

**PRELIMINARY ECOLOGICAL
APPRAISAL**

**at
Land off Lesmond Crescent
Little Houghton
Barnsley
South Yorkshire
S72 0EZ**

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**JCA Ref:
15288a/AmB**

Date of Report: 11/9/2019



Quality Assurance

Version	Desktop Survey Completed:		Site Surveyed:		Report Completed:		Checked:	
	Date	Name	Date	Name	Date	Name	Date	Name
15288a /AmB	11/9/2019	Amanda Beck	3/9/2019	Amanda Beck	11/9/2019	Amanda Beck	11/9/2019	Jenny Butler

This report has been prepared and provided in accordance with the *British Standard 42020: Biodiversity – Code of practice for planning and development 2018* and the *CIEEM's Code of Professional Conduct*.

Risk Assessment Completed	
Bio-security Procedure Completed	
Lone Worker Procedure Completed	

Summary

A report is required for **Land off Lesmond Crescent, Little Houghton** to assess the ecological value of the site by documenting the habitat types present and the site's potential for supporting rare and protected species. The development proposed on this site is to build eight residential dwellings with gardens and parking.

A desktop study was undertaken on the 11th September 2019 in order to obtain any relevant ecological records that may be present within a 2km radius of the site, including protected and notable species records and nature conservation designations.

The site was surveyed on the 3rd September 2019 by Amanda Beck Cert/HE in Field Ecology, Diploma in Field and Conservation Ecology, CIEEM Member. A thorough site assessment was undertaken following the guidelines set out in the JNCC's *Handbook for Phase 1 habitat surveys*.

Recommendations:

- **Bats:** Due to the dense vegetation on site bat transect surveys are required prior to any works beginning. The transect surveys must be conducted to assess the habitats that have potential to support foraging and commuting bats. 4 surveyors using Anabats full spectrum bat detectors and frequency division bat detectors will walk transects on site to identify bat species and numbers using the site.
- **Birds:** Vegetation around the site has the potential to support nesting birds; any vegetation clearance must be conducted outside the bird breeding season if possible, September to February. The breeding bird season runs approximately from March to August. If work is to be conducted during this period, then a nesting bird survey will be required prior to the removal of vegetation. This survey must be carried out by a qualified ecologist.
- **Hedgehogs:** The vegetation on the site provides ideal nesting habitat for hedgehogs, which are legally protected during hibernation and while raising their young. If this vegetation is to be removed it should be hand searched immediately prior to removal to ensure no hedgehogs are currently nesting in the vegetation. Hedgehog holes must be incorporated into any new fencing being erected to allow for the movement of hedgehogs on site.
- **Invertebrates:** Due to the removal of vegetation on site a range of invertebrate insect boxes and high nectar and pollenating plants must be incorporated into the proposed development to ensure habitat and food is available for breeding insects.



- **Lighting Design:** Inappropriate lighting in the vicinity of bat roosts can cause disturbance to bat populations and individuals and could be constituted as an offence under the Wildlife and Countryside Act 1981. As such, we have prepared guidance in line with the information provided by the Institute of Lighting Professionals (ILP, 2018) to aid in planning lighting schemes with the aim of limiting the impact that lighting may have on local bat populations.

It is important to avoid:

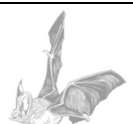
- Uniform levels of luminance across the site.
- Metal halide and florescent lighting.
- Upward tilting lighting that increases skyline luminance.

Instead the following should be installed:

- Dark buffer zones.
- Screening in the form of vegetation, fences and structures.
- Appropriately designated darkened areas.
- Luminaries absent of UV elements
- LED luminaries with a sharp cut-off, low intensity and good rendition.
- Peak luminaire wavelength at a minimum of 550nm.
- Downward directional luminaires with upward light ratios of 0%
- Lower light columns to limit light spill.
- Recessed internal light fixtures.
- Window glazing treatments or automated blind systems.
- **A Biodiversity Enhancement Plan** should be designed pre-construction to be implemented post construction during the landscaping phase of the development. This plan will aim to ensure there is no net loss of habitats on site and to increase biodiversity and opportunities for wildlife on site, due to the result of the proposed development. The biodiversity enhancement plan will aim to provide opportunities for local wildlife to ensure the development does not have a significant detrimental impact on local or national wildlife populations. The Biodiversity Enhancement Plan should include:



- Quantities and locations of faunal boxes for bats, birds, hedgehogs and insects.
- Native shrub/tree/grass/hedgerow planting.
- Gaps in fencing to allow movement for hedgehogs and other small mammals
- Low level 'wildlife friendly' lighting options and lighting buffer zones
- Management scheme on vegetation clearance.



Contents

1. Introduction and Terms of Reference	8
1.1 Terms of Reference	8
1.2 Scope of the Report	8
1.3 Purpose of the Report.....	8
1.4 Details of Proposed Development.....	9
1.5 Site Description.....	9
2. Methodology.....	10
2.1 Desktop Study Methodology	10
2.2 Site Assessment Methodology	10
3. Results	12
3.1 Desktop Study Results.....	12
3.2 Nature Conservation Designations.....	21
3.3 Site Assessment Results	22
4. Discussion and Interpretation of Results	26
4.1 Nature Conservation Designations.....	26
4.2 Priority and Protected Habitats.....	26
4.3 Priority and Protected Species	26
4.4 Impacts of Proposed Development	29
5. Conclusions	31
6. Recommendations	32
5. References.....	35
Appendix 1: Phase 1 Habitat Map.....	39
Appendix 2: Proposed Development Plan	40
Appendix 3: Photographic Evidence.....	41
Appendix 4: Species List.....	44
Appendix 5: Glossary	47
Appendix 6: Protected Species Information.....	48
Appendix 7: Survey Calendar	49





1. Introduction and Terms of Reference

1.1 Terms of Reference

- 1.1.1 I am instructed by **Michael Denton Associates** to visit the site and prepare my findings in a report.
- 1.1.2 For this purpose, I have been supplied with a site map and details of the proposal.

1.2 Scope of the Report

- 1.2.1 This survey was carried out in accordance with the Joint Nature Conservation Committee's (JNCC's) *Handbook for Phase 1 habitat survey - A technique for environmental audit* (2010).
- 1.2.2 This report is compiled in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM's) *Guidelines for Ecological Report Writing* and to the British Standard Institution's *Biodiversity – Code of Practice for Planning and Development* (2018) by Amanda Beck Cert/HE in Field Ecology, Diploma in Field and Conservation Ecology, CIEEM Member.
- 1.2.3 The results and recommendations contained within this report are considered to be valid for a period of between 18 and 24 months. After this period, an update to the report and re-assessment of the site may be required in order to inform ecological constraints to any developments proposed, and/or to accompany a planning submission. If the proposed development changes significantly or land use alter substantially, updates may be required in advance of the expiry period of the report.

1.3 Purpose of the Report

- 1.3.1 This report aims to assess and classify all habitats present on site, and to determine the ecological value of these habitats. The report will determine the likely impact of the proposed development on the local environment and biodiversity as well as the potential impact of the proposed development on regional biodiversity and wildlife populations. The report will determine the extent of potential habitat fragmentation likely to be caused by the proposed development and provide recommendations, where necessary, to limit the impact of the proposed development on habitat connectivity and biodiversity locally.



1.4 Details of Proposed Development

- 1.4.1 The development proposed on this site is to build eight residential dwellings with parking and gardens.

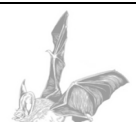
1.5 Site Description

- 1.5.1 **Land off Lesmond Crescent, Little Houghton** is situated approximately 7.7km north-east of Barnsley, at grid reference: SE432050.
- 1.5.2 The site is situated behind residential housing of Lesmond Crescent and Rotherham Road. To the east the site is adjacent to a country track that leads to a dead end with a substation. There is a mature hedgerow of seven foot to the east with the boundaries of the other three sides of the site being concrete and fencing of the back gardens with a section of privet hedgerow to the west.
- 1.5.3 There is five-foot bramble and tall ruderals covering the land with earth embankment to the north and west of the land. The land has been left unmanaged for many years. There are areas where residents have been burning rubbish on site and fly tipping their garden waste to the back of their gardens in the west.
- 1.5.4 The site is surrounded by agricultural land with tree corridors and woodland. To the east is Billingley village and to the west is Houghton village both with residential housing, corner shops and small businesses. A map of the site in relation to surrounding habitats can be seen below.

Figure 1: Google Maps image of **Land off Lesmond Crescent, Little Houghton** showing the survey site in relation to the surrounding landscape and habitats. Red line indicates site boundary.



Google map image © 2019.



2. Methodology

2.1 Desktop Study Methodology

- 2.1.1 A desktop study was undertaken on 9th September 2019 in order to obtain any relevant ecological records that may be present within a 2km radius of the site. This includes protected and notable species records, as well as nature conservation designations. For this information, the local ecological records centre was contacted: Barnsley Metropolitan Borough Council.
- 2.1.2 The search buffer of 2km from the central site grid reference is considered to be sufficient in order to cover the potential zone of influence of the proposed development.
- 2.1.3 The Multi-Agency Geographic Information for the Countryside (MAGIC) website was used to locate any designated sites, both statutory and non-statutory, such as Local Nature Reserves (LNRs), Ramsar Sites, Special Areas of Conservation (SACs), Special Protection Areas (SPAs) or Sites of Special Scientific Interest (SSSIs) that may be present within 2km of the survey site.

2.2 Site Assessment Methodology

- 2.2.1 A thorough site assessment was undertaken on 3rd September 2019 by Amanda Beck Cert/HE in Field Ecology, Diploma in Field and Conservation Ecology, CIEEM Member, following the guidelines set out in the JNCC's *Handbook for Phase 1 habitat surveys*.
- 2.2.2 The entire site was walked over by an experienced consultant who mapped and described each habitat type that was present. The dominant floral species of each habitat were noted as well as any faunal species that were encountered.
- 2.2.3 All habitats present with the potential to support protected or notable species were classified and noted. Signs of fauna were noted as target notes on the site, which can be seen in **Appendix 1, Phase 1 Map** (where signs were found).
- 2.2.4 In the context of this report, rare, protected or notable species are those listed under the following: UK or European legislation, UK Biodiversity Framework Priority Species (including, but not limited to LBAP species), nationally rare or scarce flora/fauna/habitats, Species of Conservation Concern (JNCC Red List, RSPB/BTO Amber Lists).
- 2.2.5 Non-native, invasive species, as listed under Schedule 9 of the Wildlife and



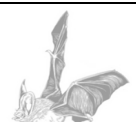
Countryside Act (1981) as amended have been noted and mapped, where present as under the Wildlife and Countryside Act (1981) as amended it is an offence to release or allow to escape into the wild any flora/fauna not ordinarily a resident of the UK, which has been categorised as potential harmful to the UK flora and/or fauna.

