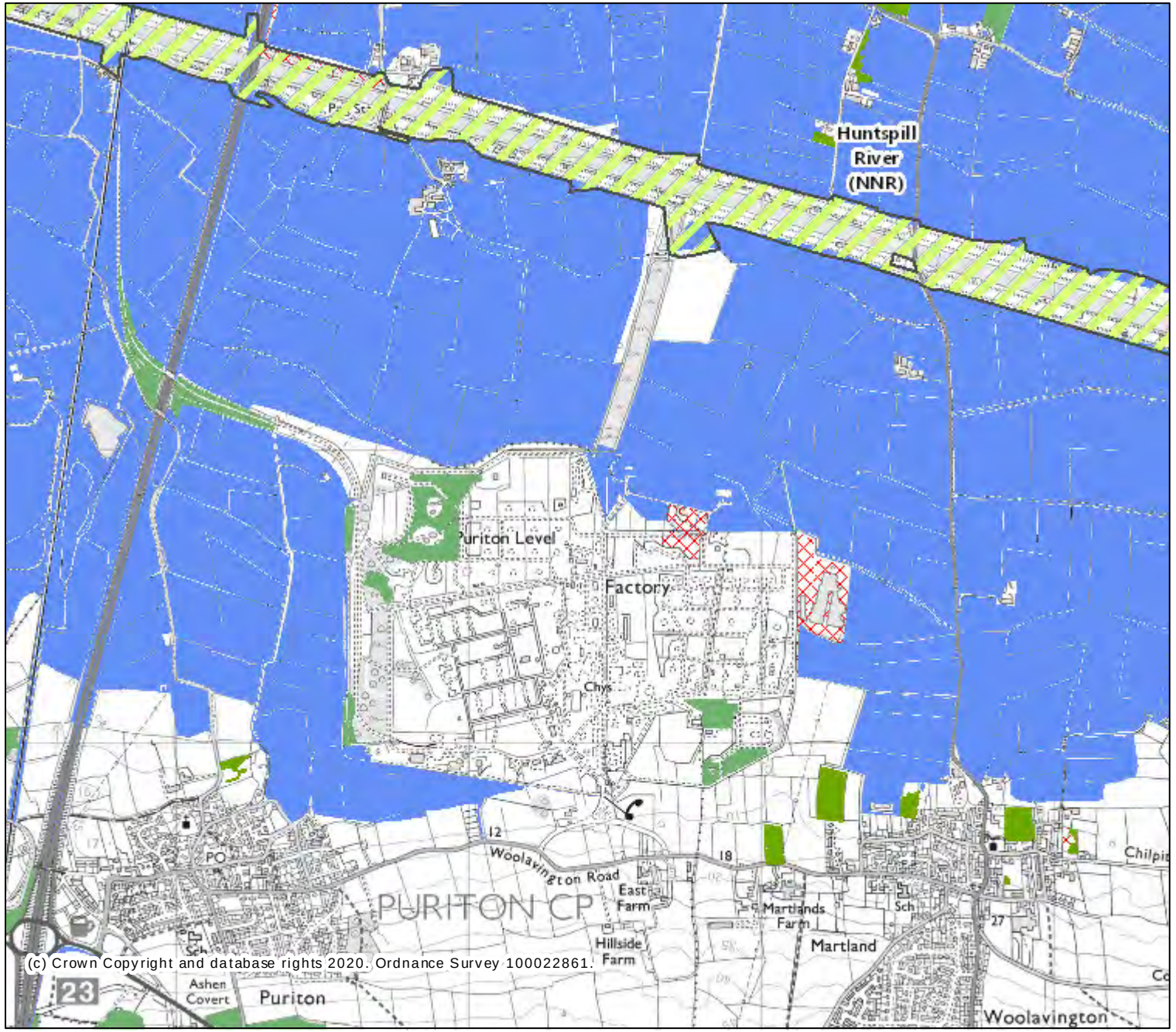
APPENDICES

APPENDIX 1

MAGIC Map

7761 Magic Map



Legend

- Local Nature Reserves (England)
- National Nature Reserves (England)
- Ramsar Sites (England)
- Sites of Special Scientific Interest (England)
- Special Areas of Conservation (England)
- Special Protection Areas (England)
- Priority Habitat Inventory - Coastal and Floodplain Grazing Marsh (England)
- Priority Habitat Inventory - Deciduous Woodland (England)
- Priority Habitat Inventory - Traditional Orchards (England)
- Priority Habitat Inventory - No main habitat but additional habitat exists (England)

Projection = OSGB36
xmin = 330100
ymin = 141200
xmax = 336700
ymax = 144400

0 0.35 0.7
km

Map produced by MAGIC on 16 November, 2020.

APPENDIX 2

Interim Invertebrate Report

Richard Wilson Ecology Limited

Terrestrial Invertebrate Survey, ROF Bridgwater, Puriton, Somerset

Interim Report

Prepared for Ecology Solutions Limited

December 2020

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Notice

This document and its contents have been prepared for Ecology Solutions Limited and is intended solely for information and use in relation to the proposed mixed-use development located within the former Royal Ordnance Factory Bridgwater, Puriton in Somerset. This is an interim report for the purposes of demonstrating the methodologies employed and initial findings of the terrestrial invertebrate survey.

Richard Wilson Ecology Limited assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/ or its contents.

Document History

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1.0	Final Issue				3rd December 2020

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1 Introduction

1.1 Background

Richard Wilson Ecology Limited was commissioned by Ecology Solutions Ltd in early May 2020 to undertake terrestrial invertebrate surveys within the former Royal Ordnance Factory (ROF) Bridgwater site and adjacent land holdings to inform the Ecological Impact Assessment (EcIA) for the proposed mixed-use campus ('Gravity') development project.

This interim report provides a detailed summary of the results obtained from desk-based and field survey to demostrate the work undertaken in 2020.

1.1.1 Previous Invertebrate Surveys

The study site has had a history of ecology survey dating back to at least 2007 as far as the author is able to ascertain, involving two major planning applications (Sedgemoor District Council Planning Reference: 42/11/00017 for the remediation work; and subsequently, the granting of Outline Planning Permission (Planning Reference: 42/13/00010). Both applications placed reliance on aquatic invertebrate surveys of various ditches and waterbodies within and outwith the former factory site, dragonfly transects, and butterfly surveys, including brown hairstreak (*Thecla betulae*) egg-searches, which were undertaken between March and August 2009 (Ecology Solutions, 2011).

Aquatic and some terrestrial invertebrate survey work has also been undertaken more recently (during summer 2013) which included land adjacent to the current study site, i.e. outwith the ROF Bridgwater and fields surveyed in 2020. These focussed on the numerous ditches and rhynes to inform the consented Hinckley Point C Connection Project (The Ecological Partnership, 2014) and included three ditches (referred to as TEP341, TEP327 and TEP246), all located to the east of the ROF Bridgwater's boundary. These were surveyed, targeting the lesser silver water beetle (*Hydrochara caraboides*), a [1]legally protected species and which has a Near Threatened status based on the most recent nature conservation assessment (Foster, 2010).

The results of these historical surveys, and the relevance to the study site, are discussed in more detail in Section 4.1.

1.2 Study Site

The former ROF Bridgwater site (site centre: ST 333 423) occupies approximately 167 ha on low-lying flat ground, equidistant between the villages of Puriton and Woolavington in Somerset (vice-county 6: North Somerset), 6 km north-east of Bridgwater city centre (town hall). The study site also included additional land parcels outwith the ROF's boundary fence, including a linear reedbed system to the north (linking the Huntspill River); a disused railway corridor to the north-west that once connected the former factory to the mainline railway network; and surrounding fields, mostly to the south-east, south and south-west. These additional land parcels collectively add an additional 85 ha; thus the study site covers an extensive area of just over 250 ha.

ROF Bridgwater was constructed on the Puriton Levels at the beginning of WW2 and opened in 1941, remaining operational until decommission in 2008. Concurrently with its construction, the artificial Huntspill River was dug to supply freshwater to the factory. This is connected to the factory via a linear 865 m long compartmentalised reedbed.

The study site is located on the western end of the Somerset Levels and Moors, an extensive area of low-lying ground sandwiched between two east-west orientated escarpements to the north (Mendip Hills) and south (Polden Hills). This low-lying ground supports a mosaic of wetlands and moors, inter-connected by rivers, ditches and rhynes (a ditch specifically engineered to drain land for pasture) in an open landscape. Land drained by rhynes has resulted in a patchwork of rectilinear fields that is evident within the study site outwith the ROF itself.

[1] It is protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

Six land parcels within the study site are designated as Local Wildlife Sites (LWS) and are listed below; those marked with an '*' are within the former ROF:

- *Puriton Rhynes and Ponds LWS (ST 339 428);
- *Puriton Cowslip Field LWS (ST 331 420);
- Woolavington Road and Fields North LWS (ST 331 417);
- *Puriton Ash Ground LWS (ST 326 422);
- *Puriton Meadows and Rail Spur LWS (ST 327 427); and
- North Mead Drove Fields LWS (ST 324 429).

All the LWSs have their origins in the landscape's post-inclosure history, and those within the curtilage of the ROF are of more recent genesis, directly associated with the factory's construction. Puriton Cowslip Field LWS has developed a calciolous vegetation community, presumed to have arisen, either from importation of foreign base-rich material during the ROF's construction phase; or as an inert, non-hazardous (explosive) waste product from the manufacturing phase of the development. The substrate at Puriton Ash Ground LWS is assumed to be a mix of coal waste and material used for the foundations of the railway spur, which has resulted in the development of a short, perennial vegetation community with lichen-heath that has developed an open habitat, with scattered scrub.

Associated with the study site is a consented link road which was being constructed during 2020. This link road would connect the proposed development site direct to the M5 via the A39. The construction corridor passed through fields to the south-west of the ROF and north of Woolavington Road.

1.2.1 Summary of Habitats and Vegetation Communities (2020)

Botanical surveys that have mapped vegetation communities within the study site have been completed on several occasions (2007 to 2009; and updated in 2011 (Ecology Solutions, 2011)). The more detailed report to inform the EcIA will reference any more recent habitat mapping. In the interim, a summary of the broad habitats within the study site are presented below.

Within the ROF Bridgwater itself, the central area, defined as land either side of the north-south orientated access road which bisects the ROF from the entrance gate and has been remediated, resulting in areas of disturbed ground of varying topography and vegetation cover. This area is coincident with what was mapped as amenity and semi-improved grassland in 2011 (Ecology Solutions, 2011; Plan ECO3: Ecological Features). The vegetation community here is characteristic of recently disturbed soils, comparable to arable field margins or fallow ground. The community was characterised by an open structure with an abundant pollinator resource of varying species of which the Asteraceae (daisy family), and Apiaceae (carrot family, 'umbellifers') were a substantial component. These more recently disturbed habitat patches were interconnected with more stable vegetation communities, suggesting remediation had relaxed some years previously, allowing grasses to begin to form a taller, yet still open sward. Elsewhere, evidence of disturbance was less obvious, suggesting either any remediation had been of lower intensity, had occurred sufficiently historically (e.g. more than five years previously), or the community had developed from abandoned amenity grassland. Either way, the vegetation community in these habitat parcels had developed a continuous sward with bramble (*Rubus fruticosus* agg.) starting to encroach. This core area was therefore a highly heterogeneous mosaic of varying vegetation communities on a topographically varied landscape of spoil mounds and level ground.

The ROF's margins supported more stable vegetation communities, the majority of which were associated with the four LWSs located within the curtilage of the factory. Outwith the non-statutory sites, these vegetation communities were predominantly tall, species-poor grasslands with localised patches of tall herbs such as hogweed (*Heracleum sphondylium*). In the south-east quartile of the factory site, grasslands were bounded by mature hedgerows of hawthorn (*Crataegus monogyna*), elder (*Sambucus nigra*) and blackthorn (*Prunus spinosa*) with a fringe of bramble; or mature poplar (*Populus* sp.) and ash (*Fraxinus excelsior*) trees. These mature stands include a standing dead wood resource. The plantation woodland block in this corner supports immature specimens of oak (*Quercus* sp.), rowan (*Sorbus aucuparia*), ash, poplar and hawthorn with no lying or dead wood resource.

Within the non-statutory sites, the Puriton Rhynes and Ponds LWS comprises a series of grasslands, bounded by vegetated water-filled ditches and mature hedgerows and a narrow linear reedbed system divided into cells. The northern end of this reedbed is defined by a mature plantation woodland with an impenetrable bramble understorey. The Puriton Meadows and Rail Spur LWS consists of three rectilinear fields divided by mature, wide hedgerows with a similar species mix as elsewhere but including willows (*Salix* spp.). Puriton Ash Ground LWS supports a mosaic of acid grassland, flower-rich short perennial vegetation with a locally frequent lichen community and scattered scrub, of which butterfly-bush (*Buddleia davidii*) is frequent. This habitat parcel supports a vegetation community that on first appraisal, is substantially different to that which is present elsewhere within the study site; but from an invertebrate ecology perspective, it shares similar features with the recently disturbed ground. This includes exposures of bare ground, even if on a micro-scale; a varied topography, though not as extreme or obvious as the larger soil-dominated spoil heaps; and a vegetation community gradating from short, open patchy cover through to relatively taller, more closed swards and scrub that form sheltered embayments.

Outwith the study site, the railway spur supports dense scrub which prevented access from within the ROF, or adjacent fields. The fields are a mix of cattle or sheep-grazed pasture in the north; or mostly managed for silage/ hay in the south. The exceptions to this are three orchards in the south-east quartile, associated with the village of Woolavington, and which are likely to have their origins in the late 1790s/ early 1800s when Sedgemoor was inclosed. The dominant fruit tree are apples (*Malus domestica*), which are all veteran specimens. Many of the trees have broken limbs or substantial trunk cavities and are sheltered by mature hedgerows. The orchard no longer appears to be managed and the grassland understorey was a mosaic of species-poor and more floristically diverse tall ruderal vegetation, with a couple of old waterbodies. To the west and north of these orchards are a series of fields bounded by mature hedgerows which fall within the footprint of the Hinckley Point C Connection Project. These fields are likely to have been grazed by cattle as there was an abundance of buttercups, which being unpalatable to bovids, are selectively avoided. This abundance can be an indication that the grasslands are of long-standing origin, which is likely to be the case in this instance. However, in early May 2020, the land was being subject to a great crested newt (*Triturus cristatus*) licenced mitigation project as temporary amphibian fencing was being erected to translocate the capturable population elsewhere.

In summary various habitats are present within the study site, ranging from recently disturbed ground through to long-standing grasslands bounded by mature hedgerows and associated old orchards. The topographical variations, especially within areas remediated in the last few years and in combination with the habitat mosaics and diversity have provided a baseline for terrestrial invertebrates to exploit. The composition of the invertebrate assemblages present will be influenced by the study site's relationship with the wider ecological landscape and this is considered in more detail below.

1.2.2 Context with Surrounding Landscape

The study site is located at the western end of an area of low-lying land situated between rising ground to the north (Mendip Hills), south (Polden Hills) and east (Mid-Somerset Hills and Yeovil Scarplands), within the [2]Somerset Levels and Moors National Character Area (NCA). The NCA is a flat landscape of wetlands, rivers, ditches and rhynes, the latter having been engineered to drain the landscape for agriculture between the 1750s and 1850s, resulting in a patchwork mosaic of fields such as is evident within parts of the study site. This patchwork contributes to the largest area of lowland wet grassland and associated wetland habitats in Britain, and includes marginal areas which grade towards a more tree-associated biotope with scrub, hedgerows and riparian woodland (Natural England, 2013). It is in this context that the study site seems to fit, with the grasslands outwith ROF Bridgwater, with their associated hedgerows and in three instances an orchard, providing the gradation away from the more extensive wetlands evidenced within the Somerset Levels National Nature Reserve (NNR) and conjoining Sites of Special Scientific Interest (SSSI).

Given that the ROF's footprint is located within the previously more extensive Puriton Levels, which itself was part of a connected network of heaths and moor such as Edington Moor and Catcott Heath that linked to the more extensive Shapwick Heath and Ham Wall NNRs, the habitats present within the study site are considered likely to have some functional connection to these high value habitats that are currently managed for nature conservation; either via the existing network of watercourses, including rhynes, or as a consedquence of remnant habitat patches whose origins lie within the study site's historical relationship. As a consequence, the invertebrate assemblages, particularly more mobile groups such as the Diptera may have affinities with these

[2] Available on-line here: http://publications.naturalengland.org.uk/publication/12320274?category=587130; last accessed on the 27th November 2020.

biotopes that are present in the not too distant wider landscape, including the statutory site network 3 km to the east of the study site

1.2.3 Proposed Development Footprint

The proposed development is for a mixed-use campus within the study area. No draft layout has been provided as the intention is to use the baseline information to inform the final design.

1.3 Survey Limitations

1.3.1 Coronavirus Pandemic

In mid-March 2020, following the emergence of Coronavirus (Covid-19), the UK and devolved Governments announced a strict lockdown which extended through until late April 2020. This lockdown required all but essential workers to stay at home. As a consequence, and until the Chartered Institute of Ecology and Environmental Management (CIEEM) issued guidance following confirmation from Defra, it was uncertain whether ecology surveys (within the planning system) were included in the definition of 'essential worker'. This was resolved in early May 2020, and thus the first survey commenced shortly after. The implications of this delayed start are discussed below.

1.3.2 Weather Limitations

The spring of 2020 was remarkable for its prolonged dry and hot weather. Weather conditions leading up to the first main visit (late May 2020) were generally warmer and substantially drier than the long-term average (Meteorological Office [3] website). This was followed by a generally average, in terms of warmth (temperature), but a wetter and cloudier early to mid-summer (Meteorological Office [4]website). This combination of an exceptionally warm and dry spring followed by a cloudier and wetter summer is considered likely to have affected invertebrate species, especially their larval stages. Spring and early summer faunas are considered to have emerged early, in response to the clement weather, or died before emerging as adults due to desiccation. This, in combination with the delayed start as a consequence of Government restrictions arising from the Coronavirus Pandemic (see Section 1.3.1) resulted in this initial spring emergence possibly being at least partially missed.

The results of the surveys undertaken are likely to have been influenced by the conditions (weather and Pandemic) experienced in 2020 in that some species, if present, may have been missed. The significance of this is discussed in Section 4.1 in the context of continued presence of scarce butterflies previously recorded within the study site. Evaluating the data will have a greater focus on invertebrate assemblages and not just individual species of conservation interest. This, combined with a thorough survey effort and consideration of habitat features, including presence/ likely absence of foodplants (for example) will ensure a robust evaluation of the study site and individual land parcels such as the LWSs, enabling an informed conclusion.

[3] See https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/summaries/uk_monthly_climate_summary_spring_2020_may.pdf; accessed on 22nd September 2020.
[4] See https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/summaries/uk_monthly_climate_summary_summer_2020_3.pdf; accessed on 22nd September 2020.

2 Legislation

2.1 Legislation

Sixteen species of invertebrate present in the UK are protected through international law; largely arising from the European Union's Habitats Directive and transposed in to domestic legislation by the Conservation of Habitats and Species Regulations 2017 (as amended).

Approximately 50 species of invertebrate are included in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

Section 40 of the Natural Environment and Rural Communities Act 2006 requires all local authorities to consider biodiversity when undertaking their public duty. In achieving this, the Government has published a list of Species of Principal Importance (SoPI) for nature conservation in England, which includes invertebrates. Somerset County Council has published a Pollinator Action Plan whose broad aims seek, amongst others, to protect, increase and enhance pollinator habitat (Somerset County Council, 2018).

A full list of all species covered by legislation and policy is available via the Buglife [5]website.

2.2 Policy

Paragraphs 170 to 177 inclusive of the National Planning Policy Framework (NPPF) conveys national policy on conserving and enhancing the natural environment including protecting habitats and biodiversity in the planning system (Ministry of Housing, Communities and Local Government, 2019). Guidance underpinning the NPPF is available [6]on-line and provides a detailed narrative on considerations to protect and enhance biodiversity as part of the planning process. Relevant paragraphs are 009 to 035.

The National Pollinator Strategy is particularly relevant for invertebrate nature conservation and emphasises:

"The National Planning Policy Framework (2012) [subsequently updated] *requires planning authorities to promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations. It prescribes that local plans should have a clear strategy for enhancing the natural, built and historic environment and supporting wider biodiversity networks, including planning at a landscape scale across local authority boundaries and supporting Nature Improvement Areas."* (Defra, 2014; Section 5).

[5] See https://www.buglife.org.uk/sites/default/files/Policy%20and%20legislation%20summary%20final%202014_0.pdf; last accessed on the 31st October 2016.
[6] See https://www.gov.uk/guidance/natural-environment#biodiversity-geodiversity-and-ecosystems; last accessed on 23rd October 2020.

3 Methodology

3.1 Desk Study

The ecological desk study has been undertaken by Ecology Solutions and any relevant historical records of invertebrates received from the Somerset Environmental Records Centre will be forwarded on for the final report. Further information sources have been referred to as necessary, including from the author's library, in addition to referencing previous survey work (referred to in Section 1.1.1).

3.2 Field Survey

The purpose of the work was to undertake an appraisal of the study site's nature conservation value for terrestrial invertebrates and is therefore not intended to provide an exhaustive list of invertebrate taxa present. In achieving the these aims, the surveys followed the methodologies described in Drake *et al*. (2007) using a variety of techniques, including sweeping of vegetation and aerial netting for flying invertebrates using a light-weight butterfly net as well as a more heavy duty sweep-net. This was complemented by vacuum sampling (using a commercially available modified garden blow-vac), sieving leaf-litter, searching under refugia and direct observation.

Specimens collected were either identified in the field or retained for subsequent microscopic identification. Surveys paid particular attention to those groups most likely to include species of nature conservation interest, focussing on aculeate Hymenoptera (solitary bees and wasps), Diptera (flies), Araneae (spiders), Coleoptera (beetles) and Hemiptera (bugs). However, a wide range of invertebrate orders were recorded including day-flying Lepidoptera (butterflies and moths).

3.3 Personnel

The invertebrate survey (field visits) was undertaken by Richard Wilson CEnv MCIEEM Mem.RES MSc; an experienced field entomologist. He is a [7]recognised arachnid (spiders and harvestmen) specialist though he is familiar with a wider range of taxonomic groups. In addition to the arachnids, Richard identified some Diptera families such as the hoverflies (Syrphidae) and larger Brachycera (e.g. robberflies (Asiliidae)) and aculeate Hymenoptera in addition to groups readily identifiable in the field such as the Lepidoptera (butterflies and moths) and Odonata (dragonflies and damselflies). Steven Falk FRES, who is a recognised specialist in pollinators identified other Diptera families (e.g. Muscidae) and verified some of the aculeate Hymenoptera (e.g. *Lasioglossum* spp.). Steve Lane identified most of the Coleoptera and Hemiptera collected.

[7] Richard is the YNU's spider recorder, the Yorkshire, County Durham and Northumberland recorder for the national spider recording scheme; and sits on the conservation committee of the British Arachnological Society.

4 Results and Interpretation

4.1 Desk Study

Survey work supporting the Hinckley Point C Connection Project recorded the lesser silver water beetle in three watercourses, of which ditch TEP341, centred on ST 3427 4334, and approximately 325 metres north of the nearest ditch network within the study site is the nearest. It is therefore feasible that this aquatic water beetle is present within the ditch network associated with the Puriton Rhynes and Ponds LWS. The Project also recorded *Hydaticus transversalis* from ditch TEP341 referring to it as an [8]IUCN Vulnerable species. However, Foster (2010) downgraded this species to Nationally Scarce. A second Nationally Scarce water beetle, *Peltodytes caesus* was recorded from ditch TEP327.

In spring and summer 2009, butterfly and dragonfly transects, an egg-search for brown hairstreak and aquatic invertebrate surveys were undertaken to inform the then proposed remediation of the study site. The surveys were completed both within and outwith the former ROF Bridgwater site; and based on the Phase 1 habitat map, the study site covered a similar footprint to the current work (Ecology Solutions, 2011). A total of 22 species of butterfly were recorded between April and July, and 13 species of dragonfly and damselfly (between May and August). The noteworthy species recorded were small blue (*Cupido minimus*), dingy skipper (*Erynnis tages*), brown hairstreak and variable damselfly (*Coenagrion pulchellum*). Aquatic invertebrate surveys were undertaken from 17 sampling points in May and a total of 102 species were recorded. Of the 137 species recorded as part of this earlier work, nine (see Table 1 below) have a nature conservation status. Note that since, or shortly before, the surveys were undertaken in 2009, water beetles (Foster, 2010), butterflies (Fox, Warren and Brereton, 2010) and Odonata (Daguet, French and Taylor, 2008) had their nature conservation status' reviewed against IUCN guidelines; hence the reduced number of taxa (particularly water beetles) compared to that listed in Ecology Solutions (2011).

Table 1: Key species recorded historically between April and August 2009 within ROF Bridgwater and surrounding land.

