadina verbekei* and *Tetanocera punctifrons* require.
- Within the Country Park, retention of plant species already frequent across the site will allow continued foraging opportunities for the insects present on site. Hawkweed type yellow composites, thistles, medicks and clovers, which are currently abundant on parts of the site are favoured by *Hymenoptera*, as is ragwort. Hogweed and common fleabane are also plants which are of particular attraction to many insect species. It is recommended that these plants be encouraged within appropriate areas of the proposed Country Park, providing a larger foraging resource than is currently present over much of the site.
- Provision of a matrix of tall and short sward grassland will enhance conditions for many insect species, and creation of bare or sparsely vegetated ground in a sunny aspect would enhance nesting opportunities for ground – nesting *Hymenoptera*. Retention of isolated areas of scrub and hedgerows, even those which are partially degraded is also likely to prove beneficial. Restoration of any retained hedgerows should allow for the inclusion of hawthorn (*Crataegus monogyna*) and blackthorn (*Prunus spinosa*). Both these shrubs are highly favoured by invertebrates in the spring, and they should be retained where possible, especially in sunny situations. Dog rose (*Rosa canina*) is also present in places, and should also be retained where possible.

- The current development proposals allow for the retention of all existing woodland. Much could be done to improve this potentially important invertebrate habitat by implementing more sympathetic management programmes. The reintroduction of hazel coppicing, together with some clearance to provide open glades, and other open areas such as widened rides would doubtless be of benefit. This management should also improve the ground flora within the woodland areas, increasing the forage resource for invertebrates. The large pheasant rearing pens, particularly in High Wood and Waterleaze Copse have allowed considerable degradation of the ground flora to occur.
- Cessation of pheasant rearing would allow the ground flora to regenerate naturally.
- Bracken, which is dominant in some areas, needs controlling to prevent further invasion.
- Retention of the existing deadwood element, both standing and fallen is also recommended where feasible. Shrubs such as hawthorn, blackthorn, dog rose, which are found around several of the woodland perimeters, should be retained. Bramble (*Rubus fruticosus agg.*) forms a scrub margin to several areas of woodland, and provides a valuable nectar and pollen resource, particularly when in sunny conditions as along the southern margin of Barn Copse.

6.0 References

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- WYG (2018) Sandleford Park, Newbury Appendix F1: Update Ecological Appraisal.

FIGURES

Figure 1 – Location of Survey Compartments, Pitfall Traps & Moth Trap

Figure 2 – Location of Priority Species Found During Day Survey (2014)