2.2.6 Whilst conducting the site walk-over, any features that may be of value to or have the potential to support protected species were noted and photographic evidence taken (please refer to **Appendix 3**). Such protected species include, but are not limited to, Badgers, Bats, Dormice, Great Crested Newts, Nesting Birds, Otters, Reptiles, Water Voles, White-Clawed Crayfish (please see **Appendix 6**).

2.2.7 Limitations:

2.2.8 Access to some areas of the site were restricted due to the dense coverage of bramble and tall ruderals that cause a health and safety issue when trying to walk on site as the land is very uneven however, this limitation should not affect the overall results of the report.

2.2.9 The survey was conducted at the optimal time of year when most plant species were in flower, although a small number of species may not have been present that flower in early spring. These species may not have been visible at the time of the survey; however, this constraint will not affect the overall conclusion of the report, as habitat types can still be classified and the potential for protected species can still be accurately assessed.



3. Results

3.1 Desktop Study Results

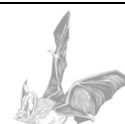
3.1.1 Local Data Centre Records: Barnsley Metropolitan Borough Council. has been commissioned to provide the records held for protected and notable species within a 2km radius of the survey site. The results have been summarised below. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area. Please see **Table 1** below for a summary of the protected and priority species records obtained from the Barnsley Metropolitan Borough Council.

3.1.2 **Table 1:** Priority and protected species records obtained from the Barnsley Metropolitan Borough Council within a 2km radius of the site boundary.

Taxonomic Group	Common Name	Scientific Name	On site	Within 500m	Within 1km	Within 2km	Notes
Amphibians	Common Toad	<i>Bufo bufo</i>	✗	✓	✓	✓	One record dated 2007 of an adult.
	Common Frog	<i>Rana temporaria</i>	✗	✓	✓	✓	Four records dating from 1979 to 2014, one being a historical record. One record was a frog seen in the marsh.
	Smooth Newt	<i>Lissotriton vulgaris</i>	✗	✗	✓	✓	Four records dating from 2010 to 2017 of adults and juveniles.
Bats	Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	✗	✓	✓	✓	Seventeen records dating from 1992 to 2004. Thirteen records are historical dating from 1992 to 1999. Records are of grounded bats, six records are of bat roosts, One record of a bat foraging.
	Unidentified Pipistrelle Species	<i>Pipistrellus sp.</i>	✗	✓	✓	✓	One record dating from 2005 of a bat been harassed by a cat.
	Noctule	<i>Nyctalus noctula</i>	✗	✓	✓	✓	One historical record from 1997 of bat emerging.
	Daubenton's Bat	<i>Myotis daubentonii</i>	✗	✓	✓	✓	One historical record from 1991 of bats seen in crevices.
	Unidentified Bat Species	<i>Chiroptera</i>	✗	✓	✓	✓	Four historical record dating from 1982 to 1993 of bats emerging.
Other Mammals	Wood Mouse	<i>Apodemus sylvaticus</i>	✗	✗	✓	✓	One record from 2014 of a mouse running for cover.
	Water Vole	<i>Arvicola amphibius</i>	✗	✓	✓	✓	Eighteen records dating from 1976 to 2009. Two records are historical from 1976 to 1999.



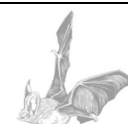
							Records were of droppings, feeding platforms, tracks on banks, tunnels, chewed vegetation, latrines, footprints and four water voles observed during a fisheries survey.
	Bank Vole	<i>Clethrionomys glareolus</i>	x	x	✓	✓	Two records from 2002 of feeding signs, surface runs and latrines.
	Hedgehog	<i>Erinaceus europaeus</i>	x	✓	✓	✓	Eight records from 2013 to 2016 of five hedgehog's dead on the road and three records of adults alive.
	Brown Hare	<i>Lepus europaeus</i>	x	x	✓	✓	One record from 2011 of an adult observed between reed beds.
	Otter	<i>Lutra lutra</i>	x	x	✓	✓	Six records dating from 1996 to 2005. One record being historical. Records were of field signs and spraints.
	Badger	<i>Meles meles</i>	x	x	✓	✓	Two records dating from 2013 to 2014, evidence of snuffle holes, tracks footprints and hair on barb wire.
	Harvest Mouse	<i>Micromys minutus</i>	x	x	✓	✓	Two records dating from 2012 records of nests in false oat grass.
	Field Vole	<i>Microtus agrestis</i>	x	x	✓	✓	Two records dating from 2012 of droppings in ditch, nests and runs.
	American Mink	<i>Mustela vison</i>	x	x	✓	✓	Two records from 2005 of footprints and droppings.
	Rabbit	<i>Oryctolagus cuniculus</i>	x	✓	✓	✓	Eight records dating from 2017 to 2018 of live sightings, droppings, a skull and activity.
	Brown Rat	<i>Rattus norvegicus</i>	x	x	✓	✓	Two records dating from 2002 to 2005 of tunnels, droppings and footprints.
	European Mole	<i>Talpa europaea</i>	x	✓	✓	✓	Two records dating from 2014 to 2017.
	Red Fox	<i>Vulpes vulpes</i>	x	x	✓	✓	Two records dating from 2005 to 2014. Records are of scat and two dead foxes.
Birds (Schedule 1)	Kingfisher	<i>Alcedo atthis</i>	x	x	x	✓	Four records dating from 2009 to 2013. One record of a bird fishing, two records of birds probably breeding.
	Garganey	<i>Anas querquedula</i>	x	x	x	✓	Three records dating from 2007 to 2009 of bird observations.
	Greylag Goose	<i>Anser anser</i>	x	x	✓	✓	Four records dating from 2007 to 2013 of birds flying.
	Hen Harrier	<i>Circus cyaneus</i>	x	x	✓	✓	One record dated 2012 seen on



							Golf course.
	Merlin	Falco columbarius	✕	✕	✕	✓	One historical record dated 1992 over a field adjacent to a church.
Birds (other) Red listed	Skylark (<i>Alauda arvensis</i>), Lesser White-Fronted Goose (<i>Anser erythropus</i>), Linnet (<i>Carduelis cannabina</i>), Ringed Plover (<i>Charadrius hiaticula</i>), Cuckoo (<i>Cuculus canorus</i>), Yellowhammer (<i>Emberiza citrinella</i>), Black Tailed Godwit (<i>Limosa limosa</i>), Linnet (<i>Linaria cannabina</i>), Grasshopper Warbler (<i>Locustella naevia</i>), Common Scooter (<i>Melanitta nigra</i>), Corn Bunting (<i>Miliaria calandra</i>), Grey Wagtail (<i>Motacilla cinerea</i>), Yellow Wagtail (<i>Motacilla flava</i>), Willow Tit (<i>Parus montanus</i>), House Sparrow (<i>Passer domesticus</i>), Tree Sparrow (<i>Passer montanus</i>), Turtle Dove (<i>Streopelia turtur</i>), Starling (<i>Sturnus vulgaris</i>), Shelduck (<i>Tadorna tadorna</i>), Wood Sandpiper (<i>Tringa glareola</i>), Greenshank (<i>Tringa nebularia</i>), Green Sandpiper (<i>Tringa ochropus</i>), Redshank (<i>Tringa tetanus</i>), Grey Partridge (<i>Perix perdix</i>), Lapwing (<i>Vanellus vanellus</i>),						
Birds (other) Amber listed	Pintail (<i>Anas acuta</i>), Shoveler (<i>Anas clypeata</i>), Teal (<i>Anas crecca</i>), Wigeon (<i>Anas Penelope</i>), Mallard (<i>Anas platyrhynchos</i>), Gadwall (<i>Anas strepera</i>), Pink-Footed Goose (<i>Anser brachyrhynchus</i>), Meadow Pipit (<i>Anthus pratensis</i>), Swift (<i>Apus apus</i>), Barnacle Goose (<i>Branta leucopsis</i>), Dunlin (<i>Calidris alpina</i>), Redpoll (<i>Carduelis flammea</i>), Whiskered Tern (<i>Chlidonias hybridus</i>), Stock Dove (<i>Columba oenas</i>), Quail (<i>Coturnix coturnix</i>), Mute Swan (<i>Cygnus olor</i>), House Martin (<i>Delichon urbica</i>), Reed Bunting (<i>Emberiza schoeniclus</i>), Kestrel (<i>Falco tinnunculus</i>), Snipe (<i>Gallinago gallinago</i>), Crane (<i>Grus grus</i>), Oystercatcher (<i>Haematopus ostralegus</i>), Common Gull (<i>Larus canus</i>), Lesser Black Backed Gull (<i>Larus fuscus</i>), Black-Headed Gull (<i>Larus ridibundus</i>), Redshank (<i>Persicaria maculosa</i>), Willow warbler (<i>Phylloscopus trochilus</i>), Spotted Crake (<i>Porzana porzana</i>), Dunnock (<i>Prunella modularis</i>), Bullfinch (<i>Pyrrhula pyrrhula</i>), Avocet (<i>Recurvirostra avosetta</i>), Tawnt Owl (<i>Strix aluco</i>), Shelduck (<i>Tadorna tadorna</i>), Wood Sandpiper (<i>Tringa glareola</i>), Greenshank (<i>Tringa nebularia</i>), Green Sandpiper (<i>Tringa ochropus</i>), Redshank (<i>Tringa tetanus</i>).						
Birds (other) within 500m	Sparrowhawk (<i>Accipiter nisus</i>), Woodpigeon (<i>Columba palumbus</i>), Chaffinch (<i>Fringilla coelebs</i>), Moorhen (<i>Gallinula chloropus</i>), Moorhen (<i>Gallinula chloropus</i>), Jay (<i>Garrulus glandarius</i>), Swallow (<i>Hirundo rustica</i>), Magpie (<i>Pica pica</i>), Blackcap (<i>Sylvia atricapilla</i>), Blue Tit (<i>Cyanistes caeruleus</i>), Whitethroat (<i>Sylvia communis</i>), Wren (<i>Troglodytes troglodytes</i>), Blackbird (<i>Turdus merula</i>).						
Birds (other) within 1km to 2km	Sedge Warbler (<i>Acrocephalus schoenobaenus</i>), Long-tailed Tit (<i>Aegithalos caudatus</i>), Red Legged Partridge (<i>Alectoris rufa</i>), Egyptian Goose (<i>Alopochen aegyptiacus</i>), Green-Winged Teal (<i>Anas crecca subsp. carolinensis</i>), Rock Pipit (<i>Anthus petrosus</i>), Grey Heron (<i>Ardea cinerea</i>), Long-Eared Owl (<i>Asio otus</i>), Little Owl (<i>Athene noctua</i>), Tufted duck (<i>Aythya fuligula</i>), Canada Goose (<i>Branta canadensis</i>), Buzzard (<i>Buteo buteo</i>), Pectoral Sandpiper (<i>Calidris melanotos</i>), Little Stint (<i>Calidris minuta</i>), Goldfinch (<i>Carduelis carduelis</i>), Greenfinch (<i>Carduelis chloris</i>), Tree Creeper (<i>Certhia familiaris</i>), Little Ringed Plover (<i>Charadrius dubius</i>), Greenfinch (<i>Chloris chloris</i>), Carrion Crow (<i>Corvus corone</i>), Rook (<i>Corvus frugilegus</i>), Jackdaw (<i>Corvus monedula</i>), Great Spotted Woodpecker (<i>Dendrocopos major</i>), Little Egret (<i>Egretta garzetta</i>), Robin (<i>Erithacus rubecula</i>), Coot (<i>Fulica atra</i>), Jack Snipe (<i>Limnocyptes minimus</i>), Goosander (<i>Mergus merganser</i>), Wheatear (<i>Oenanthe Oenanthe</i>), Ruddy Duck (<i>Oxyura jamaicensis</i>), Coal Tit (<i>Parus ater</i>), Great Tit (<i>Parus major</i>), Cormorant (<i>Phalacrocorax carbo</i>), Pheasant (<i>Phasianus colchicus</i>), Chiffchaff (<i>Phylloscopus collybita</i>), Yellow-brown Warbler (<i>Phylloscopus inornatus</i>), Green Woodpecker (<i>Picus viridis</i>), Great Crested Grebe (<i>Podiceps cristatus</i>), Water Rail (<i>Rallus aquaticus</i>), Firecrest (<i>Regulus ignicapilla</i>), Goldcrest (<i>Regulus regulus</i>), Sand Martin (<i>Riparia riparia</i>), Nuthatch (<i>Sitta europaea</i>), Collared Dove (<i>Streptopelia decaocto</i>), Garden Warbler (<i>Sylvia borin</i>), Lesser Whitethroat (<i>Sylvia curruca</i>), Little Grebe (<i>Tachybaptus ruficollis</i>), Barn Owl (<i>Tyto alba</i>).						