Order	Family	Species	Conservation status
Coleoptera	Dytiscidae	*Hydaticus transversalis*	Nationally Scarce
Coleoptera	Hydraenidae	*Limnebius papposus*	Near Threatened; Nationally Scarce
Hygrophila	Lymnaeidae	*Stagnicola palustris* agg.	Data Deficient
Lepidoptera	Hesperiidae	Dingy skipper	Vulnerable; SoPI
Lepidoptera	Lycaenidae	Small blue	Near Threatened; SoPI
Lepidoptera	Lycaenidae	Brown hairstreak	Vulnerable; SoPI
Odonata	Coenagrionidae	Variable damselfly	Near Threatened
Odonata	Libellulidae	Scarce chaser (*Libellula fulva*)	Near Threatened
Unionoida	Unionidae	*Anodonta cygnea*	Near Threatened (European)

No information has been provided on the location(s) within the study site where the above taxa were recorded. Based on the author's knowledge, it is considered likely that the small blue and dingy skipper was recorded within Puriton Cowslip Field LWS; and possibly Puriton Ash Grounds LWS (within the ROF); whilst variable damselfly and scarce chaser could have been recorded within the Puriton Rhynes and Ponds LWS.

None of the taxa recorded in 2009 were observed during the 2020 field season. Both small blue and dingy skipper flight periods are May through to early June and it is conceivable that the exceptionally warm and dry April hastened their emergence prior to the initial site visit. This said, their food plants (common bird's-foot trefoil (*Lotus corniculatus*) in the skipper's case, and kidney vetch (*Anthylis vulneraria*) for small blue) were not observed and it is considered probable that if dingy skipper remained present, adults would have been noted.

[8] International Union for the Conservation of Nature. See https://www.iucnredlist.org/assessment/process for more information.

Small blue can form discrete colonies and require a small number of plants to survive, so it is conceivable that a population remains present within Puriton Cowslip Field LWS if this is where the records pertain to.

No variable damselflies or scarce chasers were observed during 2020 though suitable habitat remains within the Puriton Rhynes and Ponds LWS. As no aquatic invertebrate survey methods were deployed, this explains the absence of records in 2020 for water beetles and other freshwater fauna.

4.2 Field Survey

4.2.1 Survey Conditions

Nine survey visits were completed during reasonable to optimal weather conditions for the time of year between mid-May and mid-September 2020. The details are conveyed in Table 2, including the various locations where surveys took place on each visit.

Table 2: Weather conditions for survey visits.

Date	Weather	Notes
12th May 2020	**Cloud:** 3/8; **Temperature:** 14°C warming to 19°C; **Wind Speed:** Calm to 1. Cool start but then warming.	Scope site and survey fields, including orchard NW of Woolavington. Survey fields in SE corner of ROF Bridgwater
13th May 2020	**Cloud:** 4/8 to 7/8; **Temperature:** 13°C; **Wind Speed:** 2 NNE. Cool and breezy day.	Scope & survey within ROF Bridgwater: • Puriton Rhynes & Ponds LWS • Puriton Cowslip Field LWS • General area within ROF
8th June 2020	**Cloud:** 3/8; **Temperature:** 20°C; **Wind Speed:** 1 (2) NW	• Survey fields NE of Puriton.
9th June 2020	**Cloud:** 3/8 (high cloud); **Temperature:** 17°C; **Wind Speed:** 1 (2) W	• Puriton Rhynes & Ponds LWS • Puriton Meadows & Rail Spur LWS, • General areas within ROF Bridgwater. Set up Malaise trap and pitfall traps
10th June 2020	**Cloud:** 8/8 (high cloud); **Temperature:** 14°C; **Wind Speed:** 1 W. Heavy rain and then drizzle.	• Survey land NW of Woolavington Set up flight interception traps in orchard
7th July 2020	**Cloud:** 8/8 clearing to 6/8; **Temperature:** 17°C warming to 20°C; **Wind Speed:** 1 (2) W. Warm and humid	• Puriton Ash Ground LWS • Puriton Rhynes & Ponds LWS • General areas within ROF Bridgwater. Retrieve static traps
29th July 2020	**Cloud:** 6/8; **Temperature:** 18°C; **Wind Speed:** Calm	• Survey land NW of Woolavington • General areas within ROF Bridgwater.
30th July 2020	**Cloud:** 1/8; **Temperature:** 20°C; **Wind Speed:** 2 (3) SE	• Puriton Rhynes & Ponds LWS
15th September 2020	**Cloud:** 1/8; **Temperature:** 23°C; **Wind Speed:** 1	• Puriton Meadows & Rail Spur LWS • General areas within ROF Bridgwater.

4.2.2 Summary of Survey Results and Notable Species

A total of 564 species have been identified from the study site. A list is provided in Table 5 (Appendix C). The following discussion focuses on the distribution of Key Species (as defined by Telfer, 2017).

Table 3: Distribution of main taxonomic groups studied. Red numbers in parentheses equate to Key Species (excluding Research Only – see text for explanation).

Taxonomic Group	Number of Species
Araneae (Spiders)	57 (2) species
Coleoptera (Beetles)	147 (10) species
Diptera (Flies)	194 (4) species
Hemiptera (bugs, including 'hoppers)	53 (0) species
Hymenoptera (Bees, wasps, ants etc.)	57 (3) species
Lepidoptera (Butterflies & moths)	31 (1) species
Orthoptera (grasshoppers & crickets)	9 (0) species

A total of 20 Key Species were recorded within the study site, of which two are Rare Key Species, including taxa that subject to a formal status review, will likely be downgraded. These 20 Key Species represent approximately 4 % of the total number of species recorded, of which Rare Key Species are < 1 % of the fauna. Details, including their ecology and occurrence at the study site is conveyed in Table 4.

Table 4: Selection of species recorded with an NCS.

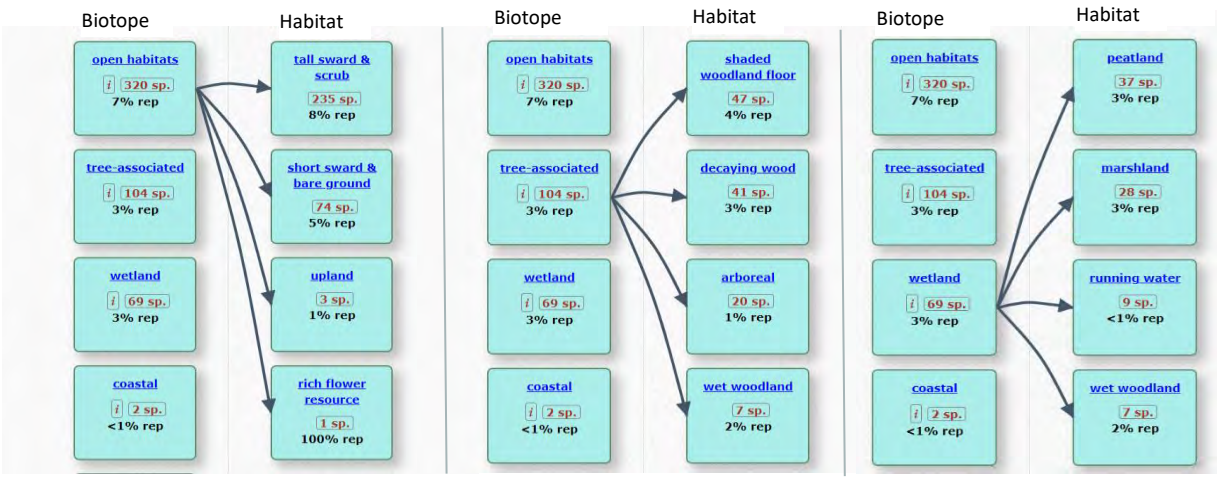
Species	Status	Ecology
Styloctetor compar (=*Ceratinella scabrosa*) Araneae, Linyphiidae	Nationally Scarce	A small money-spider associated with dry (often calcareous) unimproved grasslands. Relatively widespread in south-east England but becoming scarce in the Midlands and in the south-west with few records in Somerset (Spider Recording Scheme, 2020). A single female recorded from Puriton Ash Grounds LWS in June 2020.
Argenna subnigra Araneae, Dictynidae	Nationally Scarce	A ground-dwelling spider associated with sparsley vegetated open grasslands, including those characteristic of brownfield sites. It is rare in western England and represents the first records for Somerset. A male and female were collected from Puriton Cowslip Field LWS in May 2020.
Acupalpus exiguus Coleoptera, Carabidae	Nationally Scarce	A small pitchy-black ground beetle associated with wet grassland sites such as flood meadows, often on clay soils, though it has also been recorded in coastal localities on salt-marsh (Telfer, 2016). Two individuals were collected from the grassland fields within the southern sector of the ROF compound.
Hypnogyra angularis (Coleoptera, Staphylinidae)	Nationally Scarce (Na)	This predatory rove beetle is a saproxylic species, associated with woodland, particularly pasture woodland, parkland estates and orchards. Examples of its immediate habitat often involve wood mould, rot holes, and decayed tree trunks. There may be some association with bird nests in tree cavities.

Species	Status	Ecology
		Single individual taken in an aerial flight interceoption trap on a veteran apple tree within the orchard, north-west of Woolavington.
Stenus palustris (Coleoptera, Staphylinidae)	Nationally Scarce (Nb)	A small predatory rove beetle strongly associated with fens, marshes and other wetland habitats, typically recorded within reed and sedge litter. A single individual recorded from the reedbed leaf-litter within the Puriton Rhynes & Ponds LWS.
Tachyporus formosus (Coleoptera, Staphylinidae)	Nationally Scarce	A small predatory orange and black rove beetle with a strong association with wetland and marshy grassland (Lane, 2019). A single individual collected from the grassland fields within the southern sector of the ROF compound in May 2020.
Cryptocephalus bipunctatus (Coleoptera, Chrysomelidae)	Nationally Scarce	A relatively large and convex pot beetle strikingly marked with black longitudinal patches on a gloss yellow elytral background. It is typically recorded in open woodland and scrub habitats (including on heathland), where adults feed on a variety of broad-leaved trees, perhaps with preference for hazel, willow and birch. The larvae are cased and free-living in the ground layer or on foliage and may be ant-associated. A single adult recorded from Puriton Ash Grounds LWS in May 2020.
Atylotus rusticus (Diptera, Tabanidae)	Nationally Rare	A medium sized horsefly associated with grazing marsh and wetland vegetation. There are scattered records in southern England, mostly in and around Otmoor, near Oxford; and the Pevensey Levels (around Brighton). The species is known from the Somerset Levels (Stubbs and Drake, 2014). Two females and three males were collected during June and July 2020 from various locations around the study site, within and outwith the ROF compound.
Small heath (*Coenonympha pamphilus*) Lepidoptera, Nymphalidae	Near Threatened; SoPI	Although a widespread species in the UK, this otherwise common species has experienced a substantial decline in both abundance and occurrence (Fox *et al*., 2015), hence its classification as Near Threatened. Individuals were observed within the Puriton Meadows and Rail Spur LWS in early June 2020.

4.3 Interim Baseline Invertebrate Assemblage Analysis

A detailed analysis of the species assemblages recorded within the study site will be undertaken for the final report so in the interim, a more general approach is provided, conveying a high-level analysis and interpretative narrative that considers the study site in the wider ecological landscape, drawing reference to the NCA. Of the 564 species recorded at ROF Bridgwater, just over five hundred species have been coded within Pantheon (Webb *et al*., 2018) meaning that there is sufficient understanding of their ecology to enable an analysis of the assemblage. Figure 1 provides a hierarchical illustration of the three main biotopes (open habitats, tree-associated, and wetland) present within the study site and how each of these break down into habitats with their respective species-richness. The open-habitat biotope represented by assemblages associated with tall sward

Figure 1: Breakdown of habitats within each of the three broad biotopes at ROF Bridgwater, Somerset.



and scrub; and short-sward and bare ground vegetation communities (habitats) are the dominant guild recorded. The tall sward and scrub habitat is reflected on the ground by the rectilinear grassland fields and hedgerows outwith the ROF and the similar habitats within the factory compound (characteristic of the NCA – refer back to Section 1.2.2), including the non-statutory sites such as Puriton Rhynes and Ponds LWS in the north-east sector. The assemblages associated with the short-sward and bare ground habitat are those present within the Puriton Ash Ground LWS, but also the variably disturbed ground within the central areas of the ROF compound. The disturbed habitat was characterised by a high proportion of annual/ biennial plants, providing a nectar-rich resource, which in combination with the exposed friable free-draining substrates of the LWS and spoil heaps (see Photograph 1), provided foraging and breeding habitat for approximately ten species of solitary bee including *Lasioglossum* species and their cuckoos in the genus *Sphecodes*. Other species such as the wolf-spider *Pardosa monticola* are rare in the wider countryside and particularly favour open, short grassland swards on comparatively undisturbed ground such as the community that occurs within the Puriton Ash Ground LWS. The disturbed ground within the ROF's core is a temporary feature arising from the remediation work undertaken in the last few years. What this demonstrates is the opportunity that the proposed development can deliver in providing similar habitat that extends the intrinsic interest of the LWS (see Photograph 1) and recreating the recently disturbed ground that is sympathetic to the development's desired layout.

Photograph 1: Nectar-rich resource in disturbed ground with bare ground just north of main offices (left) and spoil heap (right) within ROF Bridgwater.

Photograph 2: Puriton Ash Ground LWS (left) and recently landscaped spoil heap adjacent (right).

A further outcome of the analysis to date has been the identification of an invertebrate assemblage associated with wood decay. The brief use of aerial flight interception traps within the orchard located outwith the ROF and north-west of Woolavington suggests that the fauna is likely to be of value above a typical background level expected in the wider countryside. This is particularly relevant given the lack of ancient woodland within the NCA (Natural England, 2013; Section 4.2) so the treed landscape within the study site is likely to be, once fully analysed, of relatively high nature conservation value, in respect on invertebrates. This dead wood resource is not restricted to the orchard but is also present within the ROF's hedgerows and mature scrub, though the plantation woodland, for example in the south-east corner of the ROF (centred on ST 3393 4195), lacked a dead wood resource. The analysis has also identified the importance of the juxtaposition of the open habitat biotope with the dead wood resource as ten species of solitary wasp including five species of *Ectemnius* (*E. cavifrons*, *E. cephalotes*, *E. continuus*, *E. lapidarius* and *E. lituratus*) co-depend on dead wood (for nesting) and open habitat (for foraging).

Photograph 3: Periodically wet grassland within ROF Bridgwater

The wetland biotopes can be divided into marshland (*wetlands on mineral substrates subject to repeated disturbance, for example by flooding or grazing and which may partially dry out*) and peatlands (*wetlands on peat where disturbance is limited, characteristic of mires and seepages which remain permanently wet*). The wetland habitats include the reedbed that connects the Huntspill River NNR and the taller grasslands such as those at the southern end of the ROF compound (see Photograph 3) and outwith the factory site. Species such as the Nationally Rare horsefly, *Atylotus rusticus*, and the Nationally Scarce ground beetle, *Acupalpus exiguus* suggest that these grasslands are periodically inundated, and whilst they may not be florisitically species-rich, they are nevertheless a habitat of higher value for invertebrates than the botanical diversity may suggest. These grasslands, especially those within the ROF compound are interpreted as being remnant examples of lowland floodplain grassland that would have been present prior to the factory's construction in the 1940s on the Puriton Levels and characteristic of the wider NCA. The presence of *A. rusticus* is supportive of this interpretation given its restricted distribution.

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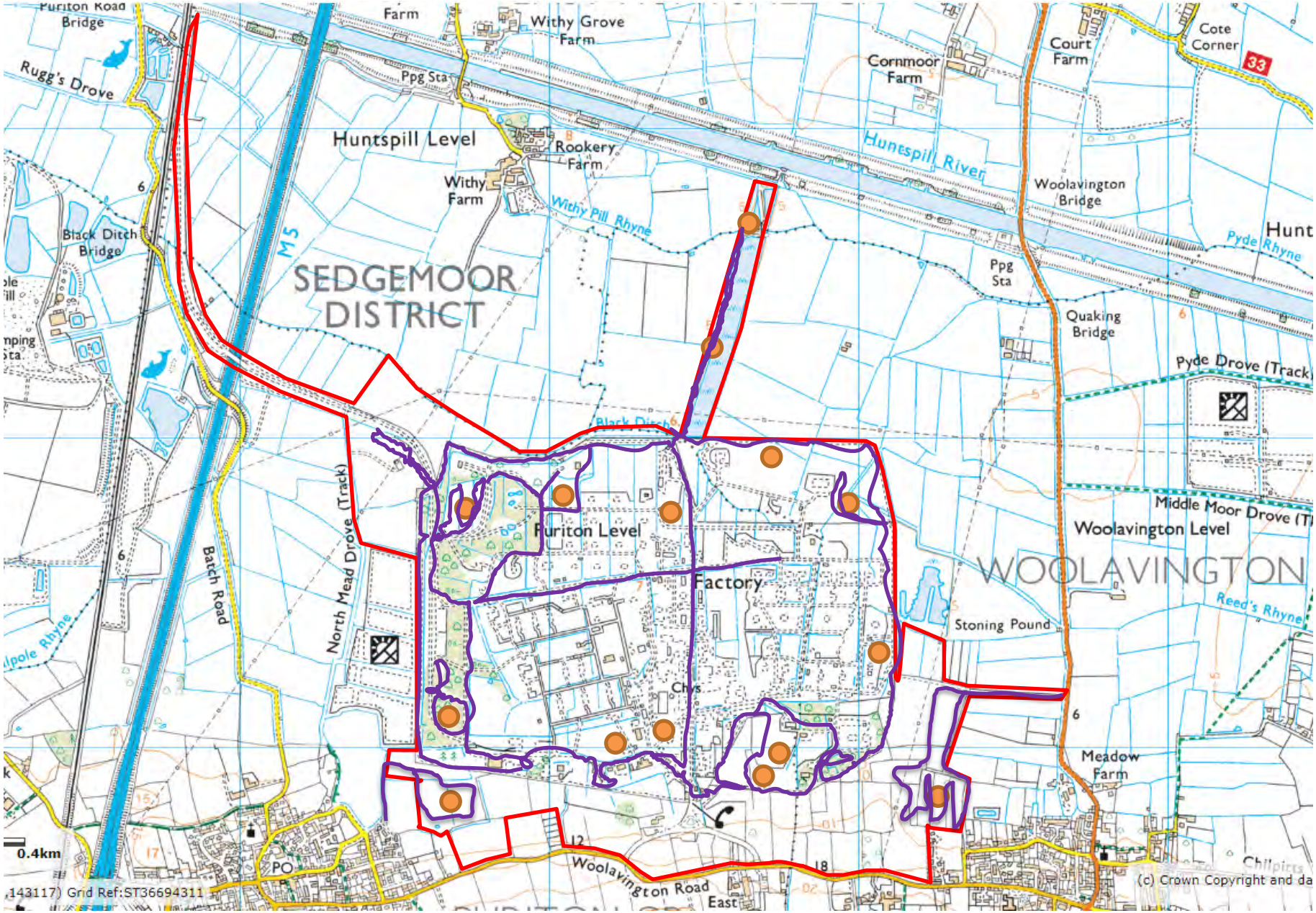
A. Appendix A: Recording Effort in 2020.

Figure 2: Indicative sampling locations and transects walked (May to September 2020).



B. Appendix B: Nature Conservation Status Categories (Definitions)

Introduction

The up to date status of species of conservation concern have been taken from Pantheon, the web-based analytical package maintained by the national biological records centre and developed by Webb *et al*. (2018) but reference to the various published Species Status Reviews; and the [9]Joint Nature Conservation Committee database of species designations has been undertaken where the author is aware there might be a discrepancy. However, no guarantee is given that this has been entirely comprehensive and reliance has largely been placed on Pantheon#s accuracy.

Great Britain Rarity Status

Nationally Rare (NR) species are those that have been recently reassessed and are roughly equivalent to the old Red Data Book categories. These are defined as occurring in 15 or fewer hectads (10 km Ordnance Survey grid squares) and where there is reasonable confidence that intensive recording effort won't increase the number of hectads above 15.

Nationally Scarce (NS) species are those that are not NR and which have not been recorded in more than 100 hectads, and where there is reasonable confidence that intensive recording effort won't increase the number of hectads above 100.

Where taxa have yet to be reassessed under the Species Status Reviews, they formally retain their status based on historical reviews, which may date back to the late 1980s or early 1990s. These status' should be treated with caution as it is likely a significant proportion are no longer accurate, either due to a better understanding of their ecology, or have subsequently spread due to climate change or other amenable factors (e.g. they are more frequent and no longer deserve a nature conservation status); or they have declined; and may merit upgrading to a threat category.

Nationally Notable - species recorded, or likely to be restricted to 16 - 100 hectads in Britain. Historically, for some better recorded invertebrate taxa, they were further divided between Notable-A (Na) for species thought to occur in 30 or fewer hectads, and Notable-B (Nb) for those thought to occur between 31-100 hectads. These are referred to as Nationally Scarce (Na), or Nationally Scarce (Nb). Within Pantheon, some status' have been placed in square brackets, e.g. [Nationally Scarce (Nb)]. This denotes that in the professional judgement of the specialists (Webb et. al., 2018), this status is unreliable, but they have not been formally assessed against up to date criteria. The species are included in the relevant table in this report for the avoidance of doubt.

Red Data Book (RDB) species –species occurring in fewer than 16 10-km squares of the National Grid, divided as:

RDB 1: Endangered - for species known from a single population or in continuous recent decline and now known from five or fewer 10-km squares;

RDB 2: Vulnerable - likely to become endangered (RDB 1) if causal factors continue;

RDB 3: Rare: - species at risk but not qualifying as vulnerable; and

RDB K: Insufficiently Known - species likely to qualify at least as rare.

UK Biodiversity Action Planning

Species of Principal Importance as listed in Section 41 of the National Environment and Rural Communities Act, 2006. These are abbreviated as NERC-S41. Approximately 70 species of moth have been included in a list which proposes 'for Research only'; a frequently encountered example is the cinnabar (Tyria jacobaeae). These are widespread species which are believed to have experienced a decline and have been included to enable funding to be allocated for research. These species have not been included in Table 4.

[9] Joint Nature Conservation Committee, http://jncc.defra.gov.uk/page-3408

UK Legal Protection

Approximately 50 species of invertebrate species in Britain receive legal protection through Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). About half receive limited protection; for example it is illegal to sell, or advertise for sale, a number of butterfly species. The remaining 28 species are more strictly protected, for example it is an offence to take or kill specimens without an appropriate licence. These species are generally extremely rare, restricted to a few, or a single site and none are likely to occur anywhere in the region.

IUCN Threat Categories

In recent years, invertebrate taxa in Great Britain have been assessed against the International Union for the Conservation of Nature's (IUCN) threat criteria that considers factors influencing a species survival. These include population decline or geographic contraction through habitat loss. These assessments are ongoing as part of the Species Status Reviews, overseen by the Joint Nature Conservation Committee and mostly published by Natural England. The criteria are defined by the IUCN, which places an assessed taxon in one of seven categories from Extinct down to Least Concern, based on one of the five main criteria. The following categories are defined as Threatened (Red List):

Critically Endangered (CR): A taxon is Critically Endangered when the best available evidence indicates that it is considered to be facing an extremely high risk of extinction in the wild.

Endangered (EN): A taxon is Endangered when the best available evidence indicates that it is considered to be facing a very high risk of extinction in the wild.

Vulnerable (VU): A taxon is Vulnerable when the best available evidence indicates that it is considered to be facing a high risk of extinction in the wild.

A further category, Near Threatened (NT), is applied to a taxon, which following assessment, came close to, but failed to qualify as a Threatened species. However, it is considered that if the factors influencing its assessment continue, it is likely to move in to one of the threat categories; and thus it acts as a watching brief.

C. Appendix C: Species Lists

Table 5: Species recorded at ROF Bridgwater, Puriton during 2020.