Rev	Date	Notes
A	06/02/18	Update map to reflect current development boundaries

Legend

- Site boundary
- Moth trap location
- Pitfall trap locations

0 50 100 200 300 Metres

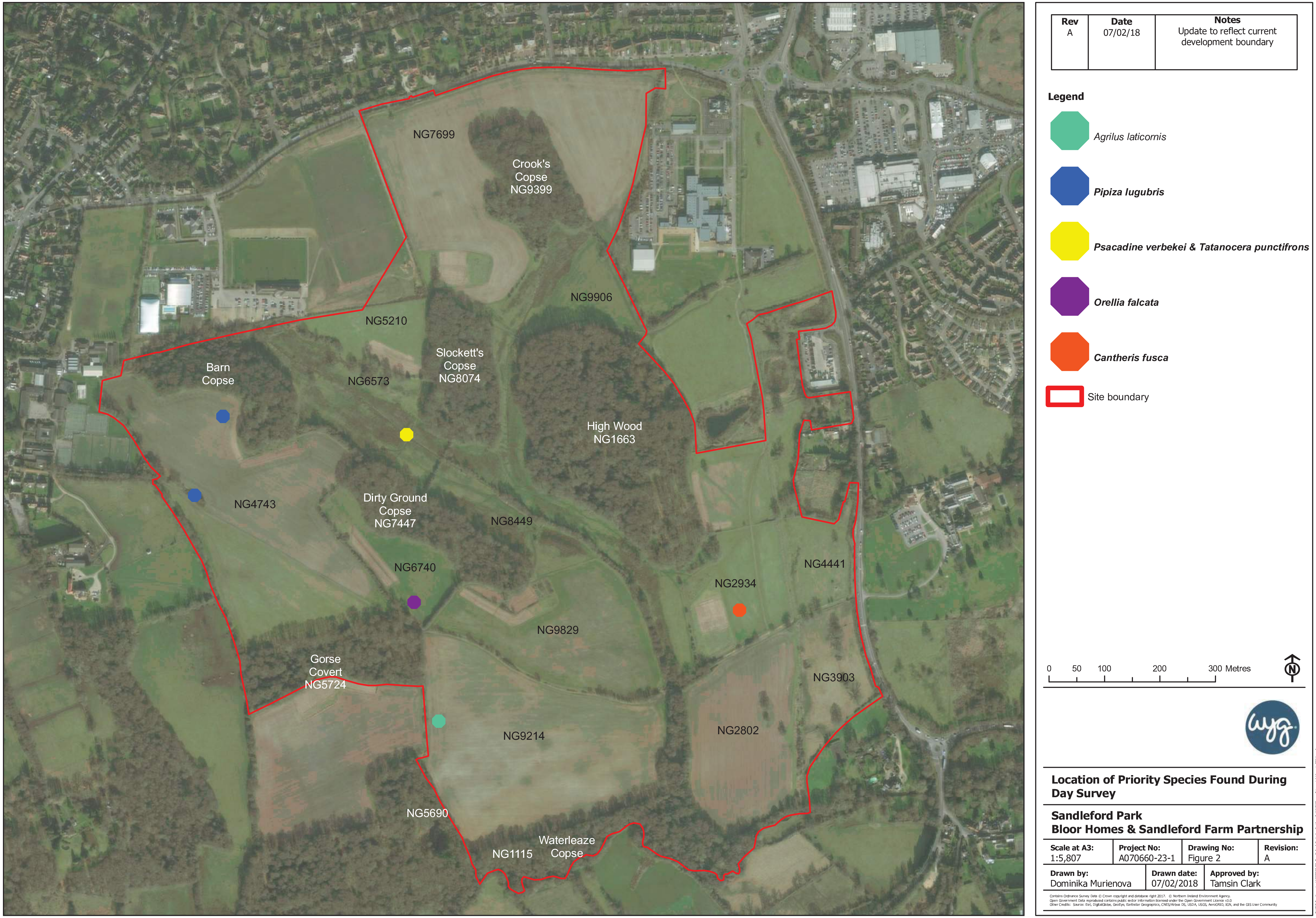
N

Location of Survey Compartments, Pitfall Traps & Moth Trap

Sandleford Park
Bloor Homes & Sanfleford Farm Partnership

Scale at A3:	Project No:	Drawing No:	Revision:
1:6,000	A070660-23-1	Figure 1	A

Drawn by:	Drawn date:	Approved by:
Dominika Murienova	06/02/2018	Tamsin Clark



Rev	Date	Notes
A	07/02/18	Update to reflect current development boundary

Location of Priority Species Found During Day Survey

Sandleford Park
Bloor Homes & Sandleford Farm Partnership

Scale at A3:	Project No:	Drawing No:	Revision:
1:5,807	A070660-23-1	Figure 2	A

Drawn by:	Drawn date:	Approved by:
Dominika Murienova	07/02/2018	Tamsin Clark

Appendix A – Invertebrate Records from Sandleford Park, Newbury

Table 9 Insects Recorded from 2018 Entomological Survey at Sandleford Park, Newbury