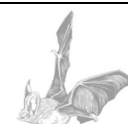
Reptile	Grass Snake	<i>Natrix natrix</i>	x	x	✓	✓	
	Adder	<i>Vipera berus</i>	x	x	✓	✓	Two records dating from 2006 to 2008 surveyed under licence one female possibly gravid
Invertebrates	<i>Acanthephodus onopordi</i> (<i>Acanthephodus onopor</i>), Hawthorn Shieldbug (<i>Acanthosoma haemorrhoidale</i>), <i>Acidia cognata</i> (<i>Acidia cognata</i>), <i>Acrodactyla quadrisculpta</i> (<i>Acrodactyla quadrisculpta</i>), 2-spot Ladybird (<i>Adalia bipunctata</i>), Bishop's Mitre (<i>Aelia acuminata</i>), Brown Hawker (<i>Aeshna grandis</i>), Migrant Hawker (<i>Aeshna mixta</i>), <i>Agabus bipustulatus</i> (<i>Agabus bipustulatus</i>), <i>Agabus didymus</i> (<i>Agabus didymus</i>), <i>Agabus paludosus</i> (<i>Agabus paludosus</i>), <i>Agabus sturmii</i> (<i>Agabus sturmii</i>), Alder Leaf Beetle (<i>Agelastica alni</i>), Small Tortoiseshell (<i>Aglais urticae</i>), <i>Agromyza alnivora</i> (<i>Agromyza alnivora</i>), <i>Alloeotomus gothicus</i> (<i>Alloeotomus gothicus</i>), <i>Allygus modestus</i> (<i>Allygus modestus</i>), <i>Amara aulica</i> (<i>Amara aulica</i>), <i>Amauromyza monfalconensis</i> (<i>Amauromyza monfalconensis</i>), <i>Anacaena globulus</i> (<i>Anacaena globulus</i>), <i>Anacaena limbata</i> agg. (<i>Anacaena limbata</i> agg.), <i>Anacaena lutescens</i> (<i>Anacaena lutescens</i>), <i>Andricus</i> (<i>Andricus</i>), Knopper Gall (<i>Andricus quercuscalicis</i>), 19 spot Ladybird (<i>Anisoticta novemdecimpunctata</i>), Whirlpool Ramshorn (<i>Anisus vortex</i>), <i>Anopheles</i> (<i>Anopheles</i>), Orange tip butterfly (<i>Anthocharis cardamines</i>), Ringlelet (<i>Aphanyopus hyperantus</i>), <i>Apion frumentarium</i> (<i>Apion frumentarium</i>), Honey Bee (<i>Apis mellifera</i>), Corpse Snail (<i>Arianta arbustorum</i>), Hedgehog Slug (<i>Arion intermedius</i>), Dusky Slug (<i>Arion subfuscus</i>), <i>Baccha elongate</i> (<i>Baccha elongate</i>), <i>Berytinus minor</i> (<i>Berytinus minor</i>), White-Tailed Bumblebee (<i>Bombus lucorum</i>), Large Red Tailed Bumble Bee (<i>Bombus lapidaries</i>), Common Carder Bee (<i>Bombus pascuorum</i>), Buff-Tailed Bumble Bee (<i>Bombus terrestris</i>), <i>Botanophila dissecta</i> (<i>Botanophila dissecta</i>), <i>Botanophila laterella</i> (<i>Botanophila laterella</i>), <i>Botanophila lobata</i> (<i>Botanophila lobata</i>), <i>Botanophila phrenione</i> (<i>Botanophila phrenione</i>), <i>Botanophila Seneciella</i> (<i>Botanophila seneciella</i>), Nettle Pollen Beetle (<i>Brachypterus urticae</i>), Reed Stem Borer (<i>Calameuta filiformis</i>), <i>Calliopum aeneum</i> (<i>Calliopum aeneum</i>), Banded Demoiselle (<i>Calopteryx splendens</i>), Cream Spotted Ladybird (<i>Calvia quattuordecimguttata</i>), <i>Campsicnemus curvipes</i> (<i>Campsicnemus curvipes</i>), <i>Cantharis nigra</i> (<i>Cantharis nigra</i>), <i>Cantharis pallida</i> (<i>Cantharis pallida</i>), <i>Cantharis rufa</i> (<i>Cantharis rufa</i>), White Lipped-snail (<i>Capaea hortensis</i>), Brown Lipped-snail (<i>Capaea nemoralis</i>), <i>Cephalops pannonicus</i> (<i>Cephalops pannonicus</i>), <i>Cephalops semifumousus</i> (<i>Cephalops semifumousus</i>), <i>Ceraleptus lividus</i> (<i>Ceraleptus lividus</i>), Biting Midge (<i>Ceratopogonidae</i>), <i>Cerodontha atra</i> (<i>Cerodontha atra</i>), <i>Cerodontha atronitens</i> (<i>Cerodontha atronitens</i>), <i>Cerodontha denticornis</i> (<i>Cerodontha denticornis</i>), <i>Cerodontha lateralis</i> (<i>Cerodontha lateralis</i>), <i>Cerodontha muscina</i> (<i>Cerodontha muscina</i>), <i>Cerodontha venturi</i> (<i>Cerodontha venturi</i>), <i>Chaetorellia jaceae</i> (<i>Chaetorellia jaceae</i>), <i>Chalcoides aurata</i> (<i>Chalcoides aurata</i>), <i>Chamaemyia herbarum</i> (<i>Chamaemyia herbarum</i>), <i>Chamaemyia polystigma</i> (<i>Chamaemyia polystigma</i>), <i>Chartoscirta cincta</i> (<i>Chartoscirta cincta</i>), <i>Cheilosia pagana</i> (<i>Cheilosia pagana</i>), <i>Chelifera precatoria</i> (<i>Chelifera precatoria</i>), <i>Chilacis typhae</i> (<i>Chilacis typhae</i>), Non-biting midges (<i>Chironomidae</i>), <i>Chlorops pumilionis</i> (<i>Chlorops pumilionis</i>), Lesser Marsh Grasshopper (<i>Chorthippus albomarginatus</i>), Common Field Grasshopper (<i>Chorthippus brunneus</i>), Field Grasshopper (<i>Chorthippus brunneus</i>), Meadow Grasshopper (<i>Chorthippus parallelus</i>), <i>Phytomyza nigra</i> (<i>Chromatomyia nigra</i>), Twin-lobed Deerfly (<i>Chrysops relictus</i>), <i>Chrysotoxum festivum</i> (<i>Chrysotoxum festivum</i>), <i>Cicadella viridis</i> (<i>Cicadella viridis</i>), Mayfly (<i>Cloeon dipterum</i>), 7 spot Ladybird (<i>Coccinella septempunctata</i>), Azure Damselfly (<i>Coenagrion puella</i>), Small Heath (<i>Coenonympha pamphilus</i>), <i>Coenosia Testacea</i> (<i>Coenosia Testacea</i>), <i>Coenosia tigrine</i> (<i>Coenosia tigrine</i>), Long-Winged Conehead (<i>Conocephalus discolor</i>), <i>Cordyla crassicornis</i> (<i>Cordyla crassicornis</i>), <i>Coremacera marginata</i> (<i>Coremacera marginata</i>), <i>Corizus hyoscyami</i> (<i>Corizus hyoscyami</i>), <i>Culiseta</i> (<i>Culiseta</i>), Blunt-tailed Snake Millipede (<i>Cylindroiulus punctatus</i>), <i>Dasiops mucronatus</i> (<i>Dasiops mucronatus</i>), <i>Delia platura</i> (<i>Delia platura</i>), Netted Slug (<i>Deroceras reticulatum</i>), <i>Dicraeus vagans</i> (<i>Dicraeus vagans</i>), <i>Discachaeta pumila</i> (<i>Discachaeta pumila</i>), Rounded Snail (<i>Discus rotundatus</i>), <i>Dixella autumnalis</i> (<i>Dixella autumnalis</i>), Hairy Shieldbug (<i>Dolycoris baccarum</i>), <i>Drapetis assimilis</i> (<i>Drapetis assimilis</i>), <i>Drapetis exilis</i> (<i>Drapetis exilis</i>), <i>Drosophila simulans</i> (<i>Drosophila simulans</i>), <i>Empis caudatula</i> (<i>Empis caudatula</i>), Common Blue Damselfly (<i>Enallagma cyathigerum</i>), <i>Endromopoda phragmitidis</i> (<i>Endromopoda phragmitidis</i>), <i>Epistrophe grossulariae</i> (<i>Epistrophe grossulariae</i>), Marmalade Hoverfly (<i>Episyrphus balteatus</i>), <i>Erioptera hybrida</i> (<i>Erioptera hybrida</i>), <i>Eriothrix rufomaculata</i> (<i>Eriothrix rufomaculata</i>), <i>Eristalinus sepulchralis</i> (<i>Eristalinus sepulchralis</i>), <i>Eristalis horticola</i> (<i>Eristalis horticola</i>), <i>Eristalis nemorum</i> (<i>Eristalis nemorum</i>), <i>Eristalis</i>						