Class	Order	Family	Species	Vernacular	National Status
Arachnida	Araneae	Theridiidae	*Theridion pictum*		
Arachnida	Araneae	Theridiidae	*Theridion varians*		
Arachnida	Araneae	Theridiidae	*Neottiura bimaculata*		
Arachnida	Araneae	Theridiidae	*Paidiscura pallens*		
Arachnida	Araneae	Theridiidae	*Enoplognatha latimana*		
Arachnida	Araneae	Theridiidae	*Enoplognatha thoracica*		
Arachnida	Araneae	Linyphiidae	*Ceratinella brevipes*		
Arachnida	Araneae	Linyphiidae	*Walckenaeria antica*		
Arachnida	Araneae	Linyphiidae	*Dicymbium nigrum*		
Arachnida	Araneae	Linyphiidae	*Pocadicnemis pumila sens. str.*		
Arachnida	Araneae	Linyphiidae	*Pocadicnemis juncea*		
Arachnida	Araneae	Linyphiidae	*Oedothorax retusus*		
Arachnida	Araneae	Linyphiidae	*Cnephalocotes obscurus*		
Arachnida	Araneae	Linyphiidae	*Styloctetor compar*	formerly Ceratinopsis stativa	Nationally Scarce
Arachnida	Araneae	Linyphiidae	*Micrargus subaequalis*		
Arachnida	Araneae	Linyphiidae	*Erigone dentipalpis*		
Arachnida	Araneae	Linyphiidae	*Agyneta rurestris*	formerly Meioneta rurestris	
Arachnida	Araneae	Linyphiidae	*Agyneta saxatilis sens. str.*	formerly Meioneta saxatilis sens. str.	
Arachnida	Araneae	Linyphiidae	*Agyneta affinis*	formerly Meioneta beata	
Arachnida	Araneae	Linyphiidae	*Bathyphantes gracilis*		
Arachnida	Araneae	Linyphiidae	*Bathyphantes parvulus*		

Class	Order	Family	Species	Vernacular	National Status
Arachnida	Araneae	Linyphiidae	*Tenuiphantes tenuis*	Lepthyphantes tenuis	
Arachnida	Araneae	Linyphiidae	*Tenuiphantes mengei*	formerly Lepthyphantes mengei	
Arachnida	Araneae	Linyphiidae	*Microlinyphia pusilla*		
Arachnida	Araneae	Tetragnathidae	*Tetragnatha extensa*		
Arachnida	Araneae	Tetragnathidae	*Pachygnatha degeeri*		
Arachnida	Araneae	Araneidae	*Gibbaranea gibbosa*		
Arachnida	Araneae	Araneidae	*Araneus diadematus*	Garden Spider	
Arachnida	Araneae	Araneidae	*Araneus quadratus*		
Arachnida	Araneae	Araneidae	*Larinioides cornutus*		
Arachnida	Araneae	Lycosidae	*Pardosa monticola*		
Arachnida	Araneae	Lycosidae	*Pardosa palustris*		
Arachnida	Araneae	Lycosidae	*Pardosa pullata*		
Arachnida	Araneae	Lycosidae	*Pardosa prativaga*		
Arachnida	Araneae	Lycosidae	*Pardosa tenuipes*	formerly Pardosa proxima	
Arachnida	Araneae	Lycosidae	*Alopecosa pulverulenta*		
Arachnida	Araneae	Lycosidae	*Piratula latitans*	formerly Pirata latitans	
Arachnida	Araneae	Pisauridae	*Pisaura mirabilis*		
Arachnida	Araneae	Agelenidae	*Agelena labyrinthica*		
Arachnida	Araneae	Hahniidae	*Hahnia nava*		
Arachnida	Araneae	Dictynidae	*Dictyna arundinacea*		
Arachnida	Araneae	Dictynidae	*Dictyna uncinata*		
Arachnida	Araneae	Dictynidae	*Lathys humilis*		

Class	Order	Family	Species	Vernacular	National Status
Arachnida	Araneae	Dictynidae	*Argenna subnigra*		Nationally Scarce
Arachnida	Araneae	Phrurolithidae	*Phrurolithus festivus*		
Arachnida	Araneae	Clubionidae	*Clubiona reclusa*		
Arachnida	Araneae	Clubionidae	*Clubiona neglecta sens. str.*		
Arachnida	Araneae	Clubionidae	*Clubiona lutescens*		
Arachnida	Araneae	Gnaphosidae	*Zelotes latreillei*		
Arachnida	Araneae	Philodromidae	*Philodromus cespitum*		
Arachnida	Araneae	Philodromidae	*Philodromus albidus*		
Arachnida	Araneae	Thomisidae	*Xysticus cristatus*		
Arachnida	Araneae	Thomisidae	*Xysticus kochi*		
Arachnida	Araneae	Thomisidae	*Ozyptila simplex*		
Arachnida	Araneae	Salticidae	*Heliophanus flavipes*		
Arachnida	Araneae	Salticidae	*Euophrys frontalis*		
Arachnida	Araneae	Salticidae	*Talavera aequipes*		
Arachnida	Opiliones	Leiobunidae	*Leiobunum rotundum*		
Insecta	Coleoptera	Carabidae	*Nebria brevicollis*		
Insecta	Coleoptera	Carabidae	*Bembidion guttula*		
Insecta	Coleoptera	Carabidae	*Pterostichus madidus*		
Insecta	Coleoptera	Carabidae	*Calathus fuscipes*		
Insecta	Coleoptera	Carabidae	*Oxypselaphus obscurus*		
Insecta	Coleoptera	Carabidae	*Amara aenea*		
Insecta	Coleoptera	Carabidae	*Amara communis*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Coleoptera	Carabidae	*Amara convexior*		
Insecta	Coleoptera	Carabidae	*Amara lunicollis*		
Insecta	Coleoptera	Carabidae	*Amara ovata*		
Insecta	Coleoptera	Carabidae	*Amara similata*		
Insecta	Coleoptera	Carabidae	*Amara tibialis*		
Insecta	Coleoptera	Carabidae	*Curtonotus aulicus*		
Insecta	Coleoptera	Carabidae	*Harpalus affinis*		
Insecta	Coleoptera	Carabidae	*Harpalus rufipes*		
Insecta	Coleoptera	Carabidae	*Acupalpus dubius*		
Insecta	Coleoptera	Carabidae	*Acupalpus exiguus*		Nationally Scarce
Insecta	Coleoptera	Carabidae	*Badister bullatus*		
Insecta	Coleoptera	Carabidae	*Demetrias atricapillus*		
Insecta	Coleoptera	Carabidae	*Paradromius linearis*		
Insecta	Coleoptera	Carabidae	*Calodromius spilotus*		
Insecta	Coleoptera	Carabidae	*Philorhizus melanocephalus*		
Insecta	Coleoptera	Carabidae	*Syntomus foveatus*		
Insecta	Coleoptera	Carabidae	*Syntomus obscuroguttatus*		
Insecta	Coleoptera	Carabidae	*Microlestes minutulus*		
Insecta	Coleoptera	Helophoridae	*Helophorus grandis*		
Insecta	Coleoptera	Staphylinidae	*Tachyporus dispar*		
Insecta	Coleoptera	Staphylinidae	*Tachyporus formosus*		Nationally Scarce
Insecta	Coleoptera	Staphylinidae	*Tachyporus hypnorum*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Coleoptera	Staphylinidae	*Tachyporus nitidulus*		
Insecta	Coleoptera	Staphylinidae	*Tachyporus solutus*		
Insecta	Coleoptera	Staphylinidae	*Tachinus rufipes*		
Insecta	Coleoptera	Staphylinidae	*Haploglossa villosula*		
Insecta	Coleoptera	Staphylinidae	*Aloconota gregaria*		
Insecta	Coleoptera	Staphylinidae	*Amischa analis*		
Insecta	Coleoptera	Staphylinidae	*Mocyta fungi*		
Insecta	Coleoptera	Staphylinidae	*Aleochara bipustulata*		
Insecta	Coleoptera	Staphylinidae	*Drusilla canaliculata*		
Insecta	Coleoptera	Staphylinidae	*Cypha longicornis*		
Insecta	Coleoptera	Staphylinidae	*Platystethus nitens*		
Insecta	Coleoptera	Staphylinidae	*Anotylus tetracarinatus*		
Insecta	Coleoptera	Staphylinidae	*Stenus fulvicornis*		
Insecta	Coleoptera	Staphylinidae	*Stenus latifrons*		
Insecta	Coleoptera	Staphylinidae	*Stenus similis*		
Insecta	Coleoptera	Staphylinidae	*Stenus picipes*		
Insecta	Coleoptera	Staphylinidae	*Stenus aceris*		
Insecta	Coleoptera	Staphylinidae	*Stenus ossium*		
Insecta	Coleoptera	Staphylinidae	*Stenus palustris*		Nationally Scarce (Nb)
Insecta	Coleoptera	Staphylinidae	*Paederus littoralis*		
Insecta	Coleoptera	Staphylinidae	*Paederus riparius*		
Insecta	Coleoptera	Staphylinidae	*Astenus lyonessius*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Coleoptera	Staphylinidae	*Philonthus cognatus*		
Insecta	Coleoptera	Staphylinidae	*Ocypus aeneocephalus*		
Insecta	Coleoptera	Staphylinidae	*Tasgius globulifer*		
Insecta	Coleoptera	Staphylinidae	*Quedius cruentus*		
Insecta	Coleoptera	Staphylinidae	*Quedius schatzmayri*		
Insecta	Coleoptera	Staphylinidae	*Hypnogyra angularis*		Nationally Scarce (Na)
Insecta	Coleoptera	Staphylinidae	*Xantholinus linearis*		
Insecta	Coleoptera	Scarabaeidae	*Onthophagus joannae*		
Insecta	Coleoptera	Scirtidae	*Microcara testacea*		
Insecta	Coleoptera	Scirtidae	*Cyphon coarctatus*		
Insecta	Coleoptera	Elateridae	*Agrypnus murinus*		
Insecta	Coleoptera	Elateridae	*Athous bicolor*		
Insecta	Coleoptera	Elateridae	*Agriotes sputator*		
Insecta	Coleoptera	Cantharidae	*Cantharis lateralis*		
Insecta	Coleoptera	Cantharidae	*Cantharis flavilabris*		
Insecta	Coleoptera	Cantharidae	*Cantharis rufa*		
Insecta	Coleoptera	Cantharidae	*Cantharis rustica*		
Insecta	Coleoptera	Cantharidae	*Rhagonycha fulva*		
Insecta	Coleoptera	Anobiidae	*Anobium punctatum*	Woodworm	
Insecta	Coleoptera	Anobiidae	*Ptilinus pectinicornis*	Fan-bearing Wood-borer	
Insecta	Coleoptera	Malachiidae	*Cordylepherus viridis*		
Insecta	Coleoptera	Kateretidae	*Brachypterus glaber*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Coleoptera	Kateretidae	*Brachypterus urticae*	Nettle Pollen Beetle	
Insecta	Coleoptera	Nitidulidae	*Epuraea aestiva*		
Insecta	Coleoptera	Nitidulidae	*Meligethes flavimanus*		
Insecta	Coleoptera	Nitidulidae	*Meligethes nigrescens*		
Insecta	Coleoptera	Silvanidae	*Psammoecus bipunctatus*		
Insecta	Coleoptera	Phalacridae	*Phalacrus caricis*		
Insecta	Coleoptera	Phalacridae	*Olibrus aeneus*		
Insecta	Coleoptera	Cryptophagidae	*Cryptophagus dentatus*		
Insecta	Coleoptera	Cryptophagidae	*Atomaria gutta*		
Insecta	Coleoptera	Cryptophagidae	*Atomaria rubella*		
Insecta	Coleoptera	Erotylidae	*Triplax russica*		
Insecta	Coleoptera	Coccinellidae	*Rhyzobius litura*		
Insecta	Coleoptera	Coccinellidae	*Psyllobora vigintiduopunctata*	22-spot Ladybird	
Insecta	Coleoptera	Coccinellidae	*Propylea quattuordecimpunctata*	14-spot Ladybird	
Insecta	Coleoptera	Coccinellidae	*Adalia bipunctata*	2-spot Ladybird	
Insecta	Coleoptera	Coccinellidae	*Coccinella septempunctata*	7-spot Ladybird	
Insecta	Coleoptera	Coccinellidae	*Tytthaspis sedecimpunctata*	16-spot Ladybird	
Insecta	Coleoptera	Coccinellidae	*Subcoccinella vigintiquattuorpunctata*	24-spot Ladybird	
Insecta	Coleoptera	Latridiidae	*Enicmus transversus*		
Insecta	Coleoptera	Latridiidae	*Corticaria impressa*		
Insecta	Coleoptera	Latridiidae	*Melanophthalma suturalis*		
Insecta	Coleoptera	Latridiidae	*Cortinicara gibbosa*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Coleoptera	Oedemeridae	*Oedemera nobilis*	Swollen-thighed Beetle	
Insecta	Coleoptera	Oedemeridae	*Oedemera lurida*		
Insecta	Coleoptera	Salpingidae	*Salpingus planirostris*		
Insecta	Coleoptera	Scraptiidae	*Anaspis garneysi*		
Insecta	Coleoptera	Scraptiidae	*Anaspis maculata*		
Insecta	Coleoptera	Cerambycidae	*Grammoptera ruficornis*		
Insecta	Coleoptera	Cerambycidae	*Pogonocherus hispidulus*		
Insecta	Coleoptera	Cerambycidae	*Pogonocherus hispidus*		
Insecta	Coleoptera	Cerambycidae	*Leiopus linnei*		
Insecta	Coleoptera	Cerambycidae	*Tetrops praeustus*		
Insecta	Coleoptera	Chrysomelidae	*Bruchus loti*		
Insecta	Coleoptera	Chrysomelidae	*Bruchus rufimanus*	Bean Beetle	
Insecta	Coleoptera	Chrysomelidae	*Phyllotreta undulata*		
Insecta	Coleoptera	Chrysomelidae	*Longitarsus dorsalis*		
Insecta	Coleoptera	Chrysomelidae	*Longitarsus luridus*		
Insecta	Coleoptera	Chrysomelidae	*Longitarsus lycopi*		Nationally Scarce (Nb)
Insecta	Coleoptera	Chrysomelidae	*Longitarsus parvulus*		
Insecta	Coleoptera	Chrysomelidae	*Neocrepidodera ferruginea*		
Insecta	Coleoptera	Chrysomelidae	*Neocrepidodera transversa*		
Insecta	Coleoptera	Chrysomelidae	*Crepidodera plutus*		
Insecta	Coleoptera	Chrysomelidae	*Chaetocnema arida*		
Insecta	Coleoptera	Chrysomelidae	*Chaetocnema hortensis*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Coleoptera	Chrysomelidae	*Sphaeroderma testaceum*		
Insecta	Coleoptera	Chrysomelidae	*Cryptocephalus bipunctatus*		Nationally Scarce
Insecta	Coleoptera	Rhynchitidae	*Involvulus caeruleus*	Apple Twig Cutter	
Insecta	Coleoptera	Rhynchitidae	*Neocoenorrhinus aequatus*	Apple Fruit Rhynchites	
Insecta	Coleoptera	Apionidae	*Ceratapion gibbirostre*		
Insecta	Coleoptera	Apionidae	*Diplapion stolidum*		Nationally Scarce (Nb)
Insecta	Coleoptera	Apionidae	*Protapion assimile*		
Insecta	Coleoptera	Apionidae	*Protapion fulvipes*	White Clover Seed Weevil	
Insecta	Coleoptera	Apionidae	*Protapion trifolii*		
Insecta	Coleoptera	Apionidae	*Apion frumentarium*		
Insecta	Coleoptera	Apionidae	*Ischnopterapion loti*		
Insecta	Coleoptera	Apionidae	*Oxystoma cerdo*		[Nationally Scarce (Nb)]
Insecta	Coleoptera	Apionidae	*Oxystoma pomonae*		
Insecta	Coleoptera	Curculionidae	*Otiorhynchus ovatus*		
Insecta	Coleoptera	Curculionidae	*Phyllobius roboretanus*	Small Green Nettle Weevil	
Insecta	Coleoptera	Curculionidae	*Barypeithes pellucidus*		
Insecta	Coleoptera	Curculionidae	*Sciaphilus asperatus*	Strawberry Root Weevil	
Insecta	Coleoptera	Curculionidae	*Tanymecus palliatus*		Nationally Scarce (Nb)
Insecta	Coleoptera	Curculionidae	*Sitona lineatus*		
Insecta	Coleoptera	Curculionidae	*Sitona suturalis*		
Insecta	Coleoptera	Curculionidae	*Larinus planus*		[Nationally Scarce (Nb)]
Insecta	Coleoptera	Curculionidae	*Hypera postica*	Clover Leaf Weevil	

Class	Order	Family	Species	Vernacular	National Status
Insecta	Coleoptera	Curculionidae	*Hypera zoilus*		
Insecta	Coleoptera	Curculionidae	*Hypera rumicis*		
Insecta	Coleoptera	Curculionidae	*Euophryum confine*		
Insecta	Coleoptera	Curculionidae	*Microplontus rugulosus*		
Insecta	Coleoptera	Curculionidae	*Ceutorhynchus typhae*		
Insecta	Coleoptera	Curculionidae	*Anthonomus rubi*	Strawberry Blossom Weevil	
Insecta	Coleoptera	Curculionidae	*Scolytus multistriatus*	Small Elm Bark Beetle	
Insecta	Coleoptera	Curculionidae	*Scolytus rugulosus*	Fruit Bark Beetle	
Insecta	Diptera	Tipulidae	*Nephrotoma quadrifaria*		
Insecta	Diptera	Tipulidae	*Tipula fascipennis*		
Insecta	Diptera	Tipulidae	*Tipula vernalis*		
Insecta	Diptera	Limoniidae	*Phylidorea ferruginea*		
Insecta	Diptera	Bibionidae	*Dilophus febrilis*		
Insecta	Diptera	Anisopodidae	*Sylvicola punctatus*		
Insecta	Diptera	Ptychopteridae	*Ptychoptera contaminata*		
Insecta	Diptera	Rhagionidae	*Chrysopilus cristatus*		
Insecta	Diptera	Rhagionidae	*Rhagio scolopaceus*		
Insecta	Diptera	Tabanidae	*Haematopota crassicornis*		
Insecta	Diptera	Tabanidae	*Haematopota pluvialis*		
Insecta	Diptera	Tabanidae	*Atylotus rusticus*		Nationally Rare
Insecta	Diptera	Xylomyidae	*Solva marginata*		
Insecta	Diptera	Stratiomyidae	*Beris clavipes*		Nationally Scarce

Class	Order	Family	Species	Vernacular	National Status
Insecta	Diptera	Stratiomyidae	*Nemotelus notatus*		
Insecta	Diptera	Stratiomyidae	*Nemotelus pantherinus*		
Insecta	Diptera	Stratiomyidae	*Nemotelus uliginosus*		
Insecta	Diptera	Stratiomyidae	*Pachygaster leachii*		
Insecta	Diptera	Stratiomyidae	*Chloromyia formosa*		
Insecta	Diptera	Stratiomyidae	*Microchrysa flavicornis*		
Insecta	Diptera	Stratiomyidae	*Oplodontha viridula*		
Insecta	Diptera	Asilidae	*Leptogaster cylindrica*		
Insecta	Diptera	Hybotidae	*Bicellaria vana*		
Insecta	Diptera	Empididae	*Empis tessellata*		
Insecta	Diptera	Empididae	*Empis livida*		
Insecta	Diptera	Empididae	*Empis opaca*		
Insecta	Diptera	Empididae	*Empis lutea*		
Insecta	Diptera	Empididae	*Empis scutellata*		
Insecta	Diptera	Empididae	*Hilara anglodanica*		
Insecta	Diptera	Empididae	*Rhamphomyia crassirostris*		
Insecta	Diptera	Dolichopodidae	*Chrysotus gramineus*		
Insecta	Diptera	Dolichopodidae	*Dolichopus festivus*		
Insecta	Diptera	Dolichopodidae	*Dolichopus griseipennis*		
Insecta	Diptera	Dolichopodidae	*Dolichopus trivialis*		
Insecta	Diptera	Dolichopodidae	*Poecilobothrus nobilitatus*		
Insecta	Diptera	Dolichopodidae	*Scellus notatus*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Diptera	Dolichopodidae	*Sciapus platypterus*		
Insecta	Diptera	Syrphidae	*Melanostoma mellinum*	a hoverfly	
Insecta	Diptera	Syrphidae	*Melanostoma scalare*	a hoverfly	
Insecta	Diptera	Syrphidae	*Platycheirus albimanus*	a hoverfly	
Insecta	Diptera	Syrphidae	*Platycheirus angustatus*	a hoverfly	
Insecta	Diptera	Syrphidae	*Platycheirus clypeatus*	a hoverfly	
Insecta	Diptera	Syrphidae	*Platycheirus fulviventris*	a hoverfly	
Insecta	Diptera	Syrphidae	*Platycheirus occultus*	a hoverfly	
Insecta	Diptera	Syrphidae	*Platycheirus scutatus sens. lat.*	a hoverfly	
Insecta	Diptera	Syrphidae	*Paragus haemorrhous*	a hoverfly	
Insecta	Diptera	Syrphidae	*Chrysotoxum bicinctum*	a hoverfly	
Insecta	Diptera	Syrphidae	*Episyrphus balteatus*	a hoverfly	
Insecta	Diptera	Syrphidae	*Eupeodes corollae*	a hoverfly	
Insecta	Diptera	Syrphidae	*Leucozona lucorum*	a hoverfly	
Insecta	Diptera	Syrphidae	*Scaeva pyrastri*	a hoverfly	
Insecta	Diptera	Syrphidae	*Sphaerophoria scripta*	a hoverfly	
Insecta	Diptera	Syrphidae	*Sphaerophoria taeniata*	a hoverfly	
Insecta	Diptera	Syrphidae	*Syrphus vitripennis*	a hoverfly	
Insecta	Diptera	Syrphidae	*Xanthogramma pedissequum*	a hoverfly	
Insecta	Diptera	Syrphidae	*Cheilosia albitarsis sens. lat.*	a hoverfly	
Insecta	Diptera	Syrphidae	*Cheilosia illustrata*	a hoverfly	
Insecta	Diptera	Syrphidae	*Cheilosia pagana*	a hoverfly	

Class	Order	Family	Species	Vernacular	National Status
Insecta	Diptera	Syrphidae	*Cheilosia proxima*	a hoverfly	
Insecta	Diptera	Syrphidae	*Cheilosia vernalis*	a hoverfly	
Insecta	Diptera	Syrphidae	*Ferdinandea cuprea*	a hoverfly	
Insecta	Diptera	Syrphidae	*Rhingia campestris*	a hoverfly	
Insecta	Diptera	Syrphidae	*Chrysogaster solstitialis*	a hoverfly	
Insecta	Diptera	Syrphidae	*Neoascia tenur*	a hoverfly	
Insecta	Diptera	Syrphidae	*Eristalinus sepulchralis*	a hoverfly	
Insecta	Diptera	Syrphidae	*Eristalis arbustorum*	a hoverfly	
Insecta	Diptera	Syrphidae	*Eristalis horticola*	a hoverfly	
Insecta	Diptera	Syrphidae	*Eristalis nemorum*	a hoverfly	
Insecta	Diptera	Syrphidae	*Eristalis pertinax*	a hoverfly	
Insecta	Diptera	Syrphidae	*Eristalis tenax*	a hoverfly	
Insecta	Diptera	Syrphidae	*Helophilus pendulus*	a hoverfly	
Insecta	Diptera	Syrphidae	*Helophilus trivittatus*	a hoverfly	
Insecta	Diptera	Syrphidae	*Myathropa florea*	a hoverfly	
Insecta	Diptera	Syrphidae	*Parhelophilus frutetorum*	a hoverfly	
Insecta	Diptera	Syrphidae	*Pipiza noctiluca*	a hoverfly	
Insecta	Diptera	Syrphidae	*Pipizella viduata*	a hoverfly	
Insecta	Diptera	Syrphidae	*Volucella bombylans*	a hoverfly	
Insecta	Diptera	Syrphidae	*Volucella inanis*	a hoverfly	
Insecta	Diptera	Syrphidae	*Volucella pellucens*	a hoverfly	
Insecta	Diptera	Syrphidae	*Volucella zonaria*	a hoverfly	