ORDER	FAMILY	SCIENTIFIC NAME		ENGLISH NAME		STATUS
ORTHOPTERA				**Grasshoppers**	**& Crickets**	
		Chorthippus	*parallelus*	Meadow	Grasshopper	Common, Widespread
		Leptophyes	*punctatissima*	Speckled	Bush Cricket	Common, Widespread
		Metrioptera	*roeselii*	Rosel's	Bush cricket	Common, Widespread in southern England
DERMAPTERA				**Earwigs**		
		Forficula	*auricularia*	Common Earwig		Common, Widespread
HEMIPTERA				**True Bugs**		
	Coreidae			**Squash Bugs**		
		Coreus	*marginatus*	Squash Bug		Common, Widespread
	Miridae			Caspid bugs		
		Stenodema	*laevigatum*			Common, Widespread
		Notostira	*elongata*			Common, widespread
	Pentatomidae			**Shield Bugs**		
		Dolycoris	*baccarum*	Sloe Bug		Common, Widespread
		Palomena	*prasina*	Green Shieldbug		Common, Widespread
		Pentatoma	*rufipes*	Forest Bug		Common, Widespread
ODONATA				**Dragonflies &**	**Damselflies**	
	Aeshnidae			**Dragonflies**		
		Anax	*imperator*	Emperor	Dragonfly	Common, Widespread
LEPIDOPTERA				**Butterflies &**	**moths**	
		Aglais	*urticae*	Small tortoisehell		Common, Widespread
		Aphantopus	*hyperantus*	Ringlet		Common, Widespread
		Inachis	*io*	Peacock		Common, Widespread
		Lycaena	*phlaeas*	Small Copper		Common, Widespread
		Maniola	*jurtina*	Meadow Brown		Common, Widespread
		Ochlodes	*faunus*	Large Skipper		Common, Widespread
		Pararge	*aegeria*	Speckled Wood		Common, Widespread
		Pieris	*brassicae*	Large White		Common, Widespread
		Pieris	*rapae*	Small White		Common, Widespread
		Polyommatus	*icarus*	Common Blue		Common, Widespread
		Pyronia	*tithonus*	Gatekeeper		Common, Widespread
		Thymelicus	*lineola*	Essex Skipper		Common, Widespread
		Thymelicus	*sylvestris*	Small Skipper		Common, Widespread
		Tyria	*jacobaeae*	Cinnabar moth		**UK BAP (Research only)**
DIPTERA				**True Flies**		
	Stratiomyidae			**Soldier Flies**		
		Chloromyia	*formosa*			Common, Widespread
		Chorisops	*tibialis*			Common, Widespread
	Rhagionidae			**Snipe Flies**		
		Rhagio	*scolopaceus*			Common, Widespread
	Tabanidae			**Horse Flies**		
		Haematopota	*pluvialis*			Common, Widespread
		Tabanus	*bromius*			Common, Widespread
	Asilidae			**Robber Flies**		

		Leptogaster	*cylindrica*			Common, Widespread
		Machimus	*atricappilus*			Common, Widespread
	Syrphidae			**Hoverflies**		
		Cheilosia	*illustrata*			Common, Widespread
		Chrysogaster	*solstitialis*			Common, Widespread
		Chrysotoxum	*bicinctum*			Common, Widespread
		Epistrophe	*grossulariae*			Common, Widespread
		Episyrphus	*balteatus*			Common, Widespread
		Eristalis	*arbustorum*			Common, Widespread
		Eristalis	*horticola*			Common, Widespread
		Eristalis	*interruptus*			Common, Widespread
		Eristalis	*intricarius*			Common, Widespread
		Eristalis	*pertinax*			Common, Widespread
		Eupeodes	*luniger*			Common, Widespread
		Melanogaster	*hirtella*			Common, Widespread
		Melanostoma	*mellinum*			Common, Widespread
		Melanostoma	*scalare*			Common, Widespread
		Merodon	*equestris*			Common, Widespread
		Rhingia	*campestris*			Common, Widespread
		Syrphus	*vitripennis*			Common, Widespread
		Volucella	*bombylans*			Common, Widespread
	Tephritidae			**Picture-winged**	**Flies**	
		Tephritis	*formosa*			Common, Widespread
		Tephritis	*vespertina*			Common, Widespread
	Opomyzidae			**Opomyzid Flies**		
		Opomyza	*germinationis*			Common, Widespread
	Scathophagidae			**Dung Flies**		
		Scathophaga	*furcata*			Common, Widespread
	Tachinidae			**Tachinid Flies**		
HYMENOPTERA				**Bees,Wasps**	**Ants & relatives**	
	Formicidae			**Ants**		
		Myrmica	*rubra*			Common, Widespread
		Lasius	*niger*			Common, Widespread
	Vespidae			**Social Wasps**		
		Vespa	*crabro*	Hornet		Local, Widespread
		Vespula	*vulgaris*			Common, Widespread
	Crabronidae			**Digger Wasps**		
		Ectemnius	*lituratus*			Common, Widespread
	Apoidea			**Bees**		
	Colletidae			**Mining & Yellow-**	**faced Bees**	
		Colletes	*daviesanus*			Common, Widespread
	Andrenidae			**Mining Bees**		
		Andrena	*dorsata*			Common, Widespread
		Andrena	*flavipes*			Common, Widespread
	Halictidae			**Mining & Cuckoo**	**Bees**	
		Halictus	*tumulorum*			Common, Widespread
		Lasioglossum	*villosulum*			Common, Widespread