	pertinax (<i>Eristalis pertinax</i>), <i>Eristalis tenax</i> (<i>Eristalis tenax</i>), <i>Erpobdella</i> Testacea (<i>Erpobdella</i> Testacea), Dingy Skipper (<i>Erynnis tages</i>), <i>Eudorylas obliquus</i> (<i>Eudorylas obliquus</i>), <i>Euphranta toxoneura</i> (<i>Euphranta toxoneura</i>), <i>Europiella artemisiae</i> (<i>Europiella artemisiae</i>), Drinker (<i>Euthrix potatoria</i>), <i>Fannia serena</i> (<i>Fannia serena</i>), Pine Cone Bug (<i>Gastrodes grossipes</i>), <i>Geomyza balachowskyi</i> (<i>Geomyza balachowskyi</i>), <i>Geomyza tripunctata</i> (<i>Geomyza tripunctata</i>), Pill Millipede (<i>Glomeris marginata</i>), Annelid (<i>Glossiphonia complanate</i>), Spider (<i>Gnathonarium dentatum</i>), Brimstone (<i>Gonepteryx rhamni</i>), Common Pondskater (<i>Gerris lacustris</i>), <i>Gyrinus substriatus</i> (<i>Gyrinus substriatus</i>), <i>Haliphus ruficollis</i> agg. (<i>Haliphus ruficollis</i> agg.), Harlequin Ladybird (<i>Harmonia axyridis</i>), <i>Helina pertusa</i> (<i>Helina pertusa</i>), Common Garden Snail (<i>Helix aspersa</i>), Fly (<i>Helophilus pendulus</i>), Beetle (<i>Helophorus brevipalpis</i>), Beetle (<i>Helophorus griseus</i>), Beetle (<i>Helophorus minutus</i>), <i>Hesperocorixa linnei</i> (<i>Hesperocorixa linnei</i>), <i>Hesperocorixa sahlbergi</i> (<i>Hesperocorixa sahlbergi</i>), Nettle Groundbug (<i>Heterogaster urticae</i>), Tree Damsel bug (<i>Himacerus apterus</i>), Adoni's Ladybird (<i>Hippodamia variegata</i>), Beetle (<i>Hydraena nigrita</i>), Fly (<i>Hydrellia albilabris</i>), Beetle (<i>Hydrotus fuscipes</i>), Beetle (<i>Hydroporus angustatus</i>), Beetle (<i>Hydroporus incognitus</i>), Beetle (<i>Hydroporus palustris</i>), Beetle (<i>Hydroporus pubescens</i>), Beetle (<i>Hydroporus tessellatus</i>), Fly (<i>Hydrotaea parva</i>), Beetle (<i>Hygrotus inaequalis</i>), Fly (<i>Hylemya variata</i>), Spider (<i>Hypomma bituberculatum</i>), Beetle (<i>Ilybius ater</i>), Beetle (<i>Ilybius fuliginosus</i>), Peacock butterfly (<i>Inachis io</i>), <i>Itopectis alternans</i> (<i>Itopectis alternans</i>), Birch Catkin Bug (<i>Kleidocerys resedae</i>), Beetle (<i>Laccobius bipunctatus</i>), Beetle (<i>Laccobius sinuatus</i>), Small Black ant (<i>Lasius niger</i>), Striped Slender Robberfly (<i>Leptogaster cylindrica</i>), Beetle (<i>Limnebius truncatellus</i>), Fly (<i>Liriomyza flaveola</i>), <i>Lissonota impressor</i> (<i>Lissonota impressor</i>), Centipede (<i>Lithobius forficatus</i>) Centipede (<i>Lithobius microps</i>), Bug (<i>Livia juncorum</i>), Fly (<i>Lonchoptera lutea</i>), Small Copper (<i>Lycaena phlaeas</i>), European Tarnished Plant Bug (<i>Lygus rugulipennis</i>), Wandering Snail (<i>Lymnaea peregra</i>), Meadow Brown (<i>Maniola jurtina</i>), Fly (<i>Meiosimyza decipiens</i>), Little Black Blowfly (<i>Melanomyia nana</i>), Fly (<i>Melanostoma mellinum</i>), Fly (<i>Micropeza lateralis</i>), Fly (<i>Myathropa florea</i>), Fly (<i>Mycetophila ichneumonea</i>), Fly (<i>Mydaea urbana</i>), Red ant (<i>Myrmica rubra</i>), True bug (<i>Myrmus miriformis</i>), Broad Damselbug (<i>Nabidula flavomarginata</i>), Field Damsel bug (<i>Nabis fesus</i>), Common Damsel bug (<i>Nabis rugosus</i>), Fly (<i>Napomyza lateralis</i>), True bug (<i>Neottiglossa pusilla</i>), Water Scorpion (<i>Nepa cinerea</i>), Silk-Button Spangle Gall (<i>Neuroterus numismalis</i>), Common Spangle Gall (<i>Neuroterus quercusbaccarum</i>), Larger Noterus (<i>Noterus clavicornis</i>), Common Water-Boatman (<i>Notonecta glauca</i>), True fly (<i>Nyctia halterata</i>), Large Skipper (<i>Ochlodes venata</i>), Beetle (<i>Ochthebius minimus</i>), Beetle (<i>Oedemera lurida</i>), Common Green Grasshopper (<i>Omocestus viridulus</i>), Common Shiny Woodlouse (<i>Oniscus asellus</i>), Common Green Colonel (<i>Oplodontha viridula</i>), Fly (<i>Opomyza florum</i>), Fly (<i>Opomyza germinationis</i>), Fly (<i>Orfelia nemoralis</i>), True bug (<i>Orthotylus virescens</i>), Cereal Leaf Beetle (<i>Oulema melanopus</i>), Garlic Snail (<i>Oxychilus alliarius</i>), Mollusc (<i>Oxychilus alliarius</i>), Beetle (<i>Oxystoma cerdo</i>), Beetle (<i>Oxystoma subulatum</i>), Spider (<i>Pachygnatha clercki</i>), True Fly (<i>Palloptera scutellata</i>), Green Shieldbug (<i>Palomena prasina</i>), Fly (<i>Paragus haemorrhous</i>), Speckled Wood (<i>Pararge aegeria</i>), Fly (<i>Parydra coarctata</i>), Fly (<i>Pegoplata infirma</i>), Fly (<i>Pelina nitens</i>), Forest Bug (<i>Pentatoma rufipes</i>), Fly (<i>Phania funesta</i>), Fly (<i>Phasia barbifrons</i>), True bug (<i>Philaenus spumarius</i>), Beetle (<i>Philonthus intermedius</i>), Common striped Woodlouse (<i>Philoscia muscorum</i>), Fly (<i>Phorbia fumigata</i>), Fly (<i>Phytomyza cecidonomina</i>), Fly (<i>Phytomyza ranunculi</i>), Fly (<i>Phytomyza varipes</i>), Large White butterfly (<i>Pieris brassicae</i>), Green Veined- White (<i>Pieris napi</i>), Small White (<i>Pieris rapae</i>), Fly (<i>Platycheirus angustatus</i>), Fly (<i>Platycheirus scutatus</i>), Beetle (<i>Platydracus stercorarius</i>), Comma butterfly (<i>Polygonia c-album</i>), Common Blue (<i>Polyommatus Icarus</i>), 14 Spot Ladybird (<i>Propylea quattuordecimpunctata</i>), Fly (<i>Psilopa nitidula</i>), Cabbage Beetle (<i>Psylliodes chrysocephala</i>), 22 Spot Ladybird (<i>Psyllobora vigintiduopunctata</i>), Hedge Brown butterfly (<i>Pyronia tithonus</i>), Gatekeeper (<i>Pyronia tithonus</i> subsp. <i>britanniae</i>), Large Red Damselfly (<i>Pyrrhosoma nymphula</i>), Common Red Solder Beetle (<i>Rhagonycha fulva</i>), Beetle (<i>Rhantus suturalis</i>), Pouting Woodlouse fly (<i>Rhinophora lepida</i>), True bug (<i>Rhopalus subrufus</i>), Beetle (<i>Rhyzobius litura</i>), Fly (<i>Rivellia syngenesiae</i>), Beetle (<i>Rutpela maculate</i>), Fly (<i>Sapromyza halidayi</i>), Fly (<i>Sapromyza quadripunctata</i>), Twin-spot Centurion (<i>Sargus bipunctatus</i>), Fly (<i>Sepsis cynipsea</i>), Fly (<i>Sepsis orthocnemis</i>), Alder Fly (<i>Sialis lutaria</i>), True bug (<i>igara dorsalis</i>), Fly (<i>Siphona geniculate</i>), Fly (<i>Siphonella oscinina</i>), Fly (<i>Stenocranus minutus</i>), Sphaerophoria scripta (<i>Stenocranus minutus</i>), Beetle (<i>Stenus fulvicornis</i>), True bug (<i>Stictopleurus punctatonevus</i>), Stigma solskyi (<i>Stigma solskyi</i>), True bug (<i>Stygnocoris sabulosus</i>), Fly (<i>Suillia affinis</i>), Common Darter (<i>Sympetrum striolatum</i>), Fly (<i>Syricta pipiens</i>), Fly (<i>Syricta ribesii</i>), Fly (<i>achina fera</i>), Beetle (<i>Tachyporus hypnorum</i>), Beetle (<i>Tachyporus obtusus</i>), Beetle (<i>Tachyporus solutus</i>), Beetle (<i>Tachyporus transversalis</i>), Fly (<i>Tephritis Formosa</i>), Fly (<i>Tephritis neesii</i>), Fly (<i>Terellia</i>