Class	Order	Family	Species	Vernacular	National Status
Insecta	Diptera	Syrphidae	*Syritta pipiens*	a hoverfly	
Insecta	Diptera	Syrphidae	*Tropidia scita*	a hoverfly	
Insecta	Diptera	Syrphidae	*Xylota segnis*	a hoverfly	
Insecta	Diptera	Pipunculidae	*Pipunculus campestris*		
Insecta	Diptera	Conopidae	*Physocephala rufipes*		
Insecta	Diptera	Conopidae	*Thecophora atra*		
Insecta	Diptera	Ulidiidae	*Herina lugubris*	a picture-winged fly	
Insecta	Diptera	Ulidiidae	*Physiphora alceae*	a picture-winged fly	
Insecta	Diptera	Tephritidae	*Tephritis neesii*		
Insecta	Diptera	Tephritidae	*Xyphosia miliaria*		
Insecta	Diptera	Lauxaniidae	*Calliopum aeneum*		
Insecta	Diptera	Lauxaniidae	*Sapromyza quadripunctata*		
Insecta	Diptera	Sciomyzidae	*Pherbellia cinerella*		
Insecta	Diptera	Sciomyzidae	*Coremacera marginata*		
Insecta	Diptera	Sciomyzidae	*Dichetophora obliterata*		
Insecta	Diptera	Sciomyzidae	*Limnia unguicornis*		
Insecta	Diptera	Sciomyzidae	*Tetanocera elata*		
Insecta	Diptera	Sepsidae	*Sepsis cynipsea*		
Insecta	Diptera	Sepsidae	*Sepsis fulgens*		
Insecta	Diptera	Sepsidae	*Sepsis punctum*		
Insecta	Diptera	Sepsidae	*Sepsis violacea*		
Insecta	Diptera	Opomyzidae	*Opomyza germinationis*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Diptera	Opomyzidae	*Opomyza petrei*		
Insecta	Diptera	Chloropidae	*Chlorops pumilionis*		
Insecta	Diptera	Chloropidae	*Thaumatomyia glabra*		
Insecta	Diptera	Heleomyzidae	*Suillia variegata*		
Insecta	Diptera	Hippoboscidae	*Lipoptena cervi*		
Insecta	Diptera	Scathophagidae	*Cordilura ciliata*		
Insecta	Diptera	Scathophagidae	*Cordilura impudica*		
Insecta	Diptera	Scathophagidae	*Cordilura albipes*		
Insecta	Diptera	Scathophagidae	*Norellisoma spinimanum*		
Insecta	Diptera	Scathophagidae	*Scathophaga stercoraria*		
Insecta	Diptera	Anthomyiidae	*Anthomyia confusanea*		
Insecta	Diptera	Anthomyiidae	*Anthomyia pluvialis*		
Insecta	Diptera	Anthomyiidae	*Anthomyia procellaris*		
Insecta	Diptera	Anthomyiidae	*Botanophila fugax*		
Insecta	Diptera	Anthomyiidae	*Hylemya nigrimana*		
Insecta	Diptera	Anthomyiidae	*Hylemya vagans*		
Insecta	Diptera	Anthomyiidae	*Hylemya variata*		
Insecta	Diptera	Anthomyiidae	*Hylemyza partita*		
Insecta	Diptera	Anthomyiidae	*Adia cinerella*		
Insecta	Diptera	Anthomyiidae	*Delia florilega*		
Insecta	Diptera	Anthomyiidae	*Delia platura*		
Insecta	Diptera	Anthomyiidae	*Eustalomyia festiva*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Diptera	Anthomyiidae	*Hydrophoria ruralis*		
Insecta	Diptera	Anthomyiidae	*Pegoplata aestiva*		
Insecta	Diptera	Anthomyiidae	*Pegoplata infirma*		
Insecta	Diptera	Anthomyiidae	*Mycophaga testacea*		
Insecta	Diptera	Anthomyiidae	*Paradelia intersecta*		
Insecta	Diptera	Fanniidae	*Fannia armata*		
Insecta	Diptera	Fanniidae	*Fannia canicularis*		
Insecta	Diptera	Fanniidae	*Fannia clara*		pNationally Scarce
Insecta	Diptera	Fanniidae	*Fannia pallitibia*		
Insecta	Diptera	Fanniidae	*Fannia serena*		
Insecta	Diptera	Muscidae	*Coenosia pumila*		
Insecta	Diptera	Muscidae	*Schoenomyza litorella*		
Insecta	Diptera	Muscidae	*Azelia nebulosa*		
Insecta	Diptera	Muscidae	*Hydrotaea cyrtoneurina*		
Insecta	Diptera	Muscidae	*Hydrotaea floccosa*		
Insecta	Diptera	Muscidae	*Hydrotaea pilipes*		pNationally Scarce
Insecta	Diptera	Muscidae	*Mesembrina meridiana*		
Insecta	Diptera	Muscidae	*Morellia aenescens*		
Insecta	Diptera	Muscidae	*Musca autumnalis*		
Insecta	Diptera	Muscidae	*Neomyia cornicina*		
Insecta	Diptera	Muscidae	*Polietes lardarius*		
Insecta	Diptera	Muscidae	*Polietes meridionalis*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Diptera	Muscidae	*Muscina levida*		
Insecta	Diptera	Muscidae	*Stomoxys calcitrans*		
Insecta	Diptera	Muscidae	*Graphomya maculata*		
Insecta	Diptera	Muscidae	*Hebecnema umbratica*		
Insecta	Diptera	Muscidae	*Hebecnema vespertina*		
Insecta	Diptera	Muscidae	*Mydaea ancilla*		
Insecta	Diptera	Muscidae	*Helina depuncta*		
Insecta	Diptera	Muscidae	*Helina evecta*		
Insecta	Diptera	Muscidae	*Helina impuncta*		
Insecta	Diptera	Muscidae	*Helina lasiophthalma*		
Insecta	Diptera	Muscidae	*Helina pertusa*		
Insecta	Diptera	Muscidae	*Helina pubiseta*		
Insecta	Diptera	Muscidae	*Helina reversio*		
Insecta	Diptera	Muscidae	*Phaonia errans*		
Insecta	Diptera	Muscidae	*Phaonia perdita*		
Insecta	Diptera	Muscidae	*Phaonia subventa*		
Insecta	Diptera	Muscidae	*Phaonia trimaculata*		
Insecta	Diptera	Muscidae	*Phaonia tuguriorum*		
Insecta	Diptera	Muscidae	*Phaonia valida*		
Insecta	Diptera	Calliphoridae	*Calliphora vicina*		
Insecta	Diptera	Calliphoridae	*Lucilia ampullacea*		
Insecta	Diptera	Calliphoridae	*Lucilia caesar*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Diptera	Calliphoridae	*Lucilia sericata*		
Insecta	Diptera	Polleniidae	*Pollenia angustigena*		
Insecta	Diptera	Polleniidae	*Pollenia pediculata*		
Insecta	Diptera	Polleniidae	*Pollenia rudis*		
Insecta	Diptera	Polleniidae	*Pollenia viatica*		
Insecta	Diptera	Rhinophoridae	*Phyto discrepans*		
Insecta	Diptera	Rhinophoridae	*Rhinophora lepida*		
Insecta	Diptera	Rhinophoridae	*Tricogena rubricosa*		
Insecta	Diptera	Sarcophagidae	*Brachicoma devia*		
Insecta	Diptera	Sarcophagidae	*Ravinia pernix*		
Insecta	Diptera	Sarcophagidae	*Sarcophaga pumila*		
Insecta	Diptera	Sarcophagidae	*Sarcophaga crassimargo*		
Insecta	Diptera	Sarcophagidae	*Sarcophaga rosellei*		
Insecta	Diptera	Sarcophagidae	*Sarcophaga dissimilis*		
Insecta	Diptera	Sarcophagidae	*Sarcophaga haemorrhoa*		
Insecta	Diptera	Sarcophagidae	*Sarcophaga vagans*		
Insecta	Diptera	Sarcophagidae	*Sarcophaga nigriventris*		
Insecta	Diptera	Sarcophagidae	*Sarcophaga variegata*		
Insecta	Diptera	Tachinidae	*Eriothrix rufomaculata*		
Insecta	Diptera	Tachinidae	*Voria ruralis*		
Insecta	Diptera	Tachinidae	*Phryxe vulgaris*		
Insecta	Diptera	Tachinidae	*Exorista rustica*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Diptera	Tachinidae	*Phania funesta*		
Insecta	Diptera	Tachinidae	*Phasia pusilla*		
Insecta	Diptera	Tachinidae	*Phasia obesa*		
Insecta	Diptera	Tephritidae	*Tephritis divisa*		
Insecta	Hemiptera, Auchenorrhyncha	Aphrophoridae	*Aphrophora alni*		
Insecta	Hemiptera, Auchenorrhyncha	Aphrophoridae	*Philaenus spumarius*		
Insecta	Hemiptera, Auchenorrhyncha	Aphrophoridae	*Neophilaenus lineatus*		
Insecta	Hemiptera, Auchenorrhyncha	Cicadellidae	*Cicadella viridis*		
Insecta	Hemiptera, Auchenorrhyncha	Cicadellidae	*Idiocerus stigmaticalis*		
Insecta	Hemiptera, Auchenorrhyncha	Cicadellidae	*Anaceratagallia ribauti*		
Insecta	Hemiptera, Auchenorrhyncha	Cicadellidae	*Anoscopus albifrons*		
Insecta	Hemiptera, Auchenorrhyncha	Cicadellidae	*Arthaldeus pascuellus*		
Insecta	Hemiptera, Auchenorrhyncha	Cicadellidae	*Allygus mixtus*		
Insecta	Hemiptera, Auchenorrhyncha	Cicadellidae	*Conosanus obsoletus*		
Insecta	Hemiptera, Auchenorrhyncha	Cicadellidae	*Euscelis incisus*		
Insecta	Hemiptera, Auchenorrhyncha	Cicadellidae	*Streptanus sordidus*		
Insecta	Hemiptera, Auchenorrhyncha	Cicadellidae	*Zyginidia scutellaris*		
Insecta	Hemiptera, Auchenorrhyncha	Delphacidae	*Conomelus anceps*		
Insecta	Hemiptera, Auchenorrhyncha	Delphacidae	*Criomorphus albomarginatus*		
Insecta	Hemiptera, Auchenorrhyncha	Delphacidae	*Hyledelphax elegantulus*		
Insecta	Hemiptera, Auchenorrhyncha	Delphacidae	*Javesella dubia*		
Insecta	Hemiptera, Auchenorrhyncha	Delphacidae	*Javesella pellucida*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Hemiptera, Heteroptera	Scutelleridae	*Eurygaster testudinaria*	Tortoise Shieldbug	
Insecta	Hemiptera, Heteroptera	Pentatomidae	*Aelia acuminata*	Bishop's Mitre Shieldbug	
Insecta	Hemiptera, Heteroptera	Pentatomidae	*Palomena prasina*	Common Green Shieldbug	
Insecta	Hemiptera, Heteroptera	Coreidae	*Coreus marginatus*	Dock Bug	
Insecta	Hemiptera, Heteroptera	Coreidae	*Gonocerus acuteangulatus*	Box Bug	
Insecta	Hemiptera, Heteroptera	Rhopalidae	*Rhopalus subrufus*		
Insecta	Hemiptera, Heteroptera	Lygaeidae	*Cymus melanocephalus*		
Insecta	Hemiptera, Heteroptera	Lygaeidae	*Drymus sylvaticus*		
Insecta	Hemiptera, Heteroptera	Lygaeidae	*Scolopostethus decoratus*		
Insecta	Hemiptera, Heteroptera	Lygaeidae	*Scolopostethus thomsoni*		
Insecta	Hemiptera, Heteroptera	Lygaeidae	*Stygnocoris sabulosus*		
Insecta	Hemiptera, Heteroptera	Lygaeidae	*Trapezonotus desertus*		
Insecta	Hemiptera, Heteroptera	Tingidae	*Tingis ampliata*		
Insecta	Hemiptera, Heteroptera	Tingidae	*Tingis cardui*		
Insecta	Hemiptera, Heteroptera	Nabidae	*Nabis ferus*		
Insecta	Hemiptera, Heteroptera	Nabidae	*Nabis flavomarginatus*		
Insecta	Hemiptera, Heteroptera	Nabidae	*Nabis rugosus*		
Insecta	Hemiptera, Heteroptera	Anthocoridae	*Cardiastethus fasciiventris*		
Insecta	Hemiptera, Heteroptera	Anthocoridae	*Orius niger*		
Insecta	Hemiptera, Heteroptera	Anthocoridae	*Temnostethus gracilis*		
Insecta	Hemiptera, Heteroptera	Miridae	*Capsus ater*		
Insecta	Hemiptera, Heteroptera	Miridae	*Closterotomus norwegicus*		

Class	Order	Family	Species	Vernacular	National Status
Insecta	Hemiptera, Heteroptera	Miridae	*Deraeocoris lutescens*		
Insecta	Hemiptera, Heteroptera	Miridae	*Heterotoma planicornis*		
Insecta	Hemiptera, Heteroptera	Miridae	*Leptopterna dolabrata*		
Insecta	Hemiptera, Heteroptera	Miridae	*Lygus rugulipennis*		
Insecta	Hemiptera, Heteroptera	Miridae	*Miridius quadrivirgatus*		
Insecta	Hemiptera, Heteroptera	Miridae	*Notostira elongata*		
Insecta	Hemiptera, Heteroptera	Miridae	*Orthops campestris*		
Insecta	Hemiptera, Heteroptera	Miridae	*Orthops kalmii*		
Insecta	Hemiptera, Heteroptera	Miridae	*Phytocoris varipes*		
Insecta	Hemiptera, Heteroptera	Miridae	*Plagiognathus arbustorum*		
Insecta	Hemiptera, Heteroptera	Miridae	*Stenodema calcarata*		
Insecta	Hemiptera, Heteroptera	Miridae	*Stenodema laevigata*		
Insecta	Hemiptera, Heteroptera	Miridae	*Stenotus binotatus*		
Insecta	Hymenoptera	Cephidae	*Cephus spinipes*	a sawfly	
Insecta	Hymenoptera	Chrysididae	*Chrysis angustula*	a cuckoo wasp	
Insecta	Hymenoptera	Tiphiidae	*Tiphia minuta*	The Small Tiphia	[Nationally Scarce (Nb)]
Insecta	Hymenoptera	Tenthredinidae	*Athalia circularis*	a sawfly	
Insecta	Hymenoptera	Tenthredinidae	*Athalia cordata*	a sawfly	
Insecta	Hymenoptera	Tenthredinidae	*Athalia rosae*	a sawfly	
Insecta	Hymenoptera	Tenthredinidae	*Cladius pectinicornis*	a sawfly	
Insecta	Hymenoptera	Tenthredinidae	*Dolerus aericeps*	a sawfly	
Insecta	Hymenoptera	Vespidae	*Ancistrocerus trifasciatus*	a mason wasp	

Class	Order	Family	Species	Vernacular	National Status
Insecta	Hymenoptera	Vespidae	*Symmorphus gracilis*	a mason wasp	
Insecta	Hymenoptera	Vespidae	*Vespa crabro*	The Hornet	
Insecta	Hymenoptera	Vespidae	*Vespula germanica*	German Wasp	
Insecta	Hymenoptera	Vespidae	*Vespula vulgaris*	Common Wasp	
Insecta	Hymenoptera	Crabronidae	*Crossocerus megacephalus*	a digger wasp	
Insecta	Hymenoptera	Crabronidae	*Crossocerus podagricus*	a digger wasp	
Insecta	Hymenoptera	Crabronidae	*Ectemnius cavifrons*	a digger wasp	
Insecta	Hymenoptera	Crabronidae	*Ectemnius cephalotes*	a digger wasp	
Insecta	Hymenoptera	Crabronidae	*Ectemnius continuus*	a digger wasp	
Insecta	Hymenoptera	Crabronidae	*Ectemnius lapidarius*	a digger wasp	
Insecta	Hymenoptera	Crabronidae	*Ectemnius lituratus*	a digger wasp	
Insecta	Hymenoptera	Crabronidae	*Pemphredon lethifera*	a digger wasp	
Insecta	Hymenoptera	Crabronidae	*Pemphredon lugubris*	Mournful Wasp	
Insecta	Hymenoptera	Crabronidae	*Psenulus pallipes*	Pale Footed Black Wasp	
Insecta	Hymenoptera	Crabronidae	*Stigmus solskyi*	a digger wasp	
Insecta	Hymenoptera	Andrenidae	*Andrena bicolor*	Gwynne's Mining Bee	
Insecta	Hymenoptera	Andrenidae	*Andrena chrysosceles*	a mining bee	
Insecta	Hymenoptera	Andrenidae	*Andrena dorsata*	a mining bee	
Insecta	Hymenoptera	Andrenidae	*Andrena flavipes*	Yellow Legged Mining Bee	
Insecta	Hymenoptera	Andrenidae	*Andrena haemorrhoa*	Early Mining Bee	
Insecta	Hymenoptera	Andrenidae	*Andrena labialis*	a mining bee	
Insecta	Hymenoptera	Andrenidae	*Andrena minutula*	a mining bee	

Class	Order	Family	Species	Vernacular	National Status
Insecta	Hymenoptera	Andrenidae	*Andrena semilaevis*	a mining bee	
Insecta	Hymenoptera	Andrenidae	*Andrena synadelpha*	a mining bee	
Insecta	Hymenoptera	Apidae	*Bombus hypnorum*	a bumblebee	
Insecta	Hymenoptera	Apidae	*Bombus lapidarius*	Large Red Tailed Bumble Bee	
Insecta	Hymenoptera	Apidae	*Bombus pascuorum*	Common Carder Bee	
Insecta	Hymenoptera	Apidae	*Bombus terrestris*	Buff-tailed Bumble Bee	
Insecta	Hymenoptera	Colletidae	*Colletes hederae*	a mining bee	
Insecta	Hymenoptera	Colletidae	*Colletes similis*	a mining bee	
Insecta	Hymenoptera	Colletidae	*Hylaeus brevicornis*	Short Horned Yellow-face Bee	
Insecta	Hymenoptera	Colletidae	*Hylaeus communis*	Common Yellow Face Bee	
Insecta	Hymenoptera	Colletidae	*Hylaeus dilatatus*	a mining bee	
Insecta	Hymenoptera	Halictidae	*Halictus tumulorum*	a mining bee	
Insecta	Hymenoptera	Halictidae	*Lasioglossum calceatum*	Slender Mining Bee	
Insecta	Hymenoptera	Halictidae	*Lasioglossum fulvicorne*	a mining bee	
Insecta	Hymenoptera	Halictidae	*Lasioglossum lativentre*	a mining bee	
Insecta	Hymenoptera	Halictidae	*Lasioglossum leucozonium*	a mining bee	
Insecta	Hymenoptera	Halictidae	*Lasioglossum malachurum*	a mining bee	[Nationally Scarce (Nb)]
Insecta	Hymenoptera	Halictidae	*Lasioglossum morio*	Brassy Mining Bee	
Insecta	Hymenoptera	Halictidae	*Lasioglossum pauxillum*	a mining bee	[Nationally Scarce (Na)]
Insecta	Hymenoptera	Halictidae	*Lasioglossum smeathmanellum*	a mining bee	
Insecta	Hymenoptera	Halictidae	*Lasioglossum villosulum*	Shaggy Mining Bee	
Insecta	Hymenoptera	Melittidae	*Nomada flava*	a cuckoo bee	

Class	Order	Family	Species	Vernacular	National Status
Insecta	Hymenoptera	Melittidae	*Nomada flavoguttata*	a cuckoo bee	
Insecta	Hymenoptera	Melittidae	*Osmia bicornis*	Red Mason Bee	
Insecta	Hymenoptera	Colletidae	*Osmia spinulosa*	a solitary bee	
Insecta	Hymenoptera	Melittidae	*Sphecodes ephippius*	a cuckoo bee	
Insecta	Hymenoptera	Melittidae	*Sphecodes puncticeps*	a cuckoo bee	
Insecta	Hymenoptera	Ichneumonidae	*Amblyteles armatorius*	an ichneumon	
Insecta	Lepidoptera	Choreutidae	*Anthophila fabriciana*	a moth	
Insecta	Lepidoptera	Sesiidae	*Synanthedon myopaeformis*	Red-belted Clearwing	
Insecta	Lepidoptera	Zygaenidae	*Zygaena lonicerae*	Narrow-bordered Five-spot Burnet	
Insecta	Lepidoptera	Hesperiidae	*Thymelicus lineola*	Essex Skipper	
Insecta	Lepidoptera	Hesperiidae	*Thymelicus sylvestris*	Small Skipper	
Insecta	Lepidoptera	Hesperiidae	*Ochlodes sylvanus*	Large Skipper	
Insecta	Lepidoptera	Pieridae	*Pieris brassicae*	Large White	
Insecta	Lepidoptera	Pieridae	*Pieris rapae*	Small White	
Insecta	Lepidoptera	Pieridae	*Pieris napi*	Green-veined White	
Insecta	Lepidoptera	Nymphalidae	*Pararge aegeria*	Speckled Wood	
Insecta	Lepidoptera	Nymphalidae	*Coenonympha pamphilus*	Small Heath	NT, SoPI
Insecta	Lepidoptera	Nymphalidae	*Aphantopus hyperantus*	Ringlet	
Insecta	Lepidoptera	Nymphalidae	*Maniola jurtina*	Meadow Brown	
Insecta	Lepidoptera	Nymphalidae	*Pyronia tithonus*	Gatekeeper	
Insecta	Lepidoptera	Nymphalidae	*Melanargia galathea*	Marbled White	
Insecta	Lepidoptera	Nymphalidae	*Vanessa atalanta*	Red Admiral	

Class	Order	Family	Species	Vernacular	National Status
Insecta	Lepidoptera	Nymphalidae	*Aglais io*	Peacock	
Insecta	Lepidoptera	Nymphalidae	*Aglais urticae*	Small Tortoiseshell	
Insecta	Lepidoptera	Nymphalidae	*Polygonia c-album*	Comma	
Insecta	Lepidoptera	Lycaenidae	*Lycaena phlaeas*	Small Copper	
Insecta	Lepidoptera	Lycaenidae	*Celastrina argiolus*	Holly Blue	
Insecta	Lepidoptera	Lycaenidae	*Aricia agestis*	Brown Argus	
Insecta	Lepidoptera	Lycaenidae	*Polyommatus icarus*	Common Blue	
Insecta	Lepidoptera	Crambidae	*Chrysoteuchia culmella*	Garden Grass-veneer	
Insecta	Lepidoptera	Geometridae	*Camptogramma bilineata*	Yellow Shell	
Insecta	Lepidoptera	Geometridae	*Aplocera plagiata*	Treble-bar	
Insecta	Lepidoptera	Erebidae	*Rivula sericealis*	Straw Dot	
Insecta	Lepidoptera	Erebidae	*Callimorpha dominula*	Scarlet Tiger	
Insecta	Lepidoptera	Erebidae	*Tyria jacobaeae*	Cinnabar	SoPI - Research
Insecta	Lepidoptera	Noctuidae	*Autographa gamma*	Silver Y	
Insecta	Lepidoptera	Noctuidae	*Noctua pronuba*	Large Yellow Underwing	
Insecta	Mecoptera	Panorpidae	*Panorpa communis*		
Insecta	Odonata	Lestidae	*Lestes sponsa*	Emerald Damselfly	
Insecta	Odonata	Platycnemididae	*Platycnemis pennipes*	White-legged Damselfly	
Insecta	Odonata	Coenagriidae	*Coenagrion puella*	Azure Damselfly	
Insecta	Odonata	Aeshnidae	*Aeshna cyanea*	Southern Hawker	
Insecta	Odonata	Aeshnidae	*Aeshna mixta*	Migrant Hawker	
Insecta	Odonata	Aeshnidae	*Anax imperator*	Emperor Dragonfly	

Class	Order	Family	Species	Vernacular	National Status
Insecta	Odonata	Libellulidae	*Libellula quadrimaculata*	Four-spotted Chaser	
Insecta	Odonata	Libellulidae	*Orthetrum cancellatum*	Black-tailed Skimmer	
Insecta	Odonata	Libellulidae	*Sympetrum striolatum*	Common Darter	
Insecta	Orthoptera	Tettigoniidae	*Pholidoptera griseoaptera*	Dark Bush Cricket	
Insecta	Orthoptera	Tettigoniidae	*Metrioptera roeselii*	Roesel's Bush Cricket	
Insecta	Orthoptera	Conocephalidae	*Conocephalus discolor*	Long-winged Conehead	
Insecta	Orthoptera	Conocephalidae	*Conocephalus dorsalis*	Short-winged Conehead	
Insecta	Orthoptera	Phaneropteridae	*Leptophyes punctatissima*	Speckled Bush Cricket	
Insecta	Orthoptera	Acrididae	*Omocestus viridulus*	Common Green Grasshopper	
Insecta	Orthoptera	Acrididae	*Chorthippus brunneus*	Common Field Grasshopper	
Insecta	Orthoptera	Acrididae	*Chorthippus parallelus*	Meadow Grasshopper	
Insecta	Orthoptera	Acrididae	*Myrmeleotettix maculatus*	Mottled Grasshopper	
Malacostraca	Isopoda	Philosciidae	*Philoscia muscorum*	Common Striped Woodlouse	
Malacostraca	Isopoda	Oniscidae	*Oniscus asellus*	Common Shiny Woodlouse	
Malacostraca	Isopoda	Armadillidiidae	*Armadillidium vulgare*	Common Pill Woodlouse	

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APPENDIX 3

Hedgerow Descriptions

Appendix 3: Hedgerow Descriptions

1. Hedgerows within the Site are descripted within the table and shown graphically on the plan below.

Hedgerow Number	Hedgerow Description	Species Recorded
H1	Maintained Hedgerow 1.8m tall and 2m wide with wet ditch.	Blackthorn, Hawthorn, Elm, Bramble, Field Maple and Ash.
H2	Well maintained Hedgerow 1.5m tall and 1.8m wide with a ditch on northern side	Blackthorn, Hawthorn and Bramble.
H3	Well maintained Hedgerow 1.8m tall and 2m wide.	Blackthorn, Hawthorn and Common Reed
H4	Well maintained Hedgerow with occasional trees 1.5m tall and 4m wide with shaded ditch running through centre	Hawthorn, Blackthorn, Elm, Elder, Crack willow and Ash
H5	Well maintained Hedgerow with occasional trees 1.5m tall and 2m wide. Wet ditch along its length	Hawthorn, Blackthorn, Elm, Elder and Ash.
H6	Hedgerow / Treeline 1.4m and 2m wide. Well maintained except for last 20m of eastern end which has no management and young elm trees to 7m.	Elm, Hawthorn and Blackthorn.
H7	Well maintained hedgerow 1.4m and 2m wide with a wet ditch on south side	Elm, Hawthorn and Blackthorn.
H8	Well maintained hedgerow 1.4m and 2m wide.	Elm, Hawthorn and Blackthorn.
H9	Well maintained hedgerow 1.4m and 2m wide.	Elm, Hawthorn and Blackthorn.
H10	Hedgerow / Treeline 6m tall and 3m wide.	Hawthorn and Willow
H11	Hedgerow / Treeline 6m tall and 3m wide.	Hawthorn and Willow
H12	Overgrown Hedgerow 5m tall.	Blackthorn, Hawthorn, Ash, Sycamore and Bramble
H13	Hedgerow 6m tall and 5m wide with dry ditch	Hawthorn, hazel, Crack Willow, Blackthorn, Ash, Goat Willow and Elm
H14	Hedgerow 6m tall and 5m wide with dry ditch	Hawthorn, hazel, Crack Willow, Blackthorn, Ash, Goat Willow and Elm
H15	Hedgerow 4m tall and 3m wide next to deep ditch	Hawthorn, Blackthorn, Bramble and Willow
H16	Hedgerow 3m tall and 2m wide with dry ditch.	Hawthorn, Blackthorn and Elm
H17	Hedgerow 3m tall and 2m wide	Hawthorn and Blackthorn
H18	Hedgerow / Treeline 7m tall with outgrowing sections. Dutch Elm Disease present on some Elm	Ash, Bramble, Elm, Hawthorn and Goat Willow.
H19	Hedgerow with tree 5m tall and 3m wide. Dutch Elm Disease present on some Elm	Elder, Hawthorn, Blackthorn and Elm.
H20	Unmanaged Treeline 25m tall and 3m wide.	Leyland Cypress and Sycamore, garden Privet and Blackthorn.
H21	Hedgerow 2m tall and 1m wide.	Hawthorn and Bramble
H22	Hedgerow 2m tall and 1m wide.	Hawthorn, Blackthorn and Bramble
H23	Hedgerow 2m tall and 1m wide.	Hawthorn, Blackthorn and Bramble
H24	Treeline 12m tall and 4m wide	Leyland Cypress
H25	Outgrown Hedgerow / Treeline 14m tall	Sycamore, Ash, Hawthorn and Bramble
H26	Outgrown hedgerow 5m tall	Blackthorn
H27	Hedgerow / Treeline 14m tall and 3m wide.	Hawthorn, Bramble and Ash
H28	Defunct remnant Hedgerow 2m tall and 2m wide.	Bramble and Elder
H29	Hedgerow 5m tall and 2m wide.	Elder, Hawthorn, Field Maple Blackthorn and Bramble
H30	Outgrowing Hedgerow / Treeline 15m tall and 5m to 8m wide	Hawthorn, Field Maple, Italian Alder, Blackthorn, Elm and Ash
H31	Outgrowing Hedgerow / Treeline 15m tall and 5m to 8m wide	Hawthorn, Field Maple, Italian Alder, Blackthorn, Elm and Ash