		Sphecodes	*ephippius*			Common, Widespread
	Apidae			**Social & Cuckoo**	**Bees**	
		Apis	*mellifera*	Honey Bee		Common, Widespread
		Bombus	*hortorum*	a garden	Bumblebee	Common, Widespread
		Bombus	*hypnorum*	Tree	Bumblebee	Recent colonist
		Bombus	*lapidarius*	a red-tailed	Bumblebee	Common, Widespread
		Bombus	*lucorum*	a white-tailed	Bumblebee	Common, Widespread
		Bombus	*terrestris*	a buff-tailed	Bumblebee	Common, Widespread
		Bombus	*vestalis*	a cuckoo	Bumblebee	Common, Widespread
COLEOPTERA				**Beetles**		
	Cantharidae			**Soldier Beetles**		
		Cantharis	*rustica*			Common, Widespread
		Rhagonycha	*fulva*			Common, Widespread
	Carabidae			**Ground & Tiger**	**Beetles**	
		Amara	*communis*			Common, Widespread
		Calathus	*fuscipes*			Common, Widespread
		Carabus	*problematicus*			Common, Widespread
		Harpalus	*rufipes*			Common, Widespread
		Nebria	*brevicollis*			Common, Widespread
		Pterostichus	*madidus*			Common, Widespread
		Pterostichus	*niger*			Common, Widespread
	Cerambycidae			**Longhorn Beetles**		
		Strangalia	*maculatus*			Common, Widespread
	Coccinellidae			**Ladybirds**		
		Coccinella	*7 - punctata*	7 Spot	Ladybird	Common, Widespread
		Harmonia	*axyridis*	Harlequin	Ladybird	Common, Widespread
		Adalia	*bipunctata*	2-Spot	Ladybird	Common, Widespread
		Propylea	*14 - punctata*	14 Spot	Ladybird	Common, Widespread
	Elateridae			**Click Beetles**		
		Athous	*haemorrhoidale*			Common, Widespread
	Malachiidae			**Pollen Beetles**		
		Malachius	*bipustulatus*			Common, Widespread
	Oedemeridae			**Oedemerid**	**Beetles**	
		Oedemera	*lurida*			Common, Widespread
		Oedemera	*nobilis*			Common, Widespread
	Silphidae			**Carrion Beetles**		
		Nicrophorus	*investigator*			Common, Widespread
	Staphylinidae			**Rove Beetles**		
		Ocypus	*olens*			Common, Widespread
		Philonthius	*cognatus*			Common, Widespread

Table 10 Moths Recorded at Sandleford Park, Newbury (2018)

Species	21/6/18	13/7/2018	26/9/18	28/9/18	Status
Ruby Tiger	1	1			n/a
Dingy Footman		2	3	2	n/a
Straw Dot		1			n/a
Common Wainscot		14			n/a
Buff Footman		2			n/a
Black Arches		3	2		n/a
Pale Prominent		1			n/a
Common Quaker	2	1			n/a
Common Footman		3	2	1	n/a
Dun-bar		2			n/a
Nut Tree Tussock		1			n/a
Uncertain		4			n/a
Dark Brocade		1			n/a
Rustic		1			n/a
Small Magpie		1			n/a
Clay		1			n/a
Mother of Pearl		1			n/a
Bee Moth		1			n/a
Lunar underwing			2	4	n/a
Blood Vein			1		Nerc S41
Willow beauty			1		
Common Rustic				2	
Angle shades				1	NA

Table 11 Insects Recorded from 2014 Entomological Survey at Sandleford Park, Newbury