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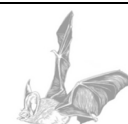
	ruficauda), Fly (<i>Tetanocera ferruginea</i>), Slender ground hopper (<i>Tetrix subulate</i>), Small Skipper (<i>Thymelicus sylvestris</i>), Fly (<i>Tomosvaryella sylvatica</i>), Fly (<i>Tricholauxania praeusta</i>), Fly (<i>Triglyphus primus</i>), Fly (<i>Trypetoptera punctulate</i>), 16 spot Ladybird (<i>Tytthaspis sedecimpunctata</i>), Fly (<i>Urophora cardui</i>) Fly (<i>Urophora jaceana</i>), Red Admiral (<i>Vanessa atalanta</i>), Water Cricket (<i>Velia caprai</i>), German Wasp (<i>Vespula germanica</i>), Common Wasp (<i>Vespula vulgaris</i>), Fly (<i>Volucella bombylans</i>), Fly (<i>Volucella pellucens</i>), Xylota segnis (<i>Xylota segnis</i>), Six Spot Burnet (<i>Zygaena filipendulae</i>), Narrow-Bordered Five Spot Burnet (<i>Zygaena lonicerae</i>).
Plants	Field Maple (<i>Acer campestre</i>), Norway Maple (<i>Acer platanoides</i>), Sycamore (<i>Acer pseudoplatanus</i>), Yarrow (<i>Achillea millefolium</i>), sneezewort (<i>Achillea ptarmica</i>), Horse Chestnut (<i>Aesculus hippocastanum</i>), Bent grass (<i>Agrostis</i>), Common Bent (<i>Agrostis capillaris</i>), Black bent (<i>Agrostis gigantea</i>), Creeping Bent (<i>Agrostis stolonifera</i>), Lady's Mantle (<i>Alchemilla vulgaris</i>), Water Plantain (<i>Alisma plantago-aquatica</i>), Garlic Mustard (<i>Alliaria petiolate</i>), Alder (<i>Alnus glutinosa</i>), Grey Alder (<i>Alnus incana</i>), Marsh Foxtail (<i>Alopecurus geniculatus</i>), Meadow foxtail (<i>Alopecurus pratensis</i>), Common Fiddleneck (<i>Amsinckia micrantha</i>), Wild Angelica (<i>Angelica sylvestris</i>), Barren Brome (<i>Anisantha sterilis</i>), Sweet Vernal Grass (<i>Anthoxanthum odoratum</i>), Cow Parsley (<i>Anthriscus sylvestris</i>), Fool's Water Cress (<i>Apium nodiflorum</i>), Lesser Burdock (<i>Arctium minus</i>), Thyme-Leaved Sandwort (<i>Arenaria serpyllifolia</i>), Horseradish (<i>Armoracia rusticana</i>), False Oat Grass (<i>Arrhenatherum elatius</i>), Wormwood (<i>Artemisia absinthium</i>), Mugwort (<i>Artemisia vulgaris</i>), Garden Asparagus (<i>Asparagus officinalis</i>), Michaelmas-Daisy (<i>Aster</i>), Common Orache (<i>Atriplex patula</i>), Spear-leaved Orache (<i>Atriplex prostrata</i>), Avena (<i>Avena</i>), Wild Oat (<i>Avena fatua</i>), Oat (<i>Avena sativa</i>), Black Horehound (<i>Ballota nigra</i>), Daisy (<i>Bellis perennis</i>), Lesser Water Parsnip (<i>Berula erecta</i>), Birch (<i>Betula</i>), Silver Birch (<i>Betula pendula</i>), Downy Birch (<i>Betula pubescens</i>), Yellow-wort (<i>Blackstonia perfoliate</i>), Cabbage (<i>Brassica</i>), Rape (<i>Brassica napus</i>), Quaking grass (<i>Briza media</i>), Hairy Brome (<i>Bromopsis ramosa</i>), Soft Brome (<i>Bromus hordeaceus</i>), Lesser Soft-Brome (<i>Bromus hordeaceus</i>), White Bryony (<i>Bryonia dioica</i>), Butterfly bush (<i>Buddleja davidii</i>), Box (<i>Buxus sempervirens</i>), Water-Starwort (<i>Callitriche</i>), Common Water-Starwort (<i>Callitriche stagnalis</i>), Heather (<i>Calluna vulgaris</i>), Hedge Bindweed (<i>Calstegia sepium</i>), Large Bindweed (<i>Calystegia sylvatica</i>), Shepard's Purse (<i>Capsella bursa-pastoris</i>), Large Bittercress (<i>Cardamine amara</i>), Wavy Bitter-cress (<i>Cardamine flexuosa</i>), Hairy Bitter-cress (<i>Cardamine hirsute</i>), Cuckooflower (<i>Cardamine pratensis</i>), Glaucous Sedge (<i>Carex flacca</i>), Hairy Sedge (<i>Carex hirta</i>), Common Sedge (<i>Carex nigra</i>), Oval Sedge (<i>Carex ovalis</i>), Remote Sedge (<i>Carex remota</i>), Hornbeam (<i>Carpinus betulus</i>), Sweet Chestnut (<i>Castanea sativa</i>), Common Knapweed (<i>Castaurea nigra</i>), Common Centuary (<i>Centaureum erythraea</i>), Common Mouse-ear (<i>Cerastium fontanum</i>), Sticky Mouse-ear (<i>Cerastium glomeratum</i>), Rosebay Willowherb (<i>Chamerion angustifolium</i>), Greater Celandine (<i>Chelidonium majus</i>), Fat Hen (<i>Chenopodium album</i> agg.), Red Goosefoot (<i>Chenopodium rubrum</i>), Creeping Thistle (<i>Cirsium arvense</i>), Marsh Thistle (<i>Cirsium palustre</i>), Spear Thistle (<i>Cirsium vulgare</i>), Hemlock (<i>Conium maculatum</i>), Field Bindweed (<i>Convolvulus arvensis</i>), Canadian Fleabane (<i>Conyza canadensis</i>), Cornus (<i>Cornus</i>), Dogwood (<i>Cornus sanguinea</i>), Pampus Grass (<i>Cortaderia selloana</i>), Hazel (<i>Corylus avellane</i>), Buttonweed (<i>Cotula coronopifolia</i>), Hawthorn (<i>Crataegus monogyna</i>), Smooth Hawk's-Beard (<i>Crepis capillaris</i>), Crosswort (<i>Cruciata laevipes</i>), Conifer (<i>Cupressus</i>), Crested Dog's Tail (<i>Cynosurus cristatus</i>), Broom (<i>Cytisus scoparius</i>), Cock's-Foot (<i>Dactylis glomerata</i>), Common Spotted Orchid (<i>Dactylorhiza fuchsia</i>), Southern Marsh Orchid (<i>Dactylorhiza praetermissa</i>), Carrot (<i>Daucus carota</i>), Tufted Hair Grass (<i>Deschampsia caespitosa</i>), Wavy Hair grass (<i>Deschampsia flexuosa</i>), Foxglove (<i>Digitalis purpurea</i>), Wild Teasel (<i>Dispacus fullonum</i>), Brad Buckler Fern (<i>Dryopteris dilatata</i>), Common Male Fern (<i>Dryopteris filix-mas</i>), Viper's-bugloss (<i>Echium vulgare</i>), Common Spike Rush (<i>Eleocharis palustris</i>), Bearded Couch (<i>Elymus caninus</i>), Common Couch (<i>Elytrigia repens</i>), Great Willowherb (<i>Epilobium hirsutum</i>), Broad-leaved Willowherb (<i>Epilobium montanum</i>), Short Fruited Willowherb (<i>Epilobium obscurum</i>), Marsh Willowherb (<i>Epilobium palustre</i>), Hoary Willowherb (<i>Epilobium parviflorum</i>), Square-Stalked Willowherb (<i>Epilobium tetragonum</i>), Field Horsetail (<i>Equisetum arvense</i>), Marsh Horsetail (<i>Equisetum palustre</i>), Common Cottongrass (<i>Eriophorum angustifolium</i>), Common Whitlowgrass (<i>Erophila verna</i>), Sun spurge (<i>Euphorbia helioscopia</i>), Petty Spurge (<i>Euphorbia peplus</i>), Beech (<i>Fagus sylvatica</i>), Black Bindweed (<i>Fallopia convolvulus</i>), Tall Fescue (<i>Festuca arundinacea</i>), Sheep's Fescue agg. (<i>Festuca ovina</i> agg.), Meadow Fescue (<i>Festuca pratensis</i>), Red Fescue (<i>Festuca rubra</i>), Common Cudweed (<i>Filago vulgaris</i>), Meadowsweet (<i>Filipendula ulmaria</i>), Fennel (<i>Foeniculum vulgare</i>), Ash (<i>Fraxinus</i>