Appendix 3: Hedgerow Descriptions

H32	Unmanaged Hedgerow 4m tall and 4m wide.	Elder, Bramble, Hawthorn, Dog Rose and Ash.
H33	Hedgerow / Treeline 14m tall and 3m wide	Ash, Crack Willow, Sycamore and Elder.
H34	Hedgerow 7m tall and 2m wide.	Hawthorn, Field Maple, Italian Alder, Elm and Ash
H35	Hedgerow 6m tall and 2m wide.	Hawthorn, Field Maple, Italian Alder, Elm, Ash and Blackthorn
H36	Hedgerow / Treeline 12m tall and 4m wide.	Crack Willow, Hawthorn, Blackthorn and Bramble
H37	Hedgerow 3m tall and 2m wide.	Hawthorn, Elder, Blackthorn and Bramble
H38	Hedgerow 3m tall and outgrown into dense scrub	Blackthorn, Hawthorn and Bramble
H39	Defunct Hedgerow along internal palisade fencing	Hawthorn, Elder and Bramble
H40	Defunct Hedgerow along internal palisade fencing	Hawthorn, Elder, Willow and Bramble
H41	Defunct Hedgerow / Treeline 8m tall and 4m wide	Horse Chestnut, Bramble, Elder and Hawthorn
H42	Hedgerow 3m tall and 2m wide.	Horse Chestnut, Bramble, Elder and Hawthorn
H43	Hedgerow 3m tall and 2m wide.	Bramble, Elder and Hawthorn
H44	Defunct Hedgerow 7m tall and 4m wide along wet ditch.	Blackthorn, Hawthorn, Elder, Willow and Bramble
H45	Defunct Hedgerow 7m tall and 4m wide along wet ditch.	Blackthorn, Hawthorn, Elder, Willow and Bramble
H46	Defunct Hedgerow 7m tall and 4m wide along wet ditch.	Blackthorn, Hawthorn, Elder, Willow and Bramble
H47	Defunct Hedgerow 4m tall and outgrown at the middle and southern sections.	Blackthorn, Hawthorn and Bramble
H48	Defunct Hedgerow 4m tall and 2m wide	Blackthorn, Hawthorn, Elder and Bramble
H49	Hedgerow / Treeline 20m tall and 3m wide.	Poplar sp., Alder, Elder, Hawthorn and Bramble
H50	Treeline 15m tall.	Crack Willow, Blackthorn and Bramble.
H51	Treeline 15m tall.	Crack Willow, Hawthorn, Blackthorn and Bramble.
H52	Hedgerow / Treeline 10m tall and 4m wide	Bramble, Ash, Blackthorn, Hawthorn and Sycamore.
H53	Treeline 15m tall with some evidence of recent thinning	Leyland Cypress
H54	Outgrown hedgerow 5m tall and up to 12m wide.	Hawthorn, Blackthorn and Bramble.
H55	Hedgerow 5m tall and 5m wide.	Hawthorn, Elm, Elder, Ash and Field Maple
H56	Treeline 14m tall and 4m wide.	Crack Willow and Italian Alder
H57	Hedgerow / Treeline 14m tall and 4m wide.	Crack Willow and Bramble
H58	Treeline / Woodland Edge 10m tall	Oak, Ash and Bramble
H59	Treeline 14m tall and 2m wide	Horse Chestnut and Sycamore.
H60	Treeline 18m tall and 4m wide.	Italian Alder, Silver Birch, Willow and Sycamore
H61	Defunct hedge, 6m tall and 1m wide.	Hawthorn, Blackthorn, Field Maple and Dog Rose
H62	Treeline adjacent to 113 in the north of the field	Sycamore
H63	Hedgerow 2m tall and 1m wide.	Hawthorn and Bramble
H64	Hedgerow 2m tall and 1m wide.	Elder Blackthorn and Bramble.
H65	Hedgerow 4m tall and 2m wide with seasonal ditch.	Blackthorn, Hawthorn and Bramble.
H66	Double Hedgerow / Treeline 20m tall and 4m wide.	Crack Willow, Hawthorn, Elm, Blackthorn and Bramble
H67	Treeline 20m tall and 2m wid.	Ash, Italian Alder, Crack Willow.
H68	Hedgerow 3m tall and 3m wide.	Blackthorn, Elm, Elder, Ash and Wild Privet.
H69	Treeline / Hedgerow 20m tall and 2m wide with seasonal ditch.	Elm, Hawthorn, Elder, Norway Maple, Ash, Goat Willow and Bramble

Appendix 3: Hedgerow Descriptions

H70	Hedge 4m tall and 4m wide with a seasonal ditch.	Bramble, Blackthorn, Hawthorn and Sycamore
H71	Hedgerow / Treeline 20m tall and 2m wide with seasonal ditch.	Ash, Hawthorn, Bramble and Sycamore.
H72	Hedgerow / Treeline 20m tall and 3m wide.	Ash, Blackthorn, Dog Rose, Hawthorn and Sycamore.
H73	Hedgerow 3m tall and 3m wide.	Blackthorn, Elm and Field Maple
H74	Hedgerow cut low.	Elm, Blackthorn, and Wayfaring Tree
H75	Hedgerow / Treeline 12m tall and 4m wide with a dry ditch.	Bramble, Ash, Spindle, Blackthorn and Ash
H76	Hedgerow 5m tall and outgrown into a small area of dense scrub behind toward ROF site boundary. Covers a dry ditch.	Blackthorn
H77	Hedgerow / Treeline 20m tall and 3m wide.	Ash, Blackthorn, Dog Rose, Hawthorn and Sycamore.
H78	Hedgerow / Treeline 20m tall and 3m wide.	Ash, Blackthorn, Dog Rose, Hawthorn and Sycamore.
H79	Hedgerow has been cut low, includes dry ditch	Hawthorn and Elder.
H80	Hedgerow 3m tall and 3m wide.	Elder, Blackthorn and Elm.
H81	Hedgerow / Treeline 18m tall and 5m wide with a wet ditch.	Sycamore, Elm, Bramble and Elder.
H82	Hedgerow / Treeline 16m tall and 3m wide.	Elm, Alder, Blackthorn and Dog Rose.
H83	Hedgerow 3m tall and 3m wide.	Blackthorn, Elm and Hawthorn
H84	Hedgerow 3m tall and 3m wide.	Elm, Elder, Field Maple and Hazel.
H85	Hedgerow recent cut to 2m tall.	Elder, Blackthorn, Elm, Dog Rose and Ash.
H86	Hedgerow recent cut to 2m tall.	Elder, Blackthorn, Elm, Dog Rose, Ash, Crack Willow and Field Maple.
H87	Hedgerow 5m tall and 3m wide.	Elder, Blackthorn, Elm, Dog Rose and Ash.
H88	Hedgerow 5m tall and 3m wide with dry ditch.	Field Maple, Blackthorn, Hawthorn and Hazel
H89	Roadside Hedgerow 2m tall and 3m wide.	Blackthorn, Hawthorn, Wild Privet, Elder and Field maple
H90	Hedgerow / Treeline 12m tall and 3m wide with a wet ditch	Elm and Bramble
H91	Defunct Hedgerow partially cut to 2m	Blackthorn, Elm, Bramble, Dog rose, Hawthorn and Elder
H92	Hedgerow / Treeline 12m tall and 6m wide with dry ditch.	Blackthorn, Elm, Bramble, Dog rose, Hawthorn and Elder
H93	Hedgerow 6m tall and 3m wide.	Blackthorn, Elm, Bramble, Dog rose, Hawthorn and Elder
H94	Double Hedgerow / Treeline 25m tall and 10m wide	Crack Willow, Blackthorn, Hawthorn, Elm, Bramble, Dog Rose, Ash, Spindle and Field Maple
H95	Hedgerow / Treeline 16m tall and 6m wide	Elm, Bramble, Blackthorn and Crack Willow.
H96	Hedgerow / Treeline 18m tall and 7m wide	Blackthorn, Ash, Elm and Elder.
H97	Hedgerow / Treeline 18m tall and 7m wide	Blackthorn, Ash, Elm and Elder.
H98	Hedgerow / Treeline 16m tall and 6m wide becoming defunct toward northern end.	Elm, Bramble, Blackthorn and Crack Willow.
H99	Double Hedgerow / Treeline 25m tall and 10m wide with footpath running between.	Crack Willow, Blackthorn, Hawthorn, Elm, Bramble, Dog Rose, Ash, Spindle and Field Maple
H100	Double Hedgerow / Treeline 25m tall and 10m wide with footpath running between.	Crack Willow, Blackthorn, Hawthorn, Elm, Bramble, Dog Rose, Ash, Spindle and Field Maple
H101	Double Hedgerow / Treeline 25m tall and 10m wide	Crack Willow, Blackthorn, Hawthorn, Elm, Bramble, Dog Rose, Ash, Spindle and Field Maple
H102	Hedgerow / Treeline 18m tall and 3m wide. Evidence of Dutch Elm disease	Elm, Blackthorn, Ash, Hawthorn, Bramble, Sycamore and Italian Alder
H103	continuation of H162	

Appendix 3: Hedgerow Descriptions

H104	Hedgerow / Treeline 16m tall and 4m wide with a dry ditch	Elm, Ash, Bramble, Blackthorn and Field Maple
H105	Hedgerow 5m tall and 3m wide.	Hawthorn, Blackthorn, Bramble, Ash and Elm.
H106	Partially removed, with Treeline remnant	Crack Willow
H107	Double Hedgerow / Treeline 25m tall and 10m wide with footpath running between.	Crack Willow, Blackthorn, Hawthorn, Elm, Bramble, Dog Rose, Ash, Spindle and Field Maple
H108	Double Hedgerow / Treeline 25m tall and 10m wide with footpath running between.	Crack Willow, Blackthorn, Hawthorn, Elm, Bramble and Dog Rose
H109	Hedgerow 3m tall and 2m wide with wet ditch	Blackthorn, Elm, Bramble, Dog rose, Hawthorn and Elder
H110	Hedgerow 3m tall and 2m wide with wet ditch	Blackthorn, Elm, Bramble, Dog rose, Hawthorn and Elder
H111	Hedgerow 4m tall and 4m wide with a wet ditch.	Hawthorn, Dog Rose, Bramble and Blackthorn
H112	continuation of H175	continuation of H175
H113	Double Hedgerow / Treeline with access track running between, 10m tall and 10m wide.	Elder, Elm, Blackthorn, Bramble, Goat Willow, Ash, Hawthorn, Dog Rose, Wild Privet, Guelder Rose, Field Maple, Hazel and Spindle
H114	Hedgerow 4m tall and 4m wide with a wet ditch.	Hawthorn, Dog Rose, Elder, Bramble and Blackthorn
H115	Defunct Hedgerow 3m tall and 2m wide with a wet ditch	Hawthorn, Crack Willow, Blackthorn and Goat Willow
H116	Hedgerow 5m tall and 2m wide with wet ditch	Hawthorn, Crack Willow, Blackthorn and Goat Willow
H117	Hedgerow 5m tall and 2m wide with dry ditch	Blackthorn, Hawthorn, Elm, Bramble, Field Maple and Ash.
H118	Hedgerow 5m tall and 4m wide with dry ditch	Blackthorn, Hawthorn, Elm, Bramble, Field Maple and Ash.
H119	Defunct Hedgerow 3m tall and 2m wide with a wet ditch	Hawthorn, Crack Willow, Blackthorn and Goat Willow

KEY:

- BOUNDARY OF SITE
- HEDGEROW

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7761: GRAVITY

APPENDIX 3: HEDGEROW NUMBER PLAN

Rev: A

Dec 2020

APPENDIX 4

Bat DNA Sample Results

SureScreen Scientifics

Folio No: E8921
Report No: 1
Purchase Order: 7761 TS
Client: ECOLOGY SOLUTIONS LTD
Contact: Tom Smith

TECHNICAL REPORT

ANALYSIS OF BAT DROPPINGS FOR SPECIES OF ORIGIN IDENTIFICATION

SUMMARY

The droppings of bats contain small amounts of DNA belonging to the organism from which they originated. By analysing droppings collected from a bat roost or colony for the presence of DNA, a robust identification of the species present can be made. Recent advancements in molecular methods including PCR (polymerase chain reaction) and DNA sequencing mean that 92% of bat species worldwide can be identified including all 17 UK resident bat species.

RESULTS

Date sample received at Laboratory: 25/11/2020
Date Reported: 01/12/2020
Matters Affecting Results: None

Lab Sample ID.	Site Name	O/S Reference	Genetic Sequence	Common Name	Result	Sequence Simliarity
E8921-1	B10, Former ROF Bridgwater	-	CTNAAGAACATAAGCTTCTG ACTGCTTCCCCCATCTTTTC TACTACTTTTAGCTTCGTCTG CAGTAGAGGCTGGAGCAGGT ACCGGTTGAACAGTCTATCC TCCTTTAGCGGGAAACCTAG CCCACGCAGGAGANA	Brown long-eared bat	*Plecotus auritus*	98.33%
E8921-2	B11, Former ROF Bridgwater	-	ATAAGCTTCTGACTCCTACC CCCCTCTTTCCTACTTCTATT GGCCTCATCTATGGTTGAAT CTGGNGCTGGAACCGGCTG AACTGTTTACCCCCCTTTAG CGGGAAACCTAGCCCACGCA GGAGA	Lesser horseshoe bat	*Rhinolophus hipposideros*	99.14%

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

Reported by: Chris Troth **Approved by:** Sarah Evans

METHODOLOGY

Once samples have arrived in the laboratory, a single bat dropping is selected for its suitability (freshness and size). The DNA is then isolated using a commercial DNA extraction kit. Using PCR, bat DNA (if present within the sample) is amplified using bat DNA-specific molecular markers designed to amplify a short fragment of the mitochondrial gene. If amplification is successful, the resulting DNA sequence is revealed using a process known as Sanger Sequencing in order to obtain the genetic sequence. The sequence results are aligned against a library of known bat reference sequences using bioinformatics software, which enables us to determine which species the extracted DNA matches with, informing the species identity and sequence similarity (%).

If the initial analysis is unsuccessful, the entire process is repeated up to two additional times with fresh reserve droppings. If no DNA is detected after three attempts, we can be confident that any further analysis of the sample will likely also fail to result in species identification.

INTERPRETATION

Genetic Sequence: The unique DNA sequence obtained from the sample.

Sequence Similarity: How closely matched the DNA sequence from your sample is to the sequences within our reference database. This can be interpreted as a score of result accuracy, with the maximum score of 100% indicating an exact match of dropping to the indicated species' reference sequence. Lower scores (80-99%) indicate some variation between the sample and reference sequence, likely due to natural variation between individual genetic sequences and/or systematic variations generated through the sequencing process. Scores below 80% similarity should be interpreted with care and can indicate part degraded or part contaminated samples.

Inconclusive Result:

Degraded sample:
DNA degraded, unable to determine species identification due to degradation of sample DNA. This can happen either before sample collection (old droppings, exposure to UV etc.) or after sample collection if stored for long periods before analysis or not handled correctly.

Inhibited/contaminated sample:
Unable to determine species identity due to contamination or the suspected presence of large quantities of PCR inhibitors. Contamination sources can come from other species which come into contact with droppings, human contamination during sample collection.

Alternative Result: Sometimes, other mammalian species such as rodents are detected. We find this to be a common occurrence as some bat droppings can be similar in appearance to rodent droppings. Although sometimes unexpected, repeat analyses in these cases would likely return the same results.

APPENDIX 5

Bat Survey Results Tables

Location D1																	
Species	**27/04**	**28/04**	**29/04**	**30/04**	**01/05**	**02/05**	**03/05**	**04/05**	**05/05**	**06/05**	**07/05**	**08/05**	**09/05**	**10/05**	**11/05**	**12/05**	**Total**
Barbastelle	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Serotine	7	0	0	2	1	1	1	0	0	1	2	2	3	0	0	0	20
Myotis sp	4	4	2	6	1	0	0	2	2	1	1	1	1	0	1	0	26
Nyctalus sp	253	7	3	3	1	58	124	16	12	15	16	24	38	1	2	0	573
Nathusius' Pipistrelle	9	1	0	12	1	1	0	4	0	1	0	0	1	0	0	0	30
Common Pipistrelle	30	4	19	107	26	36	21	18	8	5	11	2	10	1	1	0	299
Soprano Pipistrelle	17	1	2	17	3	8	8	29	6	3	10	5	6	3	0	0	118
Brown Long-eared Bat	1	0	0	0	0	0	1	2	0	0	1	0	0	0	0	0	5
Greater Horseshoe	1	0	1	2	1	1	0	0	0	0	0	1	1	0	0	0	8
Lesser Horseshoe	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	322	17	27	149	34	105	155	71	28	26	41	35	61	5	4	0	1081

Table 1: Survey results from Location D1, 27th April to 12th May

Location D2																	
Species	**27/04**	**28/04**	**29/04**	**30/04**	**01/05**	**02/05**	**03/05**	**04/05**	**05/05**	**06/05**	**07/05**	**08/05**	**09/05**	**10/05**	**11/05**	**12/05**	**Total**
Serotine	76	0	0	0	1	17	11	1	1	16	4	13	41	0	0	0	181
Myotis sp	1	0	0	0	6	0	1	0	1	0	0	1	2	0	0	0	12
Nyctalus sp	12	3	0	0	1	9	21	1	3	10	5	7	2	0	0	0	74
Nathusius' Pipistrelle	0	1	0	0	0	1	4	0	4	3	0	2	0	0	0	0	15
Common Pipistrelle	212	20	0	1	3	98	91	59	71	69	33	63	93	0	0	0	813
Soprano Pipistrelle	8	0	0	1	0	6	13	95	10	24	5	12	16	1	1	0	192
Greater Horseshoe	0	0	0	0	0	0	0	0	0	0	2	0	3	0	0	0	5
Total	309	24	0	2	11	131	141	156	90	122	49	98	157	1	1	0	1292

Table 2: Survey results from Location D2, 27th April to 12th May

Location D3																	
Species	**27/04**	**28/04**	**29/04**	**30/04**	**01/05**	**02/05**	**03/05**	**04/05**	**05/05**	**06/05**	**07/05**	**08/05**	**09/05**	**10/05**	**11/05**	**12/05**	**Total**
Barbastelle	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
Serotine	14	0	0	3	6	5	3	20	5	5	0	0	0	0	0	0	61
Myotis sp	15	25	18	15	37	24	25	25	18	27	3	0	0	0	0	0	232
Nyctalus sp	247	33	2	2	18	355	186	36	34	75	80	0	0	0	0	0	1068
Nathusius' Pipistrelle	1	1	6	1	0	1	1	6	1	2	0	0	0	0	0	0	20
Common Pipistrelle	24	57	244	275	153	174	69	524	35	49	45	0	0	0	0	0	1649
Soprano Pipistrelle	14	5	7	34	13	40	53	52	12	33	13	0	0	0	0	0	276
Brown Long-eared Bat	5	4	0	3	7	6	3	19	22	7	2	0	0	0	0	0	78
Greater Horseshoe	1	1	0	2	0	2	0	1	0	0	0	0	0	0	0	0	7
Lesser Horseshoe	5	2	12	15	4	2	2	1	1	1	0	0	0	0	0	0	45
Total	326	128	289	350	238	609	342	686	128	199	143	0	0	0	0	0	3438

Table 3: Survey results from Location D3, 27th April to 12th May

Location D1													
Species	**28/05**	**29/05**	**30/05**	**31/05**	**01/06**	**02/06**	**03/06**	**04/06**	**05/06**	**06/06**	**07/06**	**08/06**	**Total**
Barbastelle	1	0	0	0	0	3	1	1	4	0	1	0	11
Serotine	15	5	7	10	107	108	2	14	2	1	49	44	364
Myotis sp	6	20	2	2	3	2	4	2	0	3	10	5	59
Nyctalus sp	20	16	15	17	27	91	5	11	0	3	5	67	277
Nathusius' Pipistrelle	19	7	8	5	6	32	5	15	2	4	5	3	111
Common Pipistrelle	82	42	24	19	44	521	31	536	94	646	188	647	2874
Soprano Pipistrelle	5	4	7	14	12	126	0	27	10	36	13	54	308
Brown Long-eared Bat	2	2	5	2	1	10	1	10	0	2	1	2	38
Greater Horseshoe	3	1	0	2	2	1	0	0	0	0	0	0	9
Lesser Horseshoe	0	0	0	0	0	0	1	0	0	0	1	0	2
Total	153	97	68	71	202	894	50	616	112	695	273	822	4053

Table 4: Survey results from Location D1, 28th May to 8th June

Location D3													
Species	**28/05**	**29/05**	**30/05**	**31/05**	**01/06**	**02/06**	**03/06**	**04/06**	**05/06**	**06/06**	**07/06**	**08/06**	**Total**
Barbastelle	5	5	2	1	0	2	1	3	0	3	1	1	24
Serotine	14	10	5	4	23	6	0	2	0	1	2	15	82
Myotis sp	14	11	10	5	12	12	0	6	1	3	9	9	92
Nyctalus sp	47	60	29	42	20	21	6	21	2	7	24	13	292
Nathusius' Pipistrelle	18	29	9	17	3	2	0	8	0	0	9	1	96
Common Pipistrelle	39	41	15	36	59	50	41	73	13	16	68	56	507
Soprano Pipistrelle	15	15	15	17	16	13	2	17	1	10	16	9	146
Brown Long-eared Bat	13	9	10	8	5	13	0	2	0	1	9	5	75
Greater Horseshoe	1	0	2	0	3	0	1	0	0	0	2	0	9
Lesser Horseshoe	0	0	1	0	0	1	0	2	1	1	1	0	7
Total	166	180	98	130	141	120	51	134	18	42	141	109	1330

Table 5: Survey results from Location D3, 28th May to 8th June

Location D4													
Species	**28/05**	**29/05**	**30/05**	**31/05**	**01/06**	**02/06**	**03/06**	**04/06**	**05/06**	**06/06**	**07/06**	**08/06**	**Total**
Barbastelle	0	1	0	1	1	0	1	0	0	0	1	0	5
Serotine	2	6	3	3	3	3	0	0	0	0	2	0	22
Myotis sp	3	27	118	26	69	1	0	1	0	1	10	3	259
Nyctalus sp	4	1	2	7	1	8	0	2	1	0	1	4	31
Nathusius' Pipistrelle	248	159	184	44	22	10	1	6	0	0	18	8	700
Common Pipistrelle	905	292	120	87	217	308	7	272	2	28	920	563	3721
Soprano Pipistrelle	103	79	120	94	133	158	5	24	0	4	46	82	848
Greater Horseshoe	0	0	0	1	0	0	0	0	0	0	0	0	1
Total	1265	565	547	263	446	488	14	305	3	33	998	660	5587

Table 6: Survey results from Location D4, 28th May to 8th June

Location D5													
Species	**28/05**	**29/05**	**30/05**	**31/05**	**01/06**	**02/06**	**03/06**	**04/06**	**05/06**	**06/06**	**07/06**	**08/06**	**Total**
Barbastelle	6	3	12	2	0	0	2	0	0	0	2	0	27
Serotine	53	21	29	53	7	3	0	0	0	0	2	2	170
Myotis sp	13	9	3	11	5	2	0	1	0	0	8	3	55
Nyctalus sp	4	10	9	8	10	12	2	2	2	5	4	4	72
Nathusius' Pipistrelle	14	10	208	20	11	10	1	0	0	0	4	0	278
Common Pipistrelle	370	274	238	195	88	59	43	34	7	13	59	27	1407
Soprano Pipistrelle	274	135	159	150	60	48	42	22	3	16	135	32	1076
Brown Long-eared Bat	10	4	3	0	4	1	0	1	0	0	2	1	26
Greater Horseshoe	3	3	1	4	0	0	0	1	0	0	1	1	14
Lesser Horseshoe	0	0	0	1	0	0	0	0	0	0	0	0	1
Total	747	469	662	444	185	135	90	61	12	34	217	70	3126