Order	Family	Scientific Name	English Name	Status
Orthoptera	*Acrididae*	*Chorthippus parallelus*	Meadow grasshopper	Common, Widespread
	Phaneropteridae	*Leptophyes punctatissima*	Speckled bush-cricket	Common, Widespread
Dermaptera	*Forficulidae*	*Forficula auricularia*	Common Earwig	Common, Widespread
Hemiptera	*Acanthosomidae*	*Elasmostethus interstinctus*	Birch shieldbug	Common, Widespread
	Coreidae	*Coreus marginatus*	Squash bug	Common, Widespread
	Pentatomidae	*Dolycoris baccarum*	Sloe Bug	Common, Widespread
		Palomena prasina	Green Shieldbug	Common, Widespread
		Pentatoma rufipes	Forest Bug	Common, Widespread
Odonata	*Coenagriidae*	*Coenagrion puella*	Azure damselfly	Common, Widespread
		Enallagma cyathigerum	Common blue damselfly	Common, Widespread
		Pyrrhosoma nymphula	Large red damselfly	Common, Widespread
Lepidoptera	*Nymphalidae*	*Aglais urticae*	Small tortoishell	Common, Widespread
		Aphantopus hyperantus	Ringlet	Common, Widespread
		Inachis io	Peacock	Common, Widespread

Order	Family	Scientific Name	English Name	Status
		Maniola jurtina	Meadow brown	Common, Widespread
		Melanargia galathea	Marbled white	Common, Widespread
		Pyronia tithonus	Gatekeeper	Common, Widespread
		Pararge aegeria	Speckled wood	Common, Widespread
	Pieridae	*Pieris brassicae*	Large white	Common, Widespread
		Pieris napi	Green-veined white	Common, Widespread
		Pieris rapae	Small white	Common, Widespread
	Lycaenidae	*Polyommatus icarus*	Common blue	Common, Widespread
		Lycaena phlaeas	Small copper	Common, Widespread
	Hesperiidae	*Thymelicus lineola*	Essex skipper	Common, Widespread
		Thymelicus sylvestris	Small skipper	Common, Widespread
		Ochlodes faunus	Large skipper	Common, Widespread
	Erebidae	*Tyria jacobaeae*	Cinnabar moth	NERC S41 species Priority species (Research only)
Diptera	*Tupulidae*	*Molophilus griseus*	Cranefly	Common, Widespread
		Pseudolimnophila lucorum	Cranefly	Common, Widespread
	Stratiomyidae	*Beris vallata*	Soldier fly	Common, Widespread
		Chloromyia formosa	Soldier fly	Common, Widespread
		Chorisops tibialis	Soldier fly	Common, Widespread
	Rhagionidae	*Chrysopilus cristatus*	Snipe fly	Common, Widespread
		Rhagio lineola	Snipe fly	Common, Widespread
		Rhagio scolopaceus	Snipe fly	Common, Widespread
		Rhagio tringarius	Snipe fly	Common, Widespread
	Tabanidae	*Haematopota pluvialis*	Horse fly	Common, Widespread
		Tabanus bromius	Horse fly	Common, Widespread
	Asilidae	*Dioctria atricappila*	Robber fly	Common, Widespread
		Leptogaster cylindrica	Robber fly	Common, Widespread
		Machimus atricappilus	Robber fly	Common, Widespread
	Dolichopodidae	*Dolichopus longitarsis*	Long-headed fly	Local, Widespread

Order	Family	Scientific Name	English Name	Status
		Dolichopus pennatus	Long-headed fly	Common, Widespread
		Dolichopus picipes	Long-headed fly	Common, Widespread
		Dolichopus plumipes	Long-headed fly	Common, Widespread
		Dolichopus popularis	Long-headed fly	Common, Widespread
		Dolichopus trivialis	Long-headed fly	Common, Widespread
		Hercostomus chrysozygos	Long-headed fly	Common, Widespread
	Syrphidae	*Cheilosia albitarsis* s.l.	Hoverfly	Common, Widespread
		Cheilosia illustrate	Hoverfly	Common, Widespread
		Cheilosia latifrons	Hoverfly	Local, Widespread
		Cheilosia soror	Hoverfly	Local, Widespread
		Cheilosia vernalis	Hoverfly	Common, Widespread
		Chrysogaster solstitialis	Hoverfly	Common, Widespread
		Chrysogaster bicinctum	Hoverfly	Common, Widespread
		Epistrophe grossulariae	Hoverfly	Common, Widespread
		Epistrophe nitidicollis	Hoverfly	Common, Widespread
		Epistrophe balteatus	Hoverfly	Common, Widespread
		Eristalis arbustorum	Hoverfly	Common, Widespread
		Eristalis horticola	Hoverfly	Common, Widespread
		Eristalis interruptus	Hoverfly	Common, Widespread
		Eristalis intricarius	Hoverfly	Common, Widespread
		Eristalis pertinax	Hoverfly	Common, Widespread
		Eristalis tenax	Hoverfly	Common, Widespread
		Eupeodes corollae	Hoverfly	Common, Widespread
		Eupeodes luniger	Hoverfly	Common, Widespread
		Helophilus pendulus	Hoverfly	Common, Widespread
		Melanogaster hirtella	Hoverfly	Common, Widespread
		Melanostoma mellinum	Hoverfly	Common, Widespread