	excelsior), Common Fumitory (<i>Fumaria officinalis</i>), Common Hemp-Nettle agg. (<i>Galeopsis tetrahit</i> agg.), Cleavers (<i>Galium aparine</i>), Common March Bedstraw (<i>Galium palustre</i>), Lady's Bedstraw (<i>Galium verum</i>), Cut-Leaved Crane's-Bill (<i>Geranium dissectum</i>), Dove's-foot Crane's-bill (<i>Geranium mole</i>), Meadow Crane's-bill (<i>Geranium pratense</i>), Small-Flowered Crane's-Bill (<i>Geranium pusillum</i>), Hedgerow Crane's-Bill (<i>Geranium pyrenaicum</i>), Herb-Robert (<i>Geranium robertianum</i>), Ground-ivy (<i>Glechoma hederacea</i>), Small Sweet-grass (<i>Glyceria declinate</i>), Floating Sweet-Grass (<i>Glyceria fluitans</i>), Reed Sweet-Grass (<i>Glyceria maxima</i>), Marsh Cudweed (<i>Gnaphalium uliginosum</i>), Ivy (<i>Hendera helix</i>), Hogweed (<i>Heracleum sphondylium</i>), Hawkweed (<i>Hiercium aggregatum</i>), Yellow glandular Hawkweed (<i>Hiercium sabaudum</i>), Hawkweed (<i>Hiercium umbellatum</i>), Sea Buckthorn (<i>Hippophae rhamnoides</i>), Yorkshire Fog (<i>Holcus lanatus</i>), Creeping Soft grass (<i>Holcus mollis</i>), Wall Barley (<i>Hordeum murinum</i>), Hop (<i>Humulus lupulus</i>), Bluebell (<i>Hyacinthoides non-scripta</i>), Imperforate St John's-wort (<i>Hypericum maculatum</i>), Perforate St John's-wort (<i>Hypericum perforatum</i>), Square-Stalked St. John's-Wort (<i>Hypericum tetrapterum</i>), Cat's ear (<i>Hypochaeris radicata</i>), Holly (<i>Ilex aquifolium</i>), Yellow Iris (<i>Iris pseudacorus</i>), Sharp flowered rush (<i>Juncus acutiflorus</i>), Jointed Rush (<i>Juncus articulatus</i>), Toad Rush agg. (<i>Juncus bufonius</i> agg.), Bulbous Rush (<i>Juncus bulbosus</i>), Compact Rush (<i>Juncus conglomeratus</i>), Soft Rush (<i>Juncus effuses</i>), Hard Rush (<i>Juncus inflexus</i>), Slender Rush (<i>Juncus tenuis</i>), Field Scabious (<i>Knautia arvensis</i>), Prickly Lettuce (<i>Lactuca serriola</i>), Yellow Archangel (<i>Lamiastrum galeobdolon</i>), White Dead nettle (<i>Lamium album</i>), Red Dead Nettle (<i>Lamium purpureum</i>), Nipplewort (<i>Lapsana communis</i>), European Larch (<i>Larix decidua</i>), Broad-leaved everlasting pea (<i>Lathyrus latifolius</i>), Bitter-vetch (<i>Lathyrus linifolius</i>), Meadow Vetchling (<i>Lathyrus pratensis</i>), Common Duckweed (<i>Lemna minor</i>), Leontodon (<i>Lentodon</i>), Autumn Hawkbit (<i>Leontodon autumnalis</i>), Rough Hawkbit (<i>Leontodon hispidus</i>), Oxeye daisy (<i>Leucanthemum vulgare</i>), Garden Privet (<i>Ligustrum ovalifolium</i>), Wild Privet (<i>Ligustrum vulgare</i>), Common Toadflax (<i>Linaria vulgaris</i>), Fairy Flax (<i>Linum catharticum</i>), Flax (<i>Linum usitatissimum</i>), Italian Rye-grass (<i>Lolium multiflorum</i>), Perennial Rye-grass (<i>Lolium perenne</i>), Honeysuckle (<i>Lonicera periclymenum</i>), Greater Bird's-foot-trefoil (<i>Lotus pedunculatus</i>), Garden Lupin (<i>Lupinus polyphyllus</i>), Field Wood-rush (<i>Luzula campestris</i>), Gipsywort (<i>Lycopus europaeus</i>), Yellow Pimpernel (<i>Lysimachia nemorum</i>), Oregon Grape (<i>Mahonia aquifolium</i>), Apple (<i>Malus pumila</i>), Crab Apple (<i>Malus sylvestris</i>), Musk-mallow (<i>Malva moschata</i>), Common Mallow (<i>Malva sylvestris</i>), Pineappleweed (<i>Matricaria discoidea</i>), Scented Mayweed (<i>Matricaria recutita</i>), Black Medick (<i>Medicago lupulina</i>), Ribbed Melilot (<i>Melilotus officinalis</i>), Water mint (<i>Mentha aquatica</i>), Dog's Mercury (<i>Mercurialis perennis</i>), Wood Millet (<i>Milium effusum</i>), Three-Nerved Sandwort (<i>Moehringia trinervia</i>), Wall Lettuce (<i>Mycelis muralis</i>), Field forget me not (<i>Myosotis arvensis</i>), Water forget me not (<i>Myosotis scorpioides</i>), Spiked Water milfoil (<i>Myriophyllum spicatum</i>), Garden Daffodil (<i>Narcissus</i>), Mat-grass (<i>Nardus stricta</i>), Yellow Water Lily (<i>Nuphar lutea</i>), Red Bartsia (<i>Odontites vernus</i>), Hemlock Water-dropwort (<i>Oenanthe crocata</i>), Common Poppy (<i>Papaver rhoeas</i>), Opium Poppy (<i>Papaver somniferum</i>), Yellow bartsia (<i>Parentucellia viscosa</i>), Marsh Lousewort (<i>Pedicularis palustris</i>), Green Alkanet (<i>Pentaglottis sempervirens</i>), Amphibious Bisort (<i>Persicaria amphibia</i>), Reed Canary grass (<i>Phalaris arundinacea</i>), Timothy (<i>Phleum pratense</i>), Common Reed (<i>Phragmites australis</i>), Bristly Oxtongue (<i>Picris echioides</i>), Mouse-ear-hawkweed (<i>Pilosella officinarum</i>), Scots Pine (<i>Pinus sylvestris</i>), Buck's-horn Plantain (<i>Plantago coronopus</i>), Ribwort Plantain (<i>Plantago lanceolata</i>), Greater Plantain (<i>Plantago major</i>), Meadow grass (<i>Poa annua</i>), Flattened Meadow grass (<i>Poa compressa</i>), Flattened Meadow grass (<i>Poa compressa</i>), Wood Meadow-grass (<i>Poa nemoralis</i>), Smooth Meadow grass (<i>Poa pratensis</i>), Rough Meadow grass (<i>Poa trivialis</i>), Equal Leaved Knotweed (<i>Polygonum aviculare</i> agg.), Knotgrass (<i>Polygonum aviculare</i>), White Poplar (<i>Populus alba</i>), Grey Poplar (<i>Populus alba</i> x <i>tremula</i> = <i>P. x canescens</i>), Lombardy Poplar (<i>Populus nigra 'Italica'</i>), Black Polar (<i>Populus nigra</i> subsp. <i>betulifolia</i>), Hybrid Black Poplar (<i>Populus nigra</i> x <i>deltoides</i> = <i>P. x canadensis</i>), Aspen (<i>Populus tremula</i>), Broadleaved Pondweed (<i>Potamogeton natans</i>), Fennel Pondweed (<i>Potamogeton pectinatus</i>), Hairlike Pondweed (<i>Potamogeton trichoides</i>), Silverweed (<i>Potentilla anserina</i>), Creeping Cinquefoil (<i>Potentilla reptans</i>), Cowslip (<i>Primula veris</i>), Selfheal (<i>Prunella vulgaris</i>), Wild Cherry (<i>Prunus avium</i>), Cherry Plum (<i>Prunus cerasifera</i>), Wild Plum (<i>Prunus domestica</i>), Cherry Laurel (<i>Prunus laurocerasus</i>), Portugal Laurel (<i>Prunus lusitanica</i>), Bird Cherry (<i>Prunus padus</i>), Blackthorn (<i>Prunus spinosa</i>), Bracken (<i>Pteridium aquilinum</i>), Reflexed Saltmarsh-Grass (<i>Puccinellia distans</i>), Common Fleabane (<i>Pulicaria dysenterica</i>), Turkey Oak (<i>Quercus cerris</i>), Sessile Oak (<i>Quercus petraea</i>), Hybrid Oak (<i>Quercus petraea</i> x <i>robur</i> = <i>Q. x rosacea</i>), Pendunculate Oak (<i>Quercus robur</i>), Meadow Buttercup (<i>Ranunculus acris</i>), Bulbous Buttercup (<i>Ranunculus bulbosus</i>), Lesser Celandine (<i>Ranunculus ficaria</i>), Lesser Spearwort
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	(<i>Ranunculus flammula</i>), Creeping Buttercup (<i>Ranunculus repens</i>), Celery-Leaved Buttercup (<i>Ranunculus sceleratus</i>), Thread-Leaved Water-Crowfoot (<i>Ranunculus trichophyllus</i>), Radish (<i>Raphanus raphanistrum</i>), Wild Mignonette (<i>Reseda lutea</i>), Weld (<i>Reseda luteola</i>), Buckthorn (<i>Rhamnus cathartica</i>), Flowering Currant (<i>Ribes sanguineum</i>), False-acacia (<i>Robinia pseudoacacia</i>), Water-cress (<i>Rorippa nasturtium-aquaticum</i>), Creeping Yellow-cress (<i>Rorippa sylvestris</i>), Field-rose (<i>Rosa arvensis</i>), Dog-rose (<i>Rosa canina</i>), Bramble (<i>Rubus fruticosus</i> agg.), Raspberry (<i>ubus idaeus</i>), Common Sorrel (<i>Rumex acetosa</i>), Sheep Sorrel (<i>Rumex acetosella</i>), Clustered dock (<i>Rumex conglomeratus</i>), Curled docks (<i>Rumex crispus</i>), Broad-Leaved dock (<i>Rumex obtusifolius</i>), Wood dock (<i>Rumex sanguineus</i>), Procumbent Pearlwort (<i>Sagina procumbens</i>), White Willow (<i>Salix alba</i>), Goat Willow (<i>Salix caprea</i>), Common Sallow (<i>Salix cinerea</i>), Crack Willow (<i>Salix fragilis</i>), Oiser (<i>Salix viminalis</i>), Elder (<i>Sambucus nigra</i>), Great Burnet (<i>Sanguisorba officinalis</i>), Water Figwort (<i>Scrophularia auriculata</i>), Common Figwort (<i>Scrophularia nodosa</i>), Skullcap (<i>Scutellaria galericulata</i>), Hoary Ragwort (<i>Senecio erucifolius</i>), Common Ragwort (<i>Senecio jacobaea</i>), Oxford Ragwort (<i>Seneciosqualidus</i>), Groundsel (<i>Senecio vulgaris</i>), Red Campion (<i>Silene dioica</i>), White Campion (<i>Silene latifolia</i>), Bladder Campion (<i>Silene vulgaris</i>), Charlock (<i>Sinapis arvensis</i>), Tall Rocket (<i>Sisymbrium altissimum</i>), Hedge Mustard (<i>Sisymbrium officinale</i>), Bittersweet (<i>Solanum dulcamara</i>), Canadian Goldenrod (<i>Solidago canadensis</i>), Perennial Sow-thistle (<i>Sonchus arvensis</i>), Prickly Sow-thistle (<i>Sonchus asper</i>), Smooth Sow Thistle (<i>Sonchus oleraceus</i>), Common Whitebeam (<i>Sorbus aria</i>), Whitebeam (<i>Sorbus aria</i> agg & <i>sorbus intermedia</i> agg.), Rowan (<i>Sorbus aucuparia</i>), Unbranched Bur-reed (<i>Sparganium emersum</i>), Branched Bur-reed (<i>Sparganium erectum</i>), Corn Spurrey (<i>Spergula arvensis</i>), Lesser Sea Spurry (<i>Spergularia marina</i>), Sand Spurrey (<i>Spergularia rubra</i>), Spiraea (<i>Spiraea</i>), Marsh Woundwort (<i>Stachys palustris</i>), Hedge Woundwort (<i>Stachys sylvatica</i>), Bog Stitchwort (<i>Stellaria alsine</i>), Lesser Stichwort (<i>Stellaria graminea</i>), Greater Stitchwort (<i>Stellaria holostea</i>), Common Chickweed (<i>Stellaria media</i>), Snowberry (<i>Symphoricarpos albus</i>), Indet Comfrey (<i>Symphytum</i>), Lilac (<i>Syringa vulgaris</i>), Black Bryony (<i>Tamus communis</i>), Feverfew (<i>Tanacetum parthenium</i>), Tansy (<i>Tanacetum vulgare</i>), Dandelion (<i>Taraxacum officinale</i> agg.), Yew (<i>Taxus baccata</i>), Wood Sage (<i>Teucrium scorodonia</i>), Lime (<i>Tilia platyphyllos</i> x <i>cordata</i> = <i>T. x europaea</i>), Upright Hedge-parsley (<i>Torilis japonica</i>), Goat's-beard (<i>Tragopogon pratensis</i>), Hare's Foot Clover (<i>Trifolium arvense</i>), Hop Trefoil (<i>Trifolium campestre</i>), Lesser Trefoil (<i>Trifolium dubium</i>), Alsike Clover (<i>Trifolium hybridum</i>), Zig zag Clover (<i>Trifolium medium</i>), Red Clover (<i>Trifolium pratense</i>), White Clover (<i>Trifolium repens</i>), Scentless Mayweed (<i>Tripleurospermum inodorum</i>), Yellow Oat Grass (<i>Trisetum flavescens</i>), Bread Wheat (<i>Triticum aestivum</i>), Colt's-Foot (<i>Tussilago farfara</i>), Lesser Bulrush (<i>Typha angustifolia</i>), Bulrush (<i>Typha latifolia</i>), Gorse (<i>Ulex europaeus</i>), Wych Elm (<i>Ulmus glabra</i>), English Elm (<i>Ulmus procera</i>), Common Nettle (<i>Urtica dioica</i>), Marsh Valerian (<i>Valeriana dioica</i>), Great Mullein (<i>Verbascum Thapsus</i>), Wall Speedwell (<i>Veronica arvensis</i>), Brooklime (<i>Veronica beccabunga</i>), Germander Speedwell (<i>Veronica chamaedrys</i>), Ivy Leaved Speedwell (<i>Veronica hederifolia</i>), Wood Speedwell (<i>Veronica montana</i>), Common Field-Speedwell (<i>Veronica persica</i>), Guelder Rose (<i>Viburnum opulus</i>), Tufted Vetch (<i>Vicia cracca</i>), Hairy Tare (<i>Vicia hirsute</i>), Common Vetch (<i>Vicia sativa</i>), Bush Vetch (<i>Vicia sepium</i>), Smooth Tare (<i>Vicia tetrasperma</i>), Lesser Periwinkle (<i>Vinca minor</i>), Field Pansy (<i>Viola arvensis</i>), Squirreltail Fescue (<i>Vulpia bromoides</i>), Rat's Tail Fescue (<i>Vulpia myuros</i>).
Moss	Creeping Feather-moss (<i>Amblystegium serpens</i>), Common Smoothcap (<i>Atrichum undulatum</i>), Bud-headed Groove moss (<i>Aulacomnium androgynum</i>), Bog Groove-moss (<i>Aulacomnium palustre</i>), Lesser Bird's-claw Beard moss (<i>Barbula convolute</i>), Cylindric Beard-moss (<i>Barbula cylindrica</i>), Hornschuch's Beard moss (<i>Barbula hornschuchiana</i>), Red Beard moss (<i>Barbula recurvirostra</i>), Revolute Beard-moss (<i>Barbula revoluta</i>), Dusky Beard moss (<i>Barbula trifaria</i>), Bird's-claw Beard moss (<i>Barbula unguiculata</i>), Whiteish Feather-moss (<i>Brachythecium albicans</i>), Rough-stalked moss (<i>Brachythecium rutabulum</i>), Silver moss (<i>Bryum argenteum</i>), Bryum Biocolor (<i>Byrrum bicolor</i>), Capillary Thread-moss (<i>Bryum capillare</i>), Bryum Dichotomum (<i>Bryum dichotomum</i>), Raspberry Bryum (<i>Bryum klinggraeffii</i>), Crimson-tubler Thread moss (<i>Byrum rubens</i>), Pointed Spear-moss (<i>Calliargon cuspidatum</i>), Silky Forklet-moss (<i>Dicranella heteromalla</i>), Schreber's Forklet-moss (<i>Dicranella schreberana</i>), Common Pincushion (<i>Dicranoweisia cirrata</i>), Broom Fork-moss (<i>Dicranum scoparium</i>), Cylindric Ditrichum (<i>Cylindric Ditrichum</i>), Curve-leaved Ditrichum (<i>Ditrichum heteromallum</i>), Swartz's Feather-moss (<i>Eurhynchium hians</i>), Common Feather-moss (<i>Eurhynchium praelongum</i>), Swartz's Feather-moss (<i>Eurhynchium swartzii</i>), Lesser Pocket-moss (<i>Fissidens</i>