Table 7: Survey results from Location D5, 28th May to 8th June

Location D6													
Species	**28/05**	**29/05**	**30/05**	**31/05**	**01/06**	**02/06**	**03/06**	**04/06**	**05/06**	**06/06**	**07/06**	**08/06**	**Total**
Barbastelle	1	0	3	0	0	0	3	4	9	7	0	1	28
Serotine	17	9	10	28	7	6	4	2	3	2	4	5	97
Myotis sp	9	5	2	2	2	1	1	0	0	0	5	0	27
Nyctalus sp	35	22	25	14	13	13	8	13	1	2	17	50	213
Nathusius' Pipistrelle	3	5	6	3	2	7	3	0	0	0	5	1	35
Common Pipistrelle	36	64	38	54	40	49	40	31	13	14	47	20	446
Soprano Pipistrelle	36	45	38	53	38	42	12	21	8	6	40	12	351
Brown Long-eared Bat	5	1	1	1	2	3	7	2	1	5	3	4	35
Greater Horseshoe	0	0	0	0	3	0	0	0	0	1	1	0	5
Lesser Horseshoe	1	0	0	1	0	0	3	0	1	0	0	1	7
Total	143	151	123	156	107	121	81	73	36	37	122	94	1244

Table 8: Survey results from Location D6, 28th May to 8th June

Location D7													
Species	**28/05**	**29/05**	**30/05**	**31/05**	**01/06**	**02/06**	**03/06**	**04/06**	**05/06**	**06/06**	**07/06**	**08/06**	**Total**
Barbastelle	3	3	0	1	0	1	3	1	1	1	1	0	15
Serotine	14	21	13	16	13	6	23	17	2	9	13	20	167
Myotis sp	42	36	29	32	28	29	37	19	3	11	17	8	291
Nyctalus sp	20	25	16	56	27	13	7	10	2	0	14	28	218
Nathusius' Pipistrelle	20	10	23	18	14	8	8	11	8	11	32	23	186
Common Pipistrelle	71	85	65	80	74	102	89	125	40	60	111	160	1062
Soprano Pipistrelle	133	95	95	54	59	197	18	137	27	17	128	142	1102
Brown Long-eared Bat	25	20	16	21	15	18	21	29	15	15	19	14	228
Greater Horseshoe	0	1	2	1	0	0	0	1	0	0	1	1	7
Lesser Horseshoe	0	1	0	0	2	0	0	0	0	0	0	0	3
Total	328	297	259	279	232	374	206	350	98	124	336	396	3279

Table 9: Survey results from Location D7, 28th May to 8th June

Location D8													
Species	**28/05**	**29/05**	**30/05**	**31/05**	**01/06**	**02/06**	**03/06**	**04/06**	**05/06**	**06/06**	**07/06**	**08/06**	**Total**
Barbastelle	2	5	1	3	1	0	0	1	0	0	1	0	14
Serotine	29	26	16	19	0	4	2	0	0	0	1	1	98
Myotis sp	8	5	6	6	2	2	0	1	0	0	0	1	31
Nyctalus sp	86	16	11	16	14	13	0	4	1	0	7	6	174
Nathusius' Pipistrelle	20	32	22	14	8	6	1	0	0	0	2	0	105
Common Pipistrelle	111	132	112	142	85	22	3	2	0	0	8	0	617
Soprano Pipistrelle	11	19	12	12	6	2	0	0	0	0	1	1	64
Brown Long-eared Bat	3	3	5	2	1	1	0	1	0	0	0	0	16
Greater Horseshoe	2	5	1	3	0	0	0	0	0	0	0	1	12
Lesser Horseshoe	0	0	0	5	1	0	0	0	0	0	0	2	8
Total	272	243	186	222	118	50	6	9	1	0	20	12	1139

Table 10: Survey results from Location D8, 28th May to 8th June

Location D9													
Species	**28/05**	**29/05**	**30/05**	**31/05**	**01/06**	**02/06**	**03/06**	**04/06**	**05/06**	**06/06**	**07/06**	**08/06**	**Total**
Barbastelle	2	1	6	0	0	0	1	1	0	0	2	0	13
Serotine	24	11	15	11	6	13	4	0	1	0	5	7	97
Myotis sp	16	15	14	9	8	17	8	3	1	7	18	18	134
Nyctalus sp	64	43	25	37	70	29	14	20	1	1	9	17	330
Nathusius' Pipistrelle	10	10	13	6	2	12	8	0	2	2	9	6	80
Common Pipistrelle	104	127	80	58	49	98	134	42	11	29	96	59	887
Soprano Pipistrelle	36	23	27	18	26	28	27	11	15	6	41	34	292
Brown Long-eared Bat	10	4	6	3	1	2	1	1	0	1	3	3	35
Greater Horseshoe	2	0	0	0	0	0	0	0	0	0	0	0	2
Lesser Horseshoe	0	0	0	0	1	0	0	1	0	0	2	0	4
Total	268	234	186	142	163	199	197	79	31	46	185	144	1874

Table 11: Survey results from Location D9, 28th May to 8th June

Location D10													
Species	**28/05**	**29/05**	**30/05**	**31/05**	**01/06**	**02/06**	**03/06**	**04/06**	**05/06**	**06/06**	**07/06**	**08/06**	**Total**
Serotine	4	6	2	4	3	3	0	1	1	0	5	1	30
Myotis sp	1	1	0	0	0	0	0	0	0	0	0	0	2
Nyctalus sp	16	12	10	2	8	11	5	5	1	2	3	7	82
Nathusius' Pipistrelle	3	16	6	5	5	18	0	4	0	8	5	12	82
Common Pipistrelle	37	48	12	52	53	268	6	34	9	12	16	28	575
Soprano Pipistrelle	23	9	16	12	26	77	7	7	2	16	22	25	242
Brown Long-eared Bat	1	1	0	2	0	4	1	0	0	0	0	0	9
Greater Horseshoe	0	0	0	0	0	0	0	0	1	0	0	0	1
Total	85	93	46	77	95	381	19	51	14	38	51	73	1023

Table 12: Survey results from Location D10, 28th May to 8th June

Location D1												
Species	**25/06**	**26/06**	**27/06**	**28/06**	**29/06**	**30/06**	**01/07**	**02/07**	**03/07**	**04/07**	**05/07**	**Total**
Serotine	2	1	3	1	1	1	0	0	2	1	3	15
Myotis sp	0	4	0	0	0	0	1	0	1	0	2	8
Nyctalus sp	18	31	28	28	24	16	6	11	1	1	7	171
Nathusius' Pipistrelle	9	1	0	0	1	0	1	0	1	0	0	13
Common Pipistrelle	13	8	3	2	7	6	6	3	11	6	0	65
Soprano Pipistrelle	5	10	2	1	0	0	0	2	0	0	1	21
Brown Long-eared Bat	1	0	0	1	1	2	0	2	0	0	0	7
Greater Horseshoe	0	1	2	0	0	0	0	1	0	0	0	4
Total	48	56	38	33	34	25	14	19	16	8	13	304

Table 13: Survey results from Location D1, 25th June to 5th July

Location D2												
Species	**25/06**	**26/06**	**27/06**	**28/06**	**29/06**	**30/06**	**01/07**	**02/07**	**03/07**	**04/07**	**05/07**	**Total**
Barbastelle	0	0	0	2	0	0	0	0	0	0	0	2
Serotine	49	0	0	1	0	1	0	3	1	1	0	56
Myotis sp	9	7	3	2	7	3	3	2	3	0	1	40
Nyctalus sp	30	0	0	0	0	1	1	0	1	1	0	34
Nathusius' Pipistrelle	2	0	0	0	0	1	0	1	0	2	1	7
Common Pipistrelle	91	597	279	80	715	341	444	102	318	1021	10	3998
Soprano Pipistrelle	14	8	7	5	38	13	16	5	175	4	1	286
Brown Long-eared Bat	15	2	10	14	7	7	2	3	2	5	5	72
Total	210	614	299	104	767	367	466	116	500	1034	18	4495

Table 14: Survey results from Location D2, 25th June to 5th July

Location D3												
Species	**25/06**	**26/06**	**27/06**	**28/06**	**29/06**	**30/06**	**01/07**	**02/07**	**03/07**	**04/07**	**05/07**	**Total**
Barbastelle	0	0	4	4	2	5	4	0	0	3	10	32
Serotine	13	13	16	14	15	5	4	3	10	26	7	126
Myotis sp	5	11	18	12	2	7	5	8	3	5	7	83
Nyctalus sp	38	17	15	29	20	57	47	17	20	31	4	295
Nathusius' Pipistrelle	5	0	0	1	2	2	1	0	6	3	0	20
Common Pipistrelle	120	215	139	78	120	93	76	67	264	158	47	1377
Soprano Pipistrelle	9	7	10	13	11	7	10	8	11	16	9	111
Brown Long-eared Bat	7	11	6	7	3	13	4	5	10	8	6	80
Greater Horseshoe	0	0	0	3	0	0	4	2	2	1	1	13
Lesser Horseshoe	0	0	3	2	1	0	0	0	0	0	3	9
Total	197	274	211	163	176	189	155	110	326	251	94	2146

Table 15: Survey results from Location D3, 25th June to 5th July

Location D4												
Species	**25/06**	**26/06**	**27/06**	**28/06**	**29/06**	**30/06**	**01/07**	**02/07**	**03/07**	**04/07**	**05/07**	**Total**
Serotine	2	2	0	0	0	3	0	1	1	1	1	11
Myotis sp	4	4	0	0	2	5	4	2	1	0	0	22
Nyctalus sp	9	6	1	1	2	0	0	3	5	1	1	29
Nathusius' Pipistrelle	9	4	0	0	0	4	0	15	1	1	1	35
Common Pipistrelle	126	29	2	4	15	49	29	7	7	15	2	285
Soprano Pipistrelle	83	11	3	7	2	14	58	19	8	0	0	205
Brown Long-eared Bat	2	0	0	0	0	0	0	0	0	0	0	2
Greater Horseshoe	1	0	0	0	0	0	0	0	0	1	0	2
Total	236	56	6	12	21	75	91	47	23	19	5	591

Table 16: Survey results from Location D4, 25th June to 5th July

Location D5												
Species	**25/06**	**26/06**	**27/06**	**28/06**	**29/06**	**30/06**	**01/07**	**02/07**	**03/07**	**04/07**	**05/07**	**Total**
Barbastelle	0	1	0	0	0	0	1	0	1	0	0	3
Serotine	31	22	1	2	3	11	14	3	9	7	1	104
Myotis sp	5	5	0	1	1	0	1	1	0	0	0	14
Nyctalus sp	51	11	1	1	0	10	12	8	3	4	4	105
Nathusius' Pipistrelle	1	6	0	0	0	1	0	0	0	0	0	8
Common Pipistrelle	47	159	6	2	13	46	54	17	39	8	0	391
Soprano Pipistrelle	46	326	16	12	29	32	33	28	54	12	4	592
Greater Horseshoe	0	0	0	0	1	0	3	0	0	0	0	4
Total	181	530	24	18	47	100	118	57	106	31	9	1221

Table 17: Survey results from Location D5, 25th June to 5th July

Location D6												
Species	**25/06**	**26/06**	**27/06**	**28/06**	**29/06**	**30/06**	**01/07**	**02/07**	**03/07**	**04/07**	**05/07**	**Total**
Barbastelle	0	0	0	0	1	0	0	0	0	0	0	1
Serotine	6	0	0	1	2	0	2	1	1	2	0	15
Myotis sp	2	2	1	0	2	1	0	0	0	0	0	8
Nyctalus sp	3	1	0	1	1	2	2	0	1	0	1	12
Nathusius' Pipistrelle	0	2	0	0	1	3	3	1	1	0	0	11
Common Pipistrelle	28	13	3	8	10	18	8	4	2	6	7	107
Soprano Pipistrelle	21	10	4	5	4	13	4	4	5	4	5	79
Brown Long-eared Bat	2	2	1	1	1	3	0	0	0	0	1	11
Greater Horseshoe	0	1	1	0	0	1	0	1	0	0	0	4
Total	62	31	10	16	22	41	19	11	10	12	14	248

Table 18: Survey results from Location D6, 25th June to 5th July

Location D7												
Species	**25/06**	**26/06**	**27/06**	**28/06**	**29/06**	**30/06**	**01/07**	**02/07**	**03/07**	**04/07**	**05/07**	**Total**
Barbastelle	0	0	0	1	1	2	2	1	0	0	0	7
Serotine	26	20	31	46	29	24	24	22	23	45	16	306
Myotis sp	4	0	5	20	8	8	0	1	3	2	3	54
Nyctalus sp	28	4	2	1	1	13	4	7	4	6	1	71
Nathusius' Pipistrelle	3	6	2	2	4	6	4	2	2	3	2	36
Common Pipistrelle	68	78	28	40	46	64	37	27	83	127	23	621
Soprano Pipistrelle	30	6	3	7	3	8	8	3	8	10	9	95
Brown Long-eared Bat	10	6	6	3	9	7	3	9	6	7	4	70
Greater Horseshoe	0	0	0	1	1	1	1	2	0	0	1	7
Total	169	120	77	121	102	133	83	74	129	200	59	1267

Table 19: Survey results from Location D7, 25th June to 5th July

Location D9												
Species	**25/06**	**26/06**	**27/06**	**28/06**	**29/06**	**30/06**	**01/07**	**02/07**	**03/07**	**04/07**	**05/07**	**Total**
Barbastelle	1	0	0	1	0	14	2	1	2	0	0	21
Serotine	14	2	2	3	4	1	1	4	1	0	7	39
Myotis sp	5	8	2	4	8	4	5	1	6	4	0	47
Nyctalus sp	19	7	3	10	3	16	21	12	19	2	1	113
Nathusius' Pipistrelle	7	1	3	0	2	7	0	0	7	2	0	29
Common Pipistrelle	139	116	695	605	729	522	419	142	844	839	23	5073
Soprano Pipistrelle	114	100	117	12	110	73	145	62	10	25	122	890
Brown Long-eared Bat	5	12	3	3	9	5	11	15	16	3	12	94
Greater Horseshoe	0	0	3	5	3	2	1	2	2	0	0	18
Total	304	246	828	643	868	644	605	239	907	875	165	6324

Table 20: Survey results from Location D9, 25th June to 5th July

Location D10												
Species	**25/06**	**26/06**	**27/06**	**28/06**	**29/06**	**30/06**	**01/07**	**02/07**	**03/07**	**04/07**	**05/07**	**Total**
Barbastelle	0	0	0	3	2	0	0	1	0	0	0	6
Serotine	17	20	5	0	2	3	4	0	3	5	0	59
Myotis sp	8	4	2	0	1	5	2	4	1	1	1	29
Nyctalus sp	49	92	24	4	34	50	42	13	11	12	4	335
Nathusius' Pipistrelle	5	4	0	1	1	8	0	3	2	1	0	25
Common Pipistrelle	298	189	37	32	58	81	64	32	48	51	15	905
Soprano Pipistrelle	44	60	29	34	39	44	36	16	30	32	28	392
Brown Long-eared Bat	6	8	2	3	7	11	5	3	2	9	2	58
Greater Horseshoe	0	0	0	0	0	0	0	1	1	0	0	2
Lesser Horseshoe	0	0	0	1	0	0	0	1	0	0	0	2
Total	427	377	99	78	144	202	153	74	98	111	50	1813

Table 21: Survey results from Location D10, 25th June to 5th July

Location D1															
Species	**27/07**	**28/07**	**29/07**	**30/07**	**31/07**	**01/08**	**02/08**	**03/08**	**04/08**	**05/08**	**06/08**	**07/08**	**08/08**	**09/08**	**Total**
Serotine	3	0	2	2	3	1	4	1	5	6	6	9	0	3	45
Myotis sp	0	1	1	1	2	14	1	2	1	0	0	1	1	0	25
Nyctalus sp	17	6	33	28	17	9	12	10	7	11	22	4	8	8	192
Common Pipistrelle	16	6	11	5	59	10	8	5	27	16	12	12	8	0	195
Soprano Pipistrelle	7	2	5	12	6	9	2	1	16	6	10	6	12	1	95
Brown Long-eared Bat	0	1	2	0	2	2	3	0	1	0	7	1	3	1	23
Greater Horseshoe	0	0	0	0	0	1	2	2	1	0	1	0	0	0	7
Lesser Horseshoe	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Total	43	16	54	48	90	46	32	21	58	39	58	33	32	13	583

Table 22: Survey results from Location D1, 27th July to 9th August

Location D2															
Species	**27/07**	**28/07**	**29/07**	**30/07**	**31/07**	**01/08**	**02/08**	**03/08**	**04/08**	**05/08**	**06/08**	**07/08**	**08/08**	**09/08**	**Total**
Barbastelle	0	0	0	0	0	0	0	2	2	1	0	0	0	0	5
Serotine	1	2	11	5	5	2	8	0	2	16	12	3	7	0	74
Myotis sp	1	1	7	4	1	3	3	5	2	5	3	1	4	0	40
Nyctalus sp	2	2	9	21	10	6	8	4	5	12	8	4	6	0	97
Nathusius' Pipistrelle	0	0	0	2	0	0	0	1	0	1	2	0	2	0	8
Common Pipistrelle	536	98	192	250	171	54	572	160	685	478	359	801	164	0	4520
Soprano Pipistrelle	49	52	37	45	86	29	49	34	37	53	35	41	169	0	716
Brown Long-eared Bat	0	0	2	0	3	3	1	1	1	3	3	3	1	0	21
Greater Horseshoe	0	0	0	0	0	0	0	0	2	1	0	0	1	0	4
Total	589	155	258	327	276	97	641	207	736	570	422	853	354	0	5485

Table 23: Survey results from Location D2, 27th July to 9th August

Location D3															
Species	**27/07**	**28/07**	**29/07**	**30/07**	**31/07**	**01/08**	**02/08**	**03/08**	**04/08**	**05/08**	**06/08**	**07/08**	**08/08**	**09/08**	**Total**
Barbastelle	1	3	0	1	0	2	3	4	2	2	0	0	0	0	18
Serotine	3	2	8	35	10	3	12	0	38	18	36	5	6	0	176
Myotis sp	10	13	9	19	13	7	5	11	10	13	18	11	9	0	148
Nyctalus sp	13	57	30	98	23	16	36	42	166	111	113	36	17	0	758
Nathusius' Pipistrelle	0	1	0	0	2	0	0	0	2	2	0	1	1	0	9
Common Pipistrelle	260	53	61	90	143	83	39	46	232	105	155	374	79	0	1720
Soprano Pipistrelle	42	22	21	55	31	27	24	14	44	48	73	31	22	0	454
Brown Long-eared Bat	3	4	2	3	6	10	7	5	18	2	6	5	2	0	73
Greater Horseshoe	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2
Total	332	155	131	302	228	149	126	122	512	301	401	463	136	0	3358

Table 24: Survey results from Location D3, 27th July to 9th August

Location D4															
Species	**27/07**	**28/07**	**29/07**	**30/07**	**31/07**	**01/08**	**02/08**	**03/08**	**04/08**	**05/08**	**06/08**	**07/08**	**08/08**	**09/08**	**Total**
Barbastelle	1	0	0	0	1	0	3	0	1	0	0	0	0	0	6
Serotine	11	2	12	17	12	6	13	11	4	17	6	0	0	0	111
Myotis sp	5	8	12	11	9	6	7	5	1	14	4	0	0	0	82
Nyctalus sp	5	8	16	32	20	5	4	5	8	17	11	0	0	0	131
Nathusius' Pipistrelle	0	0	1	1	0	0	0	0	0	1	0	0	0	0	3
Common Pipistrelle	18	11	72	60	56	17	24	18	30	127	15	0	0	0	448
Soprano Pipistrelle	24	80	110	116	94	92	21	60	108	125	79	0	0	0	909
Brown Long-eared Bat	0	0	2	2	2	3	2	0	1	2	1	0	0	0	15
Greater Horseshoe	2	2	9	8	1	0	1	1	1	1	2	0	0	0	28
Total	66	111	234	247	195	129	75	100	154	304	118	0	0	0	1733

Table 25: Survey results from Location D4, 27th July to 9th August

Location D5															
Species	**27/07**	**28/07**	**29/07**	**30/07**	**31/07**	**01/08**	**02/08**	**03/08**	**04/08**	**05/08**	**06/08**	**07/08**	**08/08**	**09/08**	**Total**
Serotine	0	0	0	0	0	0	0	0	0	0	0	0	3	1	4
Myotis sp	0	0	0	0	0	0	0	0	0	0	0	0	3	1	4
Nyctalus sp	0	0	0	0	0	0	0	0	0	0	0	0	15	19	34
Nathusius' Pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Common Pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0	41	9	50
Soprano Pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0	38	8	46
Brown Long-eared Bat	0	0	0	0	0	0	0	0	0	0	0	0	5	3	8
Greater Horseshoe	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	106	42	148

Table 26: Survey results from Location D5, 27th July to 9th August

Location D7															
Species	**27/07**	**28/07**	**29/07**	**30/07**	**31/07**	**01/08**	**02/08**	**03/08**	**04/08**	**05/08**	**06/08**	**07/08**	**08/08**	**09/08**	**Total**
Barbastelle	1	0	3	0	0	0	0	1	0	0	0	0	0	0	5
Serotine	15	4	8	12	4	0	5	29	25	15	38	19	11	14	199
Myotis sp	2	1	1	0	0	1	2	2	2	2	0	2	4	0	19
Nyctalus sp	11	11	27	47	59	10	25	10	53	42	18	23	83	36	455
Nathusius' Pipistrelle	4	1	0	1	2	0	3	1	2	1	1	0	0	0	16
Common Pipistrelle	256	40	53	74	60	41	81	23	132	83	98	73	58	58	1130
Soprano Pipistrelle	24	5	9	19	9	9	13	4	24	27	23	22	24	27	239
Brown Long-eared Bat	25	13	29	19	6	7	21	16	16	8	3	30	13	14	220
Greater Horseshoe	0	0	0	0	1	0	1	0	0	0	1	0	0	2	5
Total	338	75	130	172	141	68	151	86	254	178	182	169	193	151	2288

Table 27: Survey results from Location D7, 27th July to 9th August

Location D8															
Species	**27/07**	**28/07**	**29/07**	**30/07**	**31/07**	**01/08**	**02/08**	**03/08**	**04/08**	**05/08**	**06/08**	**07/08**	**08/08**	**09/08**	**Total**
Barbastelle	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Serotine	2	5	32	85	5	5	0	0	0	0	0	0	0	0	134
Myotis sp	7	4	10	18	9	3	0	0	0	0	0	0	0	0	51
Nyctalus sp	15	43	32	56	13	10	0	0	0	0	0	0	0	0	169
Nathusius' Pipistrelle	1	0	2	2	1	0	0	0	0	0	0	0	0	0	6
Common Pipistrelle	82	96	88	306	67	25	0	0	0	0	0	0	0	0	664
Soprano Pipistrelle	9	27	21	55	35	13	0	0	0	0	0	0	0	0	160
Brown Long-eared Bat	2	0	2	1	1	1	0	0	0	0	0	0	0	0	7
Greater Horseshoe	0	0	1	1	1	0	0	0	0	0	0	0	0	0	3
Total	118	175	190	524	132	57	0	0	0	0	0	0	0	0	1196

Table 28: Survey results from Location D8, 27th July to 9th August

Location D9															
Species	**27/07**	**28/07**	**29/07**	**30/07**	**31/07**	**01/08**	**02/08**	**03/08**	**04/08**	**05/08**	**06/08**	**07/08**	**08/08**	**09/08**	**Total**
Barbastelle	0	0	0	0	0	7	6	2	4	0	19	0	0	0	38
Serotine	0	0	0	0	0	4	3	1	1	0	9	0	0	0	18
Myotis sp	0	0	0	0	0	2	6	1	6	0	15	0	0	0	30
Nyctalus sp	0	0	0	0	0	3	10	3	4	1	21	0	0	0	42
Common Pipistrelle	0	0	0	0	0	105	38	7	211	4	367	0	0	0	732
Soprano Pipistrelle	0	0	0	0	0	12	18	10	44	1	86	0	0	0	171
Brown Long-eared Bat	0	0	0	0	0	5	6	1	5	0	17	0	0	0	34
Greater Horseshoe	0	0	0	0	0	2	1	0	1	0	4	0	0	0	8
Lesser Horseshoe	0	0	0	0	0	1	1	2	17	1	22	0	0	0	44
Total	0	0	0	0	0	141	89	27	293	7	560	0	0	0	1117

Table 29: Survey results from Location D9, 27th July to 9th August

Location D10															
Species	**27/07**	**28/07**	**29/07**	**30/07**	**31/07**	**01/08**	**02/08**	**03/08**	**04/08**	**05/08**	**06/08**	**07/08**	**08/08**	**09/08**	**Total**
Barbastelle	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3
Serotine	5	11	18	42	54	2	0	0	0	0	0	0	0	0	132
Myotis sp	2	6	16	8	9	4	0	0	0	0	0	0	0	0	45
Nyctalus sp	17	38	52	81	68	17	0	0	0	0	0	0	0	0	273
Common Pipistrelle	42	44	69	88	90	34	0	0	0	0	0	0	0	0	367
Soprano Pipistrelle	61	62	139	121	126	32	0	0	0	0	0	0	0	0	541
Brown Long-eared Bat	2	0	0	1	3	0	0	0	0	0	0	0	0	0	6
Greater Horseshoe	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Lesser Horseshoe	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	131	162	295	341	351	89	0	0	0	0	0	0	0	0	1369

Table 30: Survey results from Location D10, 27th July to 9th August

Location D1						
Species	**03/09**	**04/09**	**05/09**	**06/09**	**07/09**	**Total**
Serotine	1	4	3	3	4	15
Myotis sp	2	12	6	3	4	27
Nyctalus sp	9	11	9	12	10	51
Common Pipistrelle	10	8	19	7	17	61
Soprano Pipistrelle	6	3	9	10	9	37
Brown Long-eared Bat	6	2	3	4	3	18
Greater Horseshoe	0	0	0	1	0	1
Lesser Horseshoe	1	2	1	0	0	4
Total	35	42	50	40	47	214