Order	Family	Scientific Name	English Name	Status
		Melanostoma scalare	Hoverfly	Common, Widespread
		Merodon equestris	Hoverfly	Common, Widespread
		Myathropa florea	Hoverfly	Common, Widespread
		Neoascia podagrica	Hoverfly	Common, Widespread
		Neoascia tenur	Hoverfly	Local, Widespread
		Pipiza lugubris	Hoverfly	Nationally Notable N
		Pipizella viduata	Hoverfly	Common, Widespread
		Platycheirus albimanus	Hoverfly	Common, Widespread
		Platycheirus rosarum	Hoverfly	Common, Widespread
		Rhingia campestris	Hoverfly	Common, Widespread
		Scaeva pyrastri	Hoverfly	Common, Widespread
		Sericomyia silentis	Hoverfly	Common, Widespread
		Sphaerophoria scripta	Hoverfly	Common, Widespread
		Syritta pipiens	Hoverfly	Common, Widespread
		Syrphus ribesii	Hoverfly	Common, Widespread
		Syrphus vitripennis	Hoverfly	Common, Widespread
		Volucella bombylans	Hoverfly	Common, Widespread
		Volucella inanis	Hoverfly	Local, Widespread
		Volucella pelluscens	Hoverfly	Common, Widespread
		Xanthogramma pedisequum	Hoverfly	Common, Widespread
		Xylota segnis	Hoverfly	Common, Widespread
		Xylota sylvarum	Hoverfly	Common, Widespread
	Tephritidae	*Orellia falcata*	Picture-winged fly	Nationally Notable N
		Sphenella marginata	Picture-winged fly	Common, Widespread
		Tephritis formosa	Picture-winged fly	Common, Widespread
		Tephritis vespertina	Picture-winged fly	Common, Widespread
		Terellia ruficauda	Picture-winged fly	Common, Widespread
		Urophora stylata	Picture-winged fly	Common, Widespread
		Xyphosia miliaria	Picture-winged fly	Common, Widespread
	Opomyzidae	*Opomyza germinationis*	Opomyzid fly	Common, Widespread

Order	Family	Scientific Name	English Name	Status
	Pallopteridae	*Palloptera muleibris*	Pallopterid fly	Common, Widespread
	Sciomyzidae	*Coramacera marginata*	Snail-killing fly	Common, Widespread
		Psacadina verbekei	Snail-killing fly	Nationally Notable N
		Tetanocera punctifrons	Snail-killing fly	Nationally Notable N
		Trypetoptera punctulata	Snail-killing fly	Common, Widespread
	Scathophagidae	*Scathophaga furcata*	Dung fly	Common, Widespread
		Scathophaga stercoraria	Dung fly	Common, Widespread
	Tachinidae	*Dexiosoma caninum*	Tachinid fly	Common, Widespread
		Eriothrix rufomaculata	Tachinid fly	Common, Widespread
		Nowickia ferox	Tachinid fly	Common, Widespread
		Phasia obesa	Tachinid fly	Common, Widespread
Hymenoptera	*Formicidae*	*Myrmica rubra*	Common red ant	Common, Widespread
	Vespidae	*Vespa crabro*	Hornet wasp	Local, Widespread
		Vespula vulgaris	Common wasp	Common, Widespread
	Crabronidae	*Ectemnius continuus*	Digger wasp	Common, Widespread
		Ectemnius lituratus	Digger wasp	Common, Widespread
	Colletidae	*Colletes daviesanus*	Plasterer bee	Common, Widespread
	Andrenidae	*Andrena dorsata*	Mining bee	Common, Widespread
		Andrena flavipes	Mining bee	Common, Widespread
		Andrena haemorrhoa	Mining bee	Common, Widespread
		Andrena minutula	Mining bee	Common, Widespread
		Andrena semilaevis	Mining bee	Common, Widespread
		Andrena wilkella	Mining bee	Common, Widespread
	Halictidae	*Halictus tumulorum*	Bronze furrow-bee	Common, Widespread
		Lasioglossum laevigatum	Black-mouthed furrow-bee	Common, Widespread
		Lasioglossum calceatum	Common furrow-bee	Common, Widespread
		Lasioglossum leucopus	White-footed green furrow-bee	Common, Widespread
		Lasioglossum leucozonium	White-zoned furrow-bee	Common, Widespread