	bryoides), Common Pocket-moss (<i>Fissidens taxifolius</i>), Common Cord-moss (<i>Galeopsis tetrahit</i> agg.), Grey-cushioned Grimmia (<i>Grimmia pulvinata</i>), Silky Wall Feather-moss (<i>Homalothecium sericeum</i>), Glittering Wood-moss (<i>Hylocomium splendens</i>), Hypnum cupressiforme var. cupressiforme (<i>Hypnum cupressiforme</i> var. <i>cupressiforme</i>), Heath Plait Moss (<i>Hypnum jutlandicum</i>), Elegant Silk-moss (<i>Isopterygium elegans</i>), Golden Thread moss (<i>Leptobryum pyriforme</i>), Many-fruited Leskea (<i>Leskea polycarpa</i>), Swan's-neck Thyme-moss (<i>Minum hornum</i>), Cape Thread-moss (<i>Orthodontium lineare</i>), Wood Bristle-moss (<i>Orthotrichum affine</i>), Hooded Bristle-moss (<i>Orthotrichum cupulatum</i>), White-tipped Bristle-moss (<i>Orthotrichum diaphanum</i>), Elegant Bristle-moss (<i>Orthotrichum pulchellum</i>), Juicy Silk-moss (<i>Plagiothecium succulentum</i>), Taper-leaved Earth-moss (<i>Pleuridium acuminatum</i>), Red-stemmed Feather-moss (<i>Pleurozium schreberi</i>), Pink-fruited Thread-moss (<i>Pohlia carnea</i>), Nodding Thread-moss (<i>Pohlia nutans</i>), Bank Haircap (<i>Polytrichum formosum</i>), Juniper Haircap (<i>Polytrichum juniperinum</i>), Common Pottia (<i>Pottia truncate</i>), Neat Feather-moss (<i>Pseudoscleropodium purum</i>), Clustered Feather-moss (<i>Rhynchostegium confertum</i>), Springy Turf-moss (<i>Rhytidiadelphus squarrosus</i>), Big Shaggy-moss (<i>Rhytidiadelphus triquetrus</i>), Schistidium apocarpum (<i>Schistidium apocarpum</i>), Intermediate Screw-moss (<i>Tortula intermedia</i>), Water Screw-moss (<i>Tortula latifolia</i>), Wall Screw-moss (<i>Tortula muralis</i>), <i>Tortula muralis</i> var. <i>aestival</i> (<i>Tortula muralis</i> var. <i>aestival</i>), Great Hairy Screw-moss (<i>Tortula ruralis</i>), Common Pottia (<i>Tortula truncate</i>), Bruch's Pincushion (<i>Ulota crispa</i> var. <i>norvegica</i>), Frizzled Pincushion (<i>Ulota phyllantha</i>), Green-tufted Stubble-moss (<i>Weissia controversa</i>), Beaked Beardless-moss (<i>Weissia rostellata</i>).						
Fungi	Blackening Wax-Cap	<i>Hygrocybe nigrescens</i>	✖	✖	✓	✓	Two records dating from 2017.
	Tar-Spot Fungus	<i>Rhytisma acerinum</i>	✖	✖	✓	✓	One record dating from 2108.
Lichen	Cladonia fimbriata	<i>Cladonia fimbriata</i>	✖	✖	✓	✓	One record dating from 2103.
Liverwort	Notched Pouchwort	<i>Calypogeia arguta</i>	✖	✖	✓	✓	One record dating from 2007
	Common Pouchwort	<i>Calypogeia fissa</i>	✖	✖	✓	✓	One record dating from 2007
	Mueller's Pouchwort	<i>Calypogeia mulleriana</i>	✖	✖	✓	✓	One record dating from 2007.
	Dilated Scalewort	<i>Frullania dilatata</i>	✖	✖	✓	✓	One record dating from 2005.
	Bifid Crestwort	<i>Lophocolea bidentata</i>	✖	✖	✓	✓	One record dating from 2007.
	Variable-leaved Crestwort	<i>Lophocolea heterophylla</i>	✖	✖	✓	✓	One record dating from 2007.
	Southern Crestwort	<i>Lophocolea semiteres</i>	✖	✖	✓	✓	One record dating from 2004.