Table 31: Survey results from Location D1, 3rd September to 7th September

Location D2						
Species	**03/09**	**04/09**	**05/09**	**06/09**	**07/09**	**Total**
Barbastelle	0	1	0	0	0	1
Serotine	1	0	1	0	0	2
Nyctalus sp	8	0	1	0	0	9
Common Pipistrelle	34	23	21	0	0	78
Soprano Pipistrelle	4	2	4	0	0	10
Lesser Horseshoe	1	0	0	0	0	1
Total	48	26	27	0	0	101

Table 32: Survey results from Location D2, 3rd September to 7th September

Location D3						
Species	**03/09**	**04/09**	**05/09**	**06/09**	**07/09**	**Total**
Barbastelle	3	1	2	5	3	14
Serotine	4	8	2	13	8	35
Myotis sp	4	4	9	7	9	33
Nyctalus sp	28	28	30	25	54	165
Common Pipistrelle	12	9	17	15	37	90
Soprano Pipistrelle	143	118	97	114	305	777
Brown Long-eared Bat	5	16	8	18	9	56
Greater Horseshoe	0	2	0	0	0	2
Lesser Horseshoe	2	0	0	0	0	2
Total	201	186	165	197	425	1174

Table 33: Survey results from Location D3, 3rd September to 7th September

Location D5						
Species	**03/09**	**04/09**	**05/09**	**06/09**	**07/09**	**Total**
Barbastelle	0	0	1	3	6	10
Serotine	21	15	6	8	65	115
Myotis sp	3	3	0	1	1	8
Nyctalus sp	17	17	17	25	21	97
Common Pipistrelle	59	253	42	358	47	759
Soprano Pipistrelle	29	68	16	73	51	237
Brown Long-eared Bat	1	2	1	3	1	8
Greater Horseshoe	1	0	0	1	0	2
Lesser Horseshoe	1	2	0	0	0	3
Total	132	360	83	472	192	1239

Table 34: Survey results from Location D5, 3rd September to 7th September

Location D6						
Species	**03/09**	**04/09**	**05/09**	**06/09**	**07/09**	**Total**
Barbastelle	0	0	0	4	2	6
Serotine	0	0	0	7	2	9
Myotis sp	0	0	0	14	4	18
Nyctalus sp	0	0	0	11	11	22
Nathusius' Pipistrelle	0	0	0	0	1	1
Common Pipistrelle	0	0	0	22	26	48
Soprano Pipistrelle	0	0	0	44	39	83
Brown Long-eared Bat	0	0	0	9	2	11
Total	0	0	0	111	87	198

Table 35: Survey results from Location D6, 3rd September to 7th September

Location D7						
Species	**03/09**	**04/09**	**05/09**	**06/09**	**07/09**	**Total**
Barbastelle	2	0	1	2	1	6
Serotine	4	9	6	4	1	24
Myotis sp	13	7	6	16	2	44
Nyctalus sp	5	12	8	8	24	57
Nathusius' Pipistrelle	0	0	0	1	3	4
Common Pipistrelle	395	618	733	681	1338	3765
Soprano Pipistrelle	56	128	249	77	120	630
Brown Long-eared Bat	41	36	26	39	24	166
Greater Horseshoe	2	3	2	1	1	9
Total	518	813	1031	829	1514	4705

Table 36: Survey results from Location D7, 3rd September to 7th September

Location D8						
Species	**03/09**	**04/09**	**05/09**	**06/09**	**07/09**	**Total**
Barbastelle	6	0	0	0	3	9
Serotine	17	6	3	18	14	58
Myotis sp	7	6	4	10	8	35
Nyctalus sp	12	17	9	9	22	69
Nathusius' Pipistrelle	1	0	0	0	2	3
Common Pipistrelle	65	9	20	10	150	254
Soprano Pipistrelle	16	3	9	4	47	79
Brown Long-eared Bat	3	0	2	0	0	5
Greater Horseshoe	3	2	4	2	4	15
Lesser Horseshoe	1	0	1	0	1	3
Total	131	43	52	53	251	530

Table 37: Survey results from Location D8, 3rd September to 7th September

Location D9						
Species	**03/09**	**04/09**	**05/09**	**06/09**	**07/09**	**Total**
Barbastelle	3	3	1	7	0	14
Serotine	8	7	6	21	0	42
Myotis sp	11	0	5	16	0	32
Nyctalus sp	20	14	15	49	0	98
Common Pipistrelle	156	112	118	386	0	772
Soprano Pipistrelle	26	64	13	103	0	206
Brown Long-eared Bat	4	3	1	8	0	16
Lesser Horseshoe	1	0	0	1	0	2
Total	229	203	159	591	0	1182

Table 38: Survey results from Location D9, 3rd September to 7th September

Location D10						
Species	**03/09**	**04/09**	**05/09**	**06/09**	**07/09**	**Total**
Barbastelle	4	1	0	0	0	5
Serotine	3	5	0	0	0	8
Myotis sp	13	2	0	0	0	15
Nyctalus sp	35	10	0	0	0	45
Common Pipistrelle	48	32	0	0	0	80
Soprano Pipistrelle	53	17	0	0	0	70
Brown Long-eared Bat	27	9	0	0	0	36
Greater Horseshoe	1	0	0	0	0	1
Lesser Horseshoe	2	0	0	0	0	2
Total	186	76	0	0	0	262

Table 39: Survey results from Location D10, 3rd September to 7th September

Location D1														
Species	**30/09**	**01/10**	**02/10**	**03/10**	**04/10**	**05/10**	**06/10**	**07/10**	**08/10**	**09/10**	**10/10**	**11/10**	**12/10**	**Total**
Serotine	1	0	0	0	0	2	0	0	0	0	0	0	0	3
Myotis sp	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Nyctalus sp	13	3	0	0	1	6	0	0	0	0	0	0	0	23
Nathusius' Pipistrelle	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Common Pipistrelle	2	0	0	0	7	2	0	0	0	0	0	0	0	11
Soprano Pipistrelle	4	0	0	0	5	1	0	0	0	0	0	0	0	10
Brown Long-eared Bat	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	23	3	0	0	14	12	0	0	0	0	0	0	0	52

Table 40: Survey results from Location D1, 30th September to 12th October

Location D2														
Species	**30/09**	**01/10**	**02/10**	**03/10**	**04/10**	**05/10**	**06/10**	**07/10**	**08/10**	**09/10**	**10/10**	**11/10**	**12/10**	**Total**
Serotine	9	0	0	0	9	0	0	0	0	0	0	0	0	18
Myotis sp	51	0	0	0	51	0	0	0	0	0	0	0	0	102
Nyctalus sp	7	0	0	0	7	0	0	0	0	0	0	0	0	14
Soprano Pipistrelle	10	0	0	0	10	0	0	0	0	0	0	0	0	20
Brown Long-eared Bat	2	0	2	0	4	0	0	0	0	0	0	0	0	8
Total	79	0	2	0	81	0	0	0	0	0	0	0	0	162

Table 41: Survey results from Location D2, 30th September to 12th October

Location D3														
Species	**30/09**	**01/10**	**02/10**	**03/10**	**04/10**	**05/10**	**06/10**	**07/10**	**08/10**	**09/10**	**10/10**	**11/10**	**12/10**	**Total**
Barbastelle	3	0	1	1	0	0	5	0	2	5	6	10	0	33
Serotine	55	0	0	0	4	51	2	62	59	19	8	128	2	390
Myotis sp	11	0	0	1	2	12	2	2	10	11	7	9	1	68
Nyctalus sp	256	2	2	2	28	215	15	50	192	19	12	388	17	1198
Nathusius' Pipistrelle	0	0	0	0	1	0	0	0	1	0	0	0	0	2
Common Pipistrelle	16	0	1	1	6	11	6	59	8	0	3	16	1	128
Soprano Pipistrelle	14	0	2	3	2	17	6	9	27	8	29	17	8	142
Brown Long-eared Bat	8	0	0	0	1	10	0	0	7	6	14	10	1	57
Greater Horseshoe	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Lesser Horseshoe	1	0	0	0	0	0	0	0	0	2	0	0	0	3
Total	365	2	6	8	44	316	36	182	306	70	79	578	30	2022

Table 42: Survey results from Location D3, 30th September to 12th October

Location D4														
Species	**30/09**	**01/10**	**02/10**	**03/10**	**04/10**	**05/10**	**06/10**	**07/10**	**08/10**	**09/10**	**10/10**	**11/10**	**12/10**	**Total**
Barbastelle	0	0	0	0	0	0	0	1	1	0	4	7	1	14
Serotine	2	0	1	0	2	0	1	4	15	0	1	4	0	30
Myotis sp	30	0	0	0	24	7	0	1	26	13	29	51	12	193
Nyctalus sp	7	1	2	0	1	10	2	10	34	4	1	27	3	102
Nathusius' Pipistrelle	21	0	0	0	0	0	0	3	46	0	2	4	0	76
Common Pipistrelle	179	0	0	0	183	39	4	74	227	2	866	82	14	1670
Soprano Pipistrelle	129	0	1	0	97	50	7	13	106	21	127	68	20	639
Brown Long-eared Bat	2	0	0	0	1	2	0	0	2	2	1	1	0	11
Total	370	1	4	0	308	108	14	106	457	42	1031	244	50	2735

Table 43: Survey results from Location D4, 30th September to 12th October

Location D5														
Species	**30/09**	**01/10**	**02/10**	**03/10**	**04/10**	**05/10**	**06/10**	**07/10**	**08/10**	**09/10**	**10/10**	**11/10**	**12/10**	**Total**
Barbastelle	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Myotis sp	0	0	0	0	0	0	0	4	4	1	0	9	0	18
Nyctalus sp	0	0	0	0	0	0	0	1	1	1	0	1	0	4
Nathusius' Pipistrelle	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Common Pipistrelle	0	0	0	0	0	0	0	10	20	0	0	7	0	37
Soprano Pipistrelle	0	0	0	0	0	0	0	2	8	1	0	1	1	13
Brown Long-eared Bat	0	0	0	0	0	0	0	1	3	10	0	5	0	19
Total	0	0	0	0	0	0	0	18	37	13	0	24	1	93

Table 44: Survey results from Location D5, 30th September to 12th October

Location D6														
Species	**30/09**	**01/10**	**02/10**	**03/10**	**04/10**	**05/10**	**06/10**	**07/10**	**08/10**	**09/10**	**10/10**	**11/10**	**12/10**	**Total**
Barbastelle	0	0	2	0	4	0	49	1	0	1	23	1	0	81
Serotine	5	0	0	0	1	1	0	1	6	21	4	13	0	52
Myotis sp	0	0	0	0	0	1	6	0	3	9	16	2	5	42
Nyctalus sp	11	0	1	1	13	10	5	14	22	9	11	38	6	141
Common Pipistrelle	5	0	19	1	22	11	264	28	8	5	2	18	11	394
Soprano Pipistrelle	2	0	94	15	31	29	93	18	11	15	29	39	20	396
Brown Long-eared Bat	6	0	1	0	4	3	2	1	8	13	9	8	1	56
Greater Horseshoe	0	0	0	46	0	0	5	0	2	0	0	1	0	54
Lesser Horseshoe	0	0	0	0	0	0	2	0	3	1	0	1	0	7
Total	29	0	117	63	75	55	426	63	63	74	94	121	43	1223

Table 45: Survey results from Location D6, 30th September to 12th October

Location D7														
Species	**30/09**	**01/10**	**02/10**	**03/10**	**04/10**	**05/10**	**06/10**	**07/10**	**08/10**	**09/10**	**10/10**	**11/10**	**12/10**	**Total**
Barbastelle	1	0	0	0	0	0	0	0	1	0	1	1	0	4
Serotine	1	0	0	0	0	3	0	1	10	4	1	4	0	24
Myotis sp	2	0	0	0	0	2	3	0	7	8	5	4	0	31
Nyctalus sp	13	0	0	0	4	1	2	9	4	4	5	9	3	54
Nathusius' Pipistrelle	0	0	0	0	0	0	0	1	0	0	0	0	2	3
Common Pipistrelle	22	0	0	0	5	2	1	4	13	5	2	18	5	77
Soprano Pipistrelle	10	0	1	8	6	5	8	1	14	12	24	6	2	97
Brown Long-eared Bat	33	7	0	1	10	13	35	12	29	46	40	25	16	267
Greater Horseshoe	0	0	0	1	0	0	0	1	0	0	4	2	0	8
Lesser Horseshoe	0	0	0	0	0	0	0	0	0	1	0	1	0	2
Total	82	7	1	10	25	26	49	29	78	80	82	70	28	567

Table 46: Survey results from Location D7, 30th September to 12th October

Location D8														
Species	**30/09**	**01/10**	**02/10**	**03/10**	**04/10**	**05/10**	**06/10**	**07/10**	**08/10**	**09/10**	**10/10**	**11/10**	**12/10**	**Total**
Barbastelle	0	0	0	0	2	4	0	12	1	0	0	11	0	30
Serotine	26	1	0	0	3	13	0	21	18	17	3	29	0	131
Myotis sp	6	0	0	0	36	12	2	43	20	8	3	9	12	151
Nyctalus sp	18	1	0	0	14	13	3	34	47	8	15	31	2	186
Nathusius' Pipistrelle	0	0	0	0	0	2	0	1	0	0	0	1	0	4
Common Pipistrelle	56	1	0	2	118	310	439	468	111	107	449	127	200	2388
Soprano Pipistrelle	10	3	0	1	2	28	12	240	21	8	3	30	17	375
Brown Long-eared Bat	6	1	0	0	6	14	0	36	10	1	3	12	1	90
Greater Horseshoe	1	3	0	0	0	0	0	1	2	0	2	2	0	11
Lesser Horseshoe	0	0	0	0	1	0	0	0	0	0	0	1	0	2
Total	123	10	0	3	182	396	456	856	230	149	478	253	232	3368

Table 47: Survey results from Location D8, 30th September to 12th October

Location D9														
Species	**30/09**	**01/10**	**02/10**	**03/10**	**04/10**	**05/10**	**06/10**	**07/10**	**08/10**	**09/10**	**10/10**	**11/10**	**12/10**	**Total**
Barbastelle	0	0	0	0	0	0	0	0	0	2	29	3	0	34
Serotine	3	0	0	0	0	13	0	1	0	1	4	2	0	24
Myotis sp	2	0	0	0	6	2	0	11	8	1	1	12	0	43
Nyctalus sp	3	0	0	0	0	34	0	4	20	11	14	17	0	103
Nathusius' Pipistrelle	0	0	0	0	0	0	0	1	0	0	0	1	0	2
Common Pipistrelle	10	0	0	0	42	152	0	55	19	2	14	19	0	313
Soprano Pipistrelle	11	0	0	1	82	54	15	95	11	1	4	11	0	285
Brown Long-eared Bat	1	0	0	0	0	3	0	3	5	3	3	1	0	19
Greater Horseshoe	1	0	0	0	0	0	0	0	3	0	0	3	0	7
Lesser Horseshoe	0	0	0	0	2	0	0	0	1	6	8	2	0	19
Total	31	0	0	1	132	258	15	170	67	27	77	71	0	849

Table 48: Survey results from Location D9, 30th September to 12th October

Location D10														
Species	**30/09**	**01/10**	**02/10**	**03/10**	**04/10**	**05/10**	**06/10**	**07/10**	**08/10**	**09/10**	**10/10**	**11/10**	**12/10**	**Total**
Barbastelle	4	0	0	0	0	6	0	3	2	38	6	0	59	118
Serotine	1	0	0	0	0	1	3	2	2	6	3	3	21	42
Myotis sp	1	0	0	0	0	0	0	1	2	2	7	1	14	28
Nyctalus sp	8	0	1	1	4	1	6	8	1	7	7	2	46	92
Common Pipistrelle	12	1	1	0	2	0	3	21	6	9	20	9	84	168
Soprano Pipistrelle	7	0	2	2	2	1	1	8	0	4	7	5	39	78
Brown Long-eared Bat	8	0	0	1	0	0	2	14	1	8	14	0	48	96
Greater Horseshoe	0	0	0	0	0	0	0	1	1	0	0	0	2	4
Lesser Horseshoe	0	0	1	0	1	0	0	1	0	1	2	0	6	12
Total	41	1	5	4	9	9	15	59	15	75	66	20	319	638

Table 49: Survey results from Location D10, 30th September to 12th October

Location D1																
Species	**21/10**	**22/10**	**23/10**	**24/10**	**25/10**	**26/10**	**27/10**	**28/10**	**29/10**	**30/10**	**31/10**	**01/11**	**02/11**	**03/11**	**04/11**	**Total**
Barbastelle	4	6	2	0	4	1	0	0	0	0	0	1	0	0	0	18
Serotine	4	1	0	0	0	1	0	0	2	1	0	0	0	0	1	10
Myotis sp	11	4	2	0	3	0	4	0	27	0	10	21	8	0	3	93
Nyctalus sp	9	10	2	0	0	0	0	0	8	9	0	1	0	0	0	39
Common Pipistrelle	15	7	4	0	7	9	0	2	10	1	7	3	8	1	0	74
Soprano Pipistrelle	8	3	2	1	1	7	0	2	1	1	1	5	1	2	1	36
Brown Long-eared Bat	1	2	1	0	1	5	3	0	1	1	1	1	0	0	1	18
Lesser Horseshoe	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2
Total	52	34	13	1	16	23	7	4	49	14	19	32	17	3	6	290

Table 50: Survey results from Location D1, 21st October to 4th November

Location D2																
Species	**21/10**	**22/10**	**23/10**	**24/10**	**25/10**	**26/10**	**27/10**	**28/10**	**29/10**	**30/10**	**31/10**	**01/11**	**02/11**	**03/11**	**04/11**	**Total**
Barbastelle	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Serotine	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Myotis sp	1	2	0	3	1	0	0	0	0	0	0	0	0	0	0	7
Nyctalus sp	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Nathusius' Pipistrelle	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
Common Pipistrelle	0	3	11	0	1	3	2	0	0	0	0	0	0	0	0	20
Soprano Pipistrelle	10	25	13	6	2	1	0	0	0	0	0	0	0	0	0	57
Brown Long-eared Bat	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Greater Horseshoe	6	2	0	0	0	1	0	0	0	0	0	0	0	0	0	9
Total	22	42	24	9	4	6	2	0	0	0	0	0	0	0	0	109

Table 51: Survey results from Location D2, 21st October to 4th November

Location D3																
Species	**21/10**	**22/10**	**23/10**	**24/10**	**25/10**	**26/10**	**27/10**	**28/10**	**29/10**	**30/10**	**31/10**	**01/11**	**02/11**	**03/11**	**04/11**	**Total**
Barbastelle	6	1	0	0	0	0	0	0	0	0	1	0	0	0	0	8
Serotine	8	3	8	0	0	0	0	0	2	30	0	1	0	0	0	52
Myotis sp	10	2	2	1	3	3	0	0	4	0	0	0	5	0	0	30
Nyctalus sp	14	8	5	0	0	0	1	1	4	30	1	5	0	0	2	71
Nathusius' Pipistrelle	0	0	0	0	0	1	0	0	0	5	0	1	0	0	0	7
Common Pipistrelle	555	0	3	0	0	0	1	1	105	10	9	54	0	1	2	741
Soprano Pipistrelle	7	36	9	5	3	5	7	7	123	15	10	15	1	0	3	246
Brown Long-eared Bat	6	0	1	0	1	1	0	0	3	2	0	0	0	0	0	14
Greater Horseshoe	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	3
Total	607	50	28	6	7	10	9	10	242	92	21	76	6	1	7	1172

Table 52: Survey results from Location D3, 21st October to 4th November

Location D4																
Species	**21/10**	**22/10**	**23/10**	**24/10**	**25/10**	**26/10**	**27/10**	**28/10**	**29/10**	**30/10**	**31/10**	**01/11**	**02/11**	**03/11**	**04/11**	**Total**
Barbastelle	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	4
Serotine	1	0	0	0	0	0	0	0	0	7	0	0	0	0	0	8
Myotis sp	28	17	16	38	6	10	4	1	1	14	5	5	0	0	1	146
Nyctalus sp	7	8	1	0	0	0	0	0	1	6	0	0	0	0	1	24
Nathusius' Pipistrelle	13	0	0	0	0	0	0	0	10	2	0	0	0	0	0	25
Common Pipistrelle	29	61	1	0	0	2	6	1	2	67	0	0	0	17	1	187
Soprano Pipistrelle	21	30	9	7	2	4	3	5	4	75	0	0	0	0	0	160
Brown Long-eared Bat	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Lesser Horseshoe	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	100	116	27	46	10	18	13	7	18	171	5	5	0	17	3	556

Table 53: Survey results from Location D4, 21st October to 4th November

Location D5																
Species	**21/10**	**22/10**	**23/10**	**24/10**	**25/10**	**26/10**	**27/10**	**28/10**	**29/10**	**30/10**	**31/10**	**01/11**	**02/11**	**03/11**	**04/11**	**Total**
Barbastelle	15	21	5	0	4	4	0	0	0	68	1	0	0	0	0	118
Serotine	12	0	0	0	0	0	0	0	0	19	0	0	0	0	0	31
Myotis sp	29	6	0	0	2	0	0	1	1	7	2	1	0	0	5	54
Nyctalus sp	25	3	3	0	0	0	1	0	10	14	0	1	0	0	0	57
Nathusius' Pipistrelle	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Common Pipistrelle	21	16	7	0	2	49	4	6	132	443	5	3	63	0	35	786
Soprano Pipistrelle	83	51	19	7	10	111	7	4	359	79	51	36	30	4	5	856
Brown Long-eared Bat	1	0	0	0	1	0	1	0	0	3	0	0	0	0	1	7
Greater Horseshoe	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Lesser Horseshoe	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Total	186	98	34	7	19	164	14	11	503	635	59	41	93	4	46	1914

Table 54: Survey results from Location D5, 21st October to 4th November

Location D6																
Species	**21/10**	**22/10**	**23/10**	**24/10**	**25/10**	**26/10**	**27/10**	**28/10**	**29/10**	**30/10**	**31/10**	**01/11**	**02/11**	**03/11**	**04/11**	**Total**
Serotine	1	0	1	0	0	0	0	0	0	2	0	0	0	0	0	4
Myotis sp	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Nyctalus sp	7	9	4	0	0	0	0	0	4	11	1	1	0	0	1	38
Common Pipistrelle	0	2	0	0	0	2	0	1	1	6	3	1	7	1	14	38
Soprano Pipistrelle	0	1	1	1	0	1	1	0	2	2	0	1	1	1	1	13
Brown Long-eared Bat	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	10	12	6	1	0	3	1	1	7	21	4	3	8	2	17	96

Table 55: Survey results from Location D6, 21st October to 4th November

Location D7																
Species	**21/10**	**22/10**	**23/10**	**24/10**	**25/10**	**26/10**	**27/10**	**28/10**	**29/10**	**30/10**	**31/10**	**01/11**	**02/11**	**03/11**	**04/11**	**Total**
Barbastelle	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Serotine	1	1	0	2	0	0	0	0	0	1	0	0	0	0	0	5
Myotis sp	3	0	2	0	0	0	1	0	0	0	1	0	0	0	0	7
Nyctalus sp	8	8	1	0	0	0	0	0	8	11	1	3	0	0	0	40
Nathusius' Pipistrelle	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Common Pipistrelle	5	4	5	0	1	3	19	1	11	4	2	6	1	0	2	64
Soprano Pipistrelle	8	2	1	0	1	1	1	1	15	3	0	2	0	0	3	38
Brown Long-eared Bat	16	8	6	3	12	6	6	0	9	4	5	6	4	1	4	90
Greater Horseshoe	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Lesser Horseshoe	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	41	23	16	5	16	10	27	2	44	23	9	17	5	1	9	248

Table 56: Survey results from Location D7, 21st October to 4th November

Location D8																
Species	**21/10**	**22/10**	**23/10**	**24/10**	**25/10**	**26/10**	**27/10**	**28/10**	**29/10**	**30/10**	**31/10**	**01/11**	**02/11**	**03/11**	**04/11**	**Total**
Barbastelle	1	0	1	1	0	1	3	4	0	2	0	0	0	0	0	13
Serotine	2	0	2	0	1	0	0	0	2	27	0	0	0	0	0	34
Myotis sp	2	0	4	0	2	3	1	0	2	0	0	0	2	0	1	17
Nyctalus sp	11	4	7	0	0	0	0	0	6	14	1	1	0	0	3	47
Nathusius' Pipistrelle	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	3
Common Pipistrelle	171	3	6	2	1	9	6	7	117	573	20	48	2	5	3	973
Soprano Pipistrelle	23	25	96	26	11	41	8	17	59	62	14	26	4	1	1	414
Brown Long-eared Bat	3	0	1	0	0	0	2	0	1	1	0	0	0	0	5	13
Greater Horseshoe	1	0	0	2	1	18	16	3	0	3	0	1	0	0	0	45
Lesser Horseshoe	0	0	0	12	0	1	0	5	0	0	0	0	0	0	1	19
Total	214	32	117	43	16	73	36	36	189	683	35	76	8	6	14	1578