Order	Family	Scientific Name	English Name	Status
		Lasioglossum morio	Common green furrow-bee	Common, Widespread
		Lasioglossum pauxillum	Lobe-spurred furrow-bee	n/a
		Lasioglossum villosulum	Furrow-bee	Common, Widespread
		Sphecodes ephippius	Bare-saddled blood bee	Common, Widespread
		Sphecodes puncticeps	Sickle-jawed blood bee	Common, Widespread
	Apidae	*Apis mellifera*	Honey bee	Common, Widespread
		Bombus hortorum	Garden bumblebee	Common, Widespread
		Bombus humilis	Brown-banded carder bee	Common, Widespread
		Bombus hypnorum	Tree bumblebee	Recent colonist
		Bombus lapidarius	Red-tailed bumblebee	Common, Widespread
		Bombus lucorum	White-tailed bumblebee	Common, Widespread
		Bombus pascuorum	Common carder bee	Common, Widespread
		Bombus pratorum	Early bumblebee	Common, Widespread
		Bombus terrestris	Buff-tailed bumblebee	Common, Widespread
		Bombus vestalis	Cuckoo bumblebee	Common, Widespread
Coleoptera	*Buprestidae*	*Agrilus laticornis*	Jewel beetle	n/a
	Cantharidae	*Cantharis fusca*	Soldier beetle	Nationally scarce
		Cantharis livida	Soldier beetle	Common, Widespread
		Cantharis nigra	Soldier beetle	Common, Widespread
		Cantharis nigricans	Soldier beetle	Common, Widespread
		Cantharis rustica	Soldier beetle	Common, Widespread
		Rhagonycha fulva	Soldier beetle	Common, Widespread
	Carabidae	*Abax parallelipipidus*	Ground beetle	Common, Widespread
		Amara communis	Ground beetle	Common, Widespread
		Amara lunicollis	Ground beetle	Common, Widespread
		Calathus fuscipes	Ground beetle	Common, Widespread
		Calathus rotundicollis	Ground beetle	Common, Widespread
		Carabus problematicus	Violet ground beetle	Common, Widespread

Order	Family	Scientific Name	English Name	Status
		Curtonotus aulicus	Ground beetle	Common, Widespread
		Harpalus latus	Ground beetle	Common, Widespread
		Harpalus rufipes	Ground beetle	Common, Widespread
		Nebria brevicollis	Ground beetle	Common, Widespread
		Poecilus versicolor	Ground beetle	Common, Widespread
		Pterostichus madidus	Black clock beetle	Common, Widespread
		Pterostichus niger	Ground beetle	Common, Widespread
	Cerambycidae	*Grammoptera ruficornis*	Longhorn beetle	Common, Widespread
		Leptura livida	Longhorn beetle	Common, Widespread
		Pogonocherus hispidus	Longhorn beetle	Common, Widespread
		Strangalia maculatus	Longhorn beetle	Common, Widespread
	Coccinellidae	*Coccinella 7 - punctata*	Ladybird	Common, Widespread
		Propylea 14 - punctata	Ladybird	Common, Widespread
	Elateridae	*Agriotes acuminatus*	Click beetle	Common, Widespread
		Agriotes pallidulus	Click beetle	Common, Widespread
		Agriotes obscurus	Click beetle	Common, Widespread
		Athous haemorrhoidale	Click beetle	Common, Widespread
	Histeridae	*Saprinus semistriatus*	Histerid beetle	Common, Widespread
	Malachiidae	*Malachius bipustulatus*	Pollen beetle	Common, Widespread
	Oedemeridae	*Oedemera lurida*	Oedemerid beetle	Common, Widespread
		Oedemera nobilis	Oedemerid beetle	Common, Widespread
	Scarabaeidae	*Phyllopertha horticola*	Garden chafer beetle	Common, Widespread
	Silphidae	*Nicrophorus investigator*	Carrion beetle	Common, Widespread
		Nicrophorus vespillo	Carrion beetle	Common, Widespread
		Nicrophorus vespilloides	Carrion beetle	Common, Widespread
		Silpha atrata	Carrion beetle	Common, Widespread
		Silpha tristis	Carrion beetle	Common, Widespread