	Crescent-cup Liverwort	<i>Lunularia cruciata</i>	x	x	✓	✓	One record dating from 2007.
	Endive Peltia	<i>Pellia endiviifolia</i>	x	x	✓	✓	One record dating from 2007.
	Common Crystalwort	<i>Riccia sorocarpa</i>	x	x	✓	✓	One record dating from 2007.
Plants (Schedule 9)	Cotoneaster	<i>Cotoneaster</i>	x	x	✓	✓	One record from 2006.
	New Zealand Pigmyweed	<i>Crassula helmsii</i>	x	x	✓	✓	One record dating from 2010.
	Canadian Waterweed	<i>Elodea canadensis</i>	x	x	✓	✓	One historical record from 1997.
	Japanese Knotweed	<i>Fallopia japonica</i>	x	x	✓	✓	One record dating from 2017.
	Giant Hogweed	<i>Heracleum mantegazzianum</i>	x	x	✓	✓	One record dating from 2010.
	Indian Balsam	<i>Impatiens glandulifera</i>	x	x	✓	✓	One record dating from 2012.

3.2 Nature Conservation Designations

Statutory Nature Conservation Sites

3.2.1 There are no statutory nature conservation sites within the boundary or 2km from the site.

Non-Statutory Nature Conservation Sites

3.2.2 There are no non-statutory nature conservation sites within the boundary of the site.

3.2.3 The search revealed two non-statutory conservation sites within 2km of the site, which can be seen in **Table 2** below.



Table 2: Non-statutory designated sites with 2km of the site.

Name	Designation	Description	Distance from Site
Broomhill Flash and Wombwell Ings.	Local Wildlife Site (LWS)	Nature reserve that is jointly managed by the RSPB and Barnsley Metropolitan Borough Council. There are bird hides on site, vegetation is semi-improved neutral grassland to attract Lapwing, Snipe and Red Shank. To the north is a network of ditches. There are areas of semi-neutral grassland, marshy grassland, mixed grassland with tall herbs along rivers and ditches. There are areas of swamp. The site is important for breeding passage and wintering birds including Schedule 1 birds. There are invasive plant species present on site.	2km South-west
Dearne Valley	Local Nature Reserve (LNR)	Dearne valley is an area of old moorland created into a nature reserve for pond dipping, wildlife watching with butterflies and wildflowers. In winter ducks, swans and geese gather here. The site has access for public walks. It has lowland wet grassland, reedbeds, meadows and fen. Bitterns, Lapwing, Cetti's Warblers and Bearded Tits can be observed here.	948m west

3.3 Site Assessment Results

3.3.1 The site was surveyed on 3rd September 2019 by Amanda Beck Cert/HE in Field Ecology, Diploma in Field and Conservation Ecology, CIEEM Member. Survey conditions are summarised in **Table 3**.

Table 3: Survey times and weather conditions.

Survey date	Lead surveyor	Temp	Humidity	Wind speed/Direction		Cloud Cover	Precipitation
3/9/2019	Amanda Beck	21.0°C	58%	13mph	SW	70%	None

3.3.2 The site comprises of dense bramble with a mix of tall ruderals in patches. There is a mature seven-foot hawthorn mixed species hedgerow with gaps to the east. Embankments are to the west and east of the site. To the south the land is a small strip between houses that has amenity grass with short sward length. The boundaries are a mixture of concrete walls and wooden fencing to the rear of back gardens of residential housing that back onto the site. To the north- east is a track that has a grassland strip in the middle of it and is an



access point to the sub station at the end of the track.

Habitats Present

1.5.5 The following habitat types are present at **Land off Lesmond Crescent, Little Houghton**: Amenity grassland, buildings, fence, and hard standing. Please see **Table 4** below for detailed descriptions of each habitat present on site and the species recorded during the time of the survey.

Table 4: Habitats present on site (classified in accordance with the JNCC guidelines)

Habitat Type/Feature	Species Present	Other Observations	Target Notes
Amenity Grassland	Perennial grass (<i>Lolium perenne</i>), Goat Willow (<i>Salix caprea</i>).	Lesmond crescent strip of land which is being continually maintained and has a short sward length.	None
Earth bank	Rosebay Willowherb (<i>Chamerion angustifolium</i>), Creeping Thistle (<i>Cirsium arvense</i>).	To the north and west covered in brambles and tall ruderals	None
Defunct hedgerow	Hedge Bindweed (<i>Calystegi sepium</i>), Hawthorn (<i>Crataegus monogyna</i>), Fallopia aubertii (<i>Fallopia aubertii</i> (L.Henry) Holub), Common Ivy (<i>Hendrea helix</i>), Rose Sp. (Roseace Sp.).	To the eastern boundary of the site. Hedgerow is mature 7ft tall with gaps in the hedgerow to its base and middle.	Target Note 2. Blackbird and Wren in hedge. Target Note 3. Comma, speckled Wood butterfly.
Dense Scrub	Bramble (<i>Rubus fruitcosus</i>). Comfrey (<i>Symphytum officinale</i>).	Very dense around the site about four-foot-high, covering the whole site.	Target Note 1. Tree Sparrows in dense bramble flying out. Target Note 4. Red Admiral, Small White, Painted Lady butterflies on vegetation. Target Note 5. Parasitic fly
Fencing	Hedge Bindweed (<i>Calystegi sepium</i>)	Wooden fencing to the back gardens of residential properties to the west and	



		south	
Intact hedgerow	Privet (<i>Ligustrum vulgare</i>)	Small section in back garden to the west forming part of the site's boundary. Tree Sparrows seen going in it.	Target Note 1. Tree Sparrow going from dense bramble to hedgerow.
Introduced Shrubs	<i>Fallopia aubertii</i> (<i>Fallopia aubertii</i> (L.Henry) Holub), <i>Field Horsetail</i> (<i>Equisetum arvense</i>), <i>Hydrangea</i> (<i>Hydrangea</i> Sp.), <i>Rhododendron</i> (<i>Rhododendron</i> Sp.).	To the east of the site plant climbing from residential fencing onto the site and growing in the hedgerow.	None
Other habitats	Common bent grass (<i>Agrostis capillaris</i>), Cow Parsley (<i>Anthriscus Sylvestris</i>), Fescue grass (<i>Fescue</i> Sp.), Cleavers (<i>Galium aparine</i>), Herb Robert (<i>Geranium robertianum</i>), White Dead nettle (<i>Lamium album</i>), Nipplewort (<i>Lapsana communis</i>), Pineapple weed (<i>Matricaria discoidea</i>), Black Medick (<i>Medicago lupulina</i>), Purple Moor Grass (<i>Molina caerulea</i>), Narrow Leaved Plantain (<i>Plantago major</i>), Broad Leaved Plantain (<i>Plantago major</i>), Sorrel (<i>Rumex acetosa</i>), Dandelion (<i>Taraxcum officinale</i>), White clover (<i>Trifolium repens</i>), Common Nettle (<i>Urtica dioica</i>).	Track to the east, it has a grass strip in the middle and mud either side of the grass where vehicle tyres run along it.	Target Note 6. Parasitic wasp.
Tall Ruderals	Rosebay Willowherb (<i>Chamerion angustifolium</i>), Creeping Thistle (<i>Cirsium arvense</i>), Teasel (<i>Dipsacus fullonum</i>), Common Hogweed (<i>Hereacleum sphondylium</i>), Broad Leaved Dock (<i>Rumex obtusifolius</i>), Sow Thistle (<i>Sonchus oleraceus</i>).	Mixed in dense bramble	None
Wall	N/A	At ground level concrete walls to the west and south of residential properties backing onto the site.	None

Fauna Species Encountered

3.3.3 The following species were either seen, heard or evidence of their presence

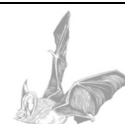


was found during the site investigation:

- Parasitic wasp (*Agriotypus armatus*).
- Crane fly Sp. (Diptera Sp.)
- Swallow (*Hirundo rustica*).
- Speckled Wood Butterfly (*Pararge aegria*).
- Tree Sparrow (*Passer montanus*).
- Small White Butterfly (*Pieris rapae*).
- Comma Butterfly (*Polygonia c-album*).
- Parasitic fly (*Tachinae fera*).
- Wren (*Troglodytes troglodytes*).
- Blackbird (*Turdus merula*).
- Red Admiral (*Vanessa atalanta*).
- Painted Lady Butterfly (*Vanessa cardui*).

Invasive Plant Species

3.3.4 Field Horsetail (*Equisetum arvense*) was found on the boundary of the hedgerow to the east of the site. Invasive plant species are those plants listed under Schedule 9, Part II of the Wildlife and Countryside Act 1981 (as amended) or described on the Non-Native Species Secretariat (NNSS) website. Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to plant or cause the spread of Invasive Plant Species in the wild and therefore it is a legal obligation to remove them.



4. Discussion and Interpretation of Results

4.1 Nature Conservation Designations

- 4.1.1 There are no designated nature conservation sites located within the boundary or within 2km of the site.
- 4.1.2 There are two non-statutorily designated sites within 2km of the site-: Broomhill Flash and Wombwell Ings 2km south-west a Local Wildlife Site (LWS) and Dearne Valley 948m west a Local Nature Reserve (LNR).
- 4.1.3 The proposed development will not have an effect on these sites due to the fragmentation of habitats. A and B roads break up the connectivity for wildlife to commute from the non-statutorily sites to the proposed development sites.

4.2 Priority and Protected Habitats

- 4.2.1 The site contains the following habitats of negligible to low ecological value: Amenity grassland, earth banks, fencing, introduced shrubs, tall ruderals and walls.
- 4.2.2 The site contains the following habitats of moderate ecological value: Defunct hedgerow, dense scrub, intact hedgerow, and other habitats
- 4.2.3 The site contains hedgerows which are a Barnsley LBAP habitat. The removal of this habitat will result in the loss of shelter and food for birds and insects.

4.3 Priority and Protected Species

- 4.3.1 Amphibians: There were nine records of amphibians within 2km of the site boundary of Common Toads (*Bufo bufo*), Common Frogs (*Rana temporaria*) and Smooth Newts (*Lissotriton vulgaris*). Common Frogs and Common Toads were recorded 360m away from the site boundary. The site does not contain the required aquatic habitats suitable for breeding amphibians such as toads, frogs or newts. The site does not contain any terrestrial habitats suitable for supporting over-wintering amphibians. However the site has a mature hedgerow but due to the dense vegetation at the bottom of the hedgerow there is no bare ground for amphibians to burrow into. The site is unlikely to support amphibians.
- 4.3.2 Badgers: There is one record of a Badger (*Meles meles*) over 1km away from the site. Due to the dense vegetation the site does not contain the required steep embankments or continual hedgerows