Table 57: Survey results from Location D8, 21st October to 4th November

Location D9																
Species	**21/10**	**22/10**	**23/10**	**24/10**	**25/10**	**26/10**	**27/10**	**28/10**	**29/10**	**30/10**	**31/10**	**01/11**	**02/11**	**03/11**	**04/11**	**Total**
Barbastelle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Serotine	3	0	1	0	0	1	0	0	1	1	0	0	0	0	0	7
Myotis sp	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Nyctalus sp	23	4	56	0	0	3	0	1	10	3	1	0	0	0	0	101
Nathusius' Pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Common Pipistrelle	317	9	4	11	4	141	45	134	166	11	60	0	0	0	0	902
Soprano Pipistrelle	60	6	1	1	0	278	15	14	80	6	48	0	0	0	0	509
Brown Long-eared Bat	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
Greater Horseshoe	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
Lesser Horseshoe	3	3	2	13	2	22	1	0	0	0	0	0	0	0	0	46
Total	408	22	65	25	6	446	61	150	257	22	109	0	0	0	0	1571

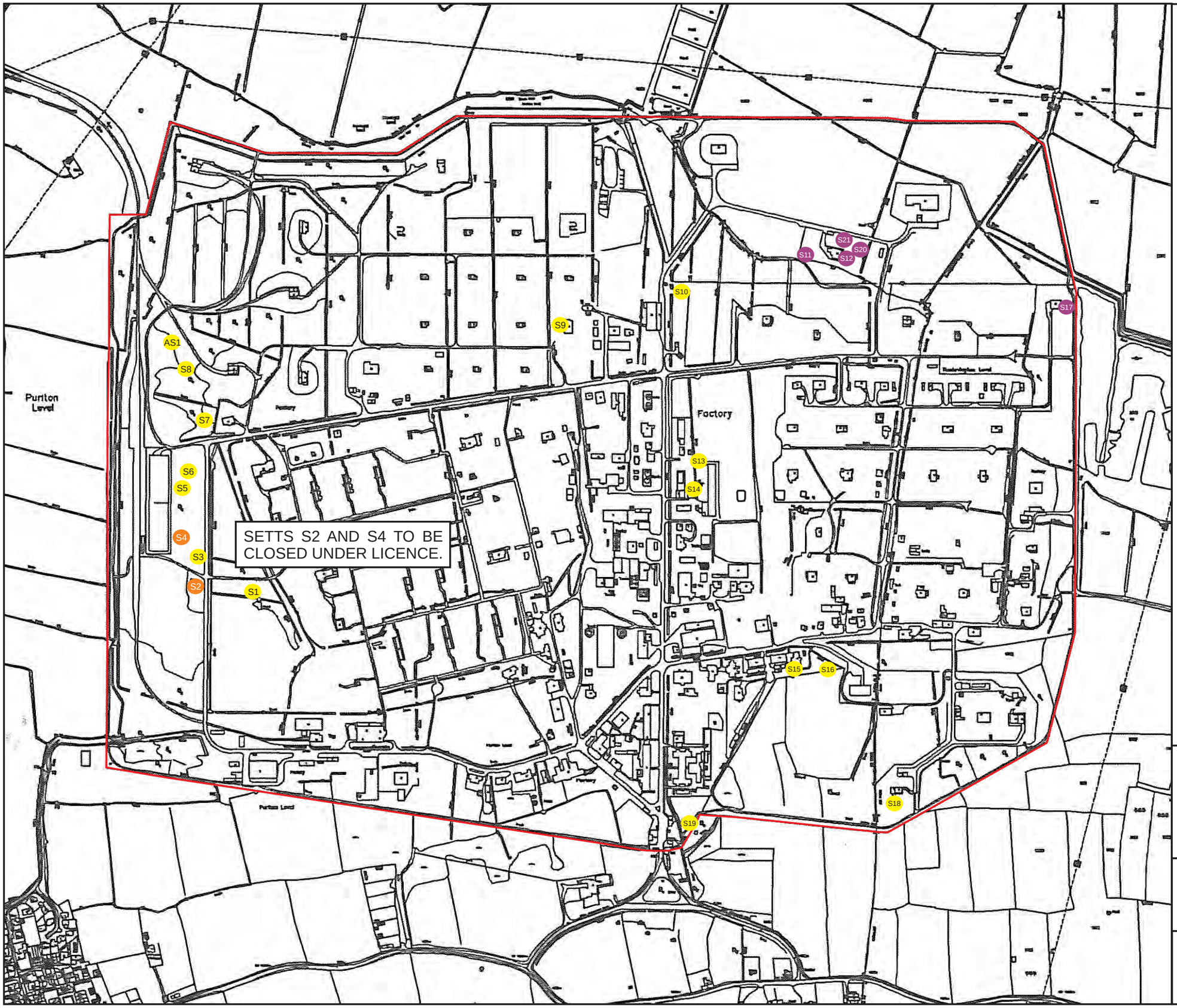
Table 58: Survey results from Location D9, 21st October to 4th November

Location D10																
Species	**21/10**	**22/10**	**23/10**	**24/10**	**25/10**	**26/10**	**27/10**	**28/10**	**29/10**	**30/10**	**31/10**	**01/11**	**02/11**	**03/11**	**04/11**	**Total**
Barbastelle	12	9	3	3	1	1	3	0	0	2	3	0	2	0	1	40
Serotine	0	0	1	0	0	0	0	0	2	4	0	0	0	0	0	7
Myotis sp	3	8	7	0	4	0	4	0	2	17	7	3	1	0	1	57
Nyctalus sp	11	11	4	0	0	0	0	0	5	19	1	3	0	1	1	56
Nathusius' Pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Common Pipistrelle	308	48	147	81	20	8	31	24	125	92	22	19	14	5	289	1233
Soprano Pipistrelle	100	149	14	188	130	23	21	16	72	97	13	2	8	1	6	840
Brown Long-eared Bat	5	7	3	1	7	3	2	1	1	5	1	0	2	0	5	43
Greater Horseshoe	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Lesser Horseshoe	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
Total	440	232	179	273	162	35	62	41	207	236	48	27	27	7	303	2279

Table 59: Survey results from Location D10, 21st October to 4th November

APPENDIX 6

Historic Badger Sett Locations



KEY:

- BOUNDARY OF SITE
- S4 — ACTIVE BADGER SETT JULY 2013 NOW DISUSED
- S9 — DISUSED BADGER SETT JULY 2013 & JUNE 2018
- S4 — ACTIVE BADGER SETT JULY 2013 & JUNE 2018

N

ecology solutions ltd

5106: BAE PURITON, PURITON, SOMERSET

PLAN ECO2:
SITE WIDE BADGER SURVEY RESULTS

APPENDIX 7

Great Crested Newt Survey Results Tables

Appendix 7: Great Crested Newts Survey Results Tables

Survey Results for Pond P1		
Survey Date	GCN recorded (Peak Count)	Other Amphibians Recorded
12/05/2020	0	1 Smooth Newt, 1 Common Frog
14/05/2020	1	8 Smooth Newt
27/05/2020	0	0
02/06/2020	0	0
09/06/2020	0	0
11/06/2020	0	1 Common Frog

Table 1: Survey dates and results for GCN surveys of P1

Survey Results for Pond P2		
Survey Date	GCN recorded (Peak Count)	Other Amphibians Recorded
12/05/2020	0	1 Smooth Newt
14/05/2020	0	3 Smooth Newt
27/05/2020	0	0
02/06/2020	1	1 Smooth Newt, 1 Common Frog
09/06/2020	0	1 Smooth Newt
11/06/2020	0	0

Table 2: Survey dates and results for GCN surveys of P2

Survey Results for Pond P3		
Survey Date	GCN recorded (Peak Count)	Other Amphibians Recorded
12/05/2020	0	0
14/05/2020	0	1 Smooth Newt
27/05/2020	0	1 Smooth Newt
02/06/2020	0	1 Smooth Newt
09/06/2020	0	2 Common Frog
11/06/2020	0	0

Table 3: Survey dates and results for GCN surveys of P3

Survey Results for Pond P4		
Survey Date	GCN recorded (Peak Count)	Other Amphibians Recorded
12/05/2020	0	1 Smooth Newt
14/05/2020	0	8 Smooth Newt
27/05/2020	0	5 Smooth Newt
02/06/2020	0	0
09/06/2020	0	0
11/06/2020	0	1 Smooth Newt, 2 Common Frog

Table 4: Survey dates and results for GCN surveys of P4

Survey Results for Pond P23		
Survey Date	GCN recorded (Peak Count)	Other Amphibians Recorded
05/05/2020	0	0
08/05/2020	0	0
14/05/2020	0	0
25/05/2020	0	0
03/06/2020	0	0
09/06/2020	0	0
11/06/2020	0	0

Table 5: Survey dates and results for GCN surveys of P23

Survey Results for Pond 31		
Survey Date	GCN recorded (Peak Count)	Other Amphibians Recorded
05/05/2020	0	0
08/05/2020	0	0
13/05/2020	Pond Dry	Pond Dry
25/05/2020	Pond Dry	Pond Dry
03/06/2020	Pond Dry	Pond Dry
09/06/2020	0	0
11/06/2020	Pond Dry	Pond Dry

Table 6: Survey dates and results for GCN surveys of P31

Survey Results for Pond P32		
Survey Date	GCN recorded (Peak Count)	Other Amphibians Recorded
05/05/2020	0	1 Smooth Newt
08/05/2020	1	1 Smooth Newt
13/05/2020	1	0
25/05/2020	0	1 Smooth Newt
03/06/2020	Pond Dry	Pond Dry
09/06/2020	Pond Dry	Pond Dry
11/06/2020	Pond Dry	Pond Dry

Table 7: Survey dates and results for GCN surveys of P32

Survey Results for Pond 33		
Survey Date	GCN recorded (Peak Count)	Other Amphibians Recorded
05/05/2020	0	0
08/05/2020	0	0
13/05/2020	0	0
25/05/2020	Pond Dry	Pond Dry
03/06/2020	Pond Dry	Pond Dry
09/06/2020	Pond Dry	Pond Dry
11/06/2020	Pond Dry	Pond Dry

Table 8: Survey dates and results for GCN surveys of P33

Survey Results for Pond 34		
Survey Date	GCN recorded (Peak Count)	Other Amphibians Recorded
05/05/2020	0	0
08/05/2020	0	1 Smooth Newt
14/05/2020	Pond Dry	Pond Dry
25/05/2020	Pond Dry	Pond Dry
03/06/2020	Pond Dry	Pond Dry
09/06/2020	Pond Dry	Pond Dry
11/06/2020	Pond Dry	Pond Dry

Table 9: Survey dates and results for GCN surveys of P34

Survey Results for Pond 35		
Survey Date	GCN recorded (Peak Count)	Other Amphibians Recorded
05/05/2020	9	0
08/05/2020	1	0
13/05/2020	0	1 Smooth Newt
25/05/2020	6	0
03/06/2020	4	2 Smooth Newt
09/06/2020	13	5 Smooth Newt
11/06/2020	1	14 Smooth Newt, 1 Common Frog

Table 10: Survey dates and results for GCN surveys of P35

Survey Results for Pond P36		
Survey Date	GCN recorded (Peak Count)	Other Amphibians Recorded
05/05/2020	0	0
08/05/2020	0	0
13/05/2020	2	1 Palmate Newt
25/05/2020	0	0
03/06/2020	0	1 Smooth Newt
09/06/2020	16	0
11/06/2020	1	3 Smooth Newt

Table 11: Survey dates and results for GCN surveys of P36

Survey Results for Pond P37		
Survey Date	GCN recorded (Peak Count)	Other Amphibians Recorded
05/05/2020	0	0
08/05/2020	0	0
14/05/2020	Pond Dry	Pond Dry
25/05/2020	0	0
03/06/2020	Pond Dry	Pond Dry
09/06/2020	Pond Dry	Pond Dry
11/06/2020	Pond Dry	Pond Dry

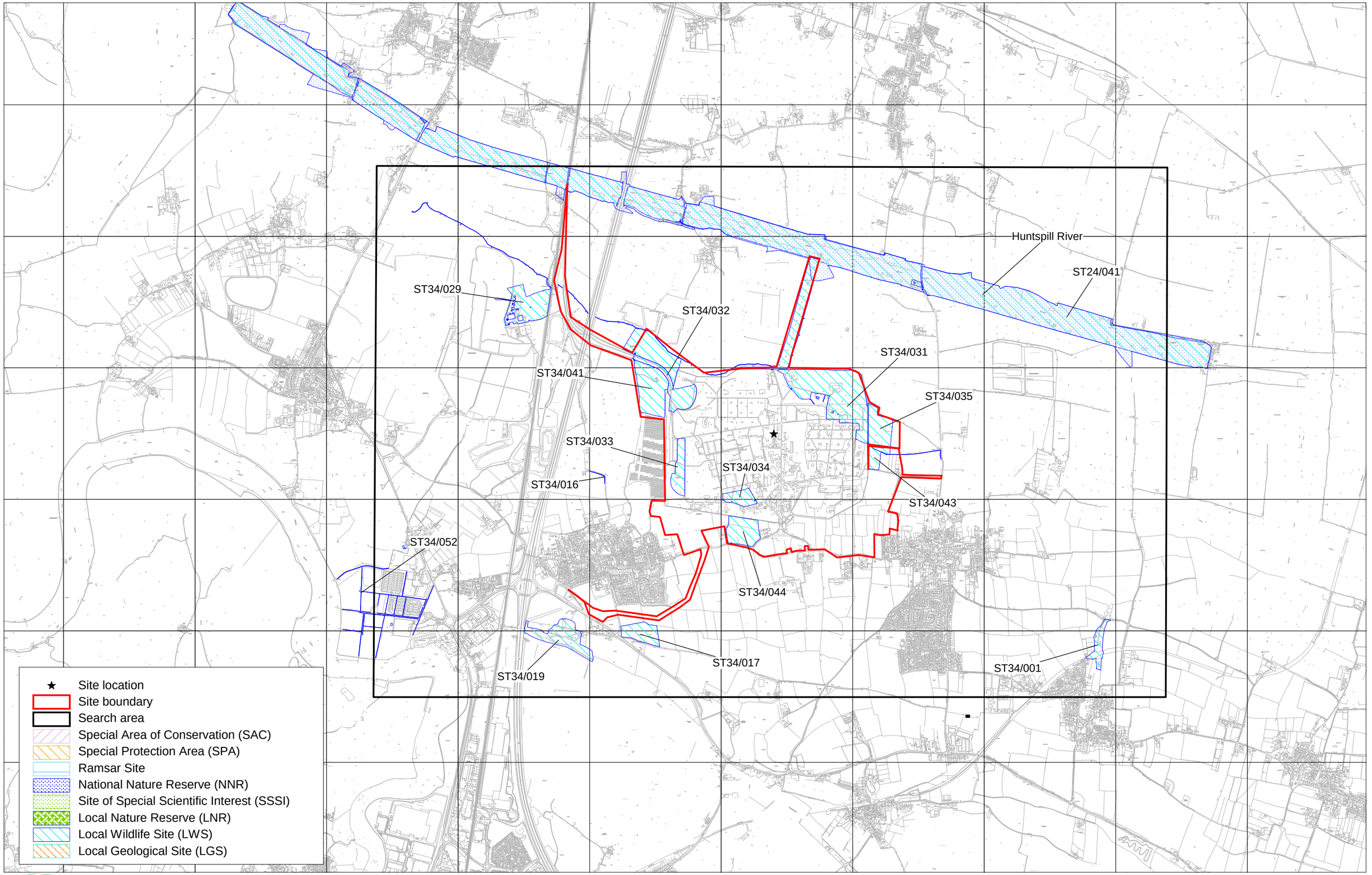
Table 12: Survey dates and results for GCN surveys of P37

Survey Results for Pond P38		
Survey Date	GCN recorded (Peak Count)	Other Amphibians Recorded
05/05/2020	0	0
08/05/2020	0	0
14/05/2020	0	0
25/05/2020	0	0
03/06/2020	0	0
09/06/2020	Pond Dry	Pond Dry
11/06/2020	0	1 Common Frog

Table 13: Survey dates and results for GCN surveys of P38

APPENDIX 8

Local Wildlife Site Citation and SERC Survey Sheets



Search area: 6km x4km buffer around site at: ST334425
Requested Sites: Statutory designated sites
Non-statutory designated sites

For: Ecology Solutions

Client ref: Puriton 7761

Job no: 5010

Date: November 2020

Evaluated Site Details

Date: 06/11/2020
Client: Ecology Solutions
Job number: 5010
Reference / Project Title: Puriton 7761
Location: Puriton near Bridgwater
Search Area: 6km x 4km around site at ST334425

Refer to accompanying Sites Map for locations

Evaluated sites with statutory designations recorded within the area of search:

Name	Status
Huntspill River	NNR

For more information on designated sites please refer to the **Natural England web site**

Evaluated sites with non-statutory designations, Local Wildlife Sites (LWS) cLWS (Candidate Local Wildlife Sites) and/or Local Geological Sites (LGS), recorded within the area of search:

File Code	Name	Description	Status	Criteria[1]
ST24/041	Bridgwater Bay NNR	Part of NNR Outside of SSSI supporting legally protected species	LWS	5H4.9
ST34/001	Upper Combe Plantation	Broadleaved woodland (part ancient) with bare earth tracks.	LWS	5H2.2 5S1.2
ST34/016	Batch Road Fields	Semi- improved ridge and furrow grassland with a small pond and permanently wet ditches.	LWS	5S1.2
ST34/017	New Ground Covert	Ancient semi-natural broadleaved woodland.	LWS	H2.2
ST34/019	South Hills Wood	Ancient semi-natural broadleaved woodland with species rich grassland.	LWS	5H2.1 5S1.2
ST34/029	Pawlett Mead Drove Fields	Unimproved neutral grassland.	LWS	5H2.2 5S8.3 5H2.1
ST34/031**	Puriton rhynes and ponds	Rhyne network, ponds and reed beds with legally protected species.	LWS	6H5.6.1 6H7.4
ST34/032**	Puriton Meadows	Unimproved grassland and scrub-lined dissused railway.	LWS	5H2.1 5S1.2
ST34/033**	Puriton Ash Ground	Species rich ash-tip.	LWS	H11.3 S1.2
ST34/034**	Puriton Cowslip Field	Unimproved calcareous grassland with rhyne.	LWS	H3.2

Evaluated Site Details

File Code	Name	Description	Status	Criteria[1]
ST34/035**	Borrow Pit, Puriton	Lake with extensive reed beds.	LWS	5S4.2 5H7.2 5S1.2 5S4.2
ST34/041**	North Mead Drove Fields	Species rich rhynes and damp grassland used by wetland birds.	LWS	5H8.1
ST34/043**	Stoning Pound Field South and Stoning Pound Rhyne	Vascular plant species-rich rhynes with legally protected fauna and semi-improved grassland.	LWS	5S1.2 5S3.1.2
ST34/044**	Woolavington Road and Fields North	Semi-improved grassland with rush pasture and reedbeds.	LWS	5H5.1
ST34/052	Junction 23 Ponds & Ditches	Network of ditches and ponds supporting protected, UK BAP and Somerset notable species.	LWS	candidate LWS

[1]Criteria– Reasons for Selection for Local Wildlife Sites

For code prefixed by '**6**' refer to **Somerset Local Sites Guidelines 2010**

For code prefixed by '**5'** refer to **Local Wildlife Site Guidelines 1997 (revised 2004)**

For other codes refer to **Local Wildlife Site Guidelines 1991**

**** Site is within site boundary and additional survey report, if available supplied as requested**

[1]Criteria– Reasons for Selection for Local Geological Sites

LGS Criteria

ST34/31/03/A

SERC Survey Sheet

Site Name	Site Number	Grid Reference(s)
PURITON RHYNES	ST 34/031	S T 3 3 9 4 2 9

Date 8TH AUGUST 1995 | Recorder(s) V. RASHFORD, C BELLFIELD, L. GRIFFITHS, R ALLEN

Species rich rhyne network

LOCATION, TOPOGRAPHY, BOUNDARIES AND SURROUNDING LAND USE

Puriton Rhynes, total length 1 KM, are located approximately 1·5 KM north west of Woolavington. The site lies on flat land with an underlying geology of Marine alluvium. Surrounding land use consists of semi-improved grassland which is cattle grazed on the south. Figure 1 illustrates the layout of the rhynes, with labelling to assist the description.

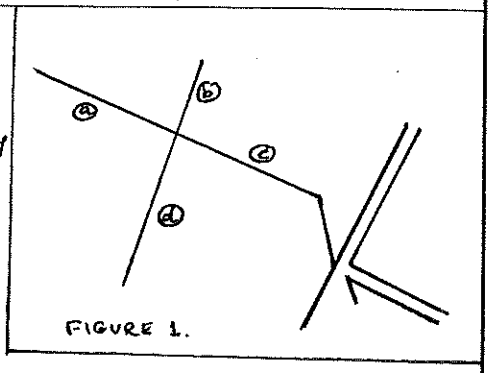


FIGURE 1.

DETAILED DESCRIPTION

Section (a) is fringed with Bramble (Rubus fruticosus agg) and some small Hawthorne (Crataegus monogyna). Vegetation in the centre of the rhyne is dominated by ◆ Greater Water Parsnip (Sium latifolium) with some Hard Rush (Juncus inflexus), ◆ Frogbit (Hydrocharis morsus-ranae) and Common Reed (Phragmites australis). A variety of species are present on the margins, these include False Fox Sedge (Carex otrubae), Hogweed (Heracleum Sphondylium) ◆ Lesser Skullcap (Scutellaria minor) and Water Mint (Mentha aquatica). Common Fleabane (Pulicaria dysenterica), Marsh Bedstraw (Galium palustre), Ribwort Plantain (Plantago lanceolata), Agrimony (Agrimonia eupatoria) and Shore Parsley (Sison anomum) occur at the edge of the field. Grasses include Couch Grass (Elymus farctus), Timothy (Phleum pratense), False Oat Grass (Arrhenatherum elatius) and Yellow Oat Grass (Trisetum flavescens).

At the centre of the crossing rhynes Section (b) is shaded by Hawthorn and here Greater Duckweed (Lemna Polyrhiza) and Common Water Plantain (Alisma Plantago-aquatica) are found. Tall growth of Bur Reed (Sparganium sp) with Redshank (Polygonum persicaria), Floating Sweet Grass (Glyceria fluitans), Common Spike Rush (Eleocharis palustris) Gipsywort (Lycopus europaeus) Water Mint and Hairy Sedge (Carex hirta) occur along the rhyne. More terrestrial vegetation is present such as Hedge Bindweed (Calystegia Sepium ssp sepium), Bristly Oxtongue (Picris echioides) and Dog Rose (Rosa canina). The water surface is visible and dominated by ◆ Frogbit. Banks are steep with overhanging rushes. ◆ Wild Parsnip (Pastinaca sativa) ◆ Lesser Skullcap and False Fox Sedge are also present. Where the rhyne meets the road large emergent vegetation dominates, overshadowing the water surface.

The centre of Section (c) is overgrown with Greater Water parsnip and Reed Sweet Grass (Glyceria maxima). There are also some patches of bramble. Many of the previously mentioned species occur here along with Perforate St Johns Wort (Hypericum perforatum), Marsh Bedstraw (Galium palustre), Pepper Saxifrage (Silaum Silaus), Tufted Vetch (Vicia cracca) and Marsh Woundwort (Stachys palustris). Samples of aquatic vegetation revealed Ivy Leaved Duckweed (Lemna trisulca), Fat Duckweed (Lemna gibba), Common Duckweed (Lemna minor), ◆ Rootless Duckweed (Wolffia arrhiza) and ◆ Water Horsetail (Equisetum fluviatile). Poaching on the cattle grazed south side has created a sloping bank. At its furthest extremity the rhyne becomes completely choked with common Reed. Here an example of ◆ Strawberry Clover (Trifolium fragiferum) was also seen.

Section (d) of the rhyne system is steep sided with Hard Rush overhanging the banks. ◆ Lesser Pond Sedge (Carex acutiformis) and much water Mint are present as well as creeping Jenny (Lysimachia nummularia) ◆ Wild Parsnip and ◆ Water Horsetail. At the

Habitat[s] G12S

ST 34/31/03/A

SERC Survey Sheet	Site Name: Puriton Rhynes	Site Number: ST 34/031	Grid Reference: S T 3 3 9 4 2 9
	Date: 8th August 1995	Recorders: V. BASHFORD, L GRIFFITHS, C. BELLFIELD, R. ALLEN	

fence the water surface contains much ◆ Frogbit and water Plantain. The surrounding substrate is generally wetter, Hard and Soft Rush (Juncus effusus) Marsh Woundwort and creeping Buttercup (Ranunculus repens) are found.

The remaining rhynes are dominated by Common Reed although occasional Purple Loosestrife (Lythrum Salicaria), Greater Pond Sedge (Carex riparia) and Marsh Ragwort (Senecio aquaticus) are found.

◆ Somerset Notable Species.

ST34/31/03/A

SERC Survey Sheet

Site Name	Site Number	Grid Reference(s)
PURITON RHYNES	ST 34/031	S T 3 3 9 4 2 9

Date 8/8/95

Recorder(s) L. GRIFFITHS, V. BASHFORD, C. BELFIELD, R. ALLEN.

KEY :

- NO PHYSICAL BOUNDARY TO SITE
- WOODEN FENCE
- GATE
- SEMI-IMPROVED GRASSLAND
- ◆ SOMERSET NOTABLE SPECIES
- RHYNES
- HABITAT SURROUNDING LAND USE