Order	Family	Scientific Name	English Name	Status
		Thanatophilus sinuatus	Carrion beetle	Common, Widespread
	Staphylinidae	*Ocypus olens*	Rove beetle	Common, Widespread
		Platydracus stercorarius	Rove beetle	Common, Widespread

Table 12 Moths Recorded at Sandleford Park, Newbury (2014)

Scientific Name	English Name	Authority	Number of individuals	Status
Agriphila straminella	Micro moth	Denis & Schiffermülle, 1775	3	n/a
Amphipyra pyramidea/berbera	Copper/svensson's copper underwing	Linnaeus, 1758 / Fletcher, 1968	1	n/a
Camptogramma bilineata	Yellow shell	Linnaeus, 1758	1	n/a
Caradrina morpheus	Mottled rustic	Hufnagel, 1766	1	NERC S41
Celypha rivulana	Micro moth	Scopoli, 1763	1	n/a
Chortodes pygmina	Small wainscot	Haworth, 1809	1	n/a
Chrysoteuchia culmella	Micro moth	Linnaeus, 1758	1	n/a
Deileptenia ribeata	Satin beauty	Clerck, 1759	1	n/a
Diarsia rubi	Small square-spot	Vieweg, 1790	11	NERC S41
Ecliptopera silaceata	Small phoenix	Denis & Schiffermüller, 1775	1	NERC S41
Eilema lurideola	Common footman	Zincken, 1817	1	n/a
Epirrhoe alternata	Common carpet	Müller, 1764	1	n/a
Eudonia mercurella	Micro moth	Linnaeus, 1758	1	n/a
Eupithecia vulgata	Common pug	Haworth, 1809	1	n/a
Euproctis similis	Yellow-tail	Fuessly, 1775	1	n/a
Geometra papilionaria	Large emerald	Linnaeus, 1758	1	n/a
Hoplodrina alsines	uncertain	Brahm, 1791	3	n/a
Hoplodrina blanda	Rustic	Denis & Schiffermüller, 1775	3	NERC S41
Hydriomena furcata	July highflyer	Thunberg, 1784	1	n/a
Lymantria monacha	Black arches	Linnaeus, 1758	1	n/a
Mormo maura	Old Lady	Linnaeus, 1758	1	n/a
Mythimna impura	Smoky wainscot	Hübner, 1808	2	n/a

Scientific Name	English Name	Authority	Number of individuals	Status
Noctua pronuba	Large yellow underwing	Linnaeus, 1758	5	n/a
Ochropleura plecta	Flame shoulder	Linnaeus, 1761	7	n/a
Oligia fasciuncula	Middle-barred minor	Haworth, 1809	3	n/a
Phragmatobia fuliginosa	Ruby tiger	Linnaeus, 1758	1	n/a
Pleuroptya ruralis	Mother of pearl	Scopoli, 1763	1	n/a
Rivula sericealis	Straw dot	Scopoli, 1763	5	n/a
Spilosoma lubricipeda	White ermine	Linnaeus, 1758	1	NERC S41
Spilosoma luteum	Buff ermine	Hufnagel, 1766	1	n/a
Thalpophila matura	Straw underwing	Hufnagel, 1766	1	n/a
Timandra comae	Blood-vein	Schmidt, 1931	2	NERC S41
Watsonalla culraria	Barred hook-tip	Fabricius, 1775	1	n/a
Xanthorhoe designata	Flame carpet	Hufnagel, 1767	2	n/a
Xestia sexstrigata	Six-striped rustic	Haworth, 1809	4	n/a
Xestia xanthographa	Square-spot rustic	Denis & Schiffermüller, 1775	12	n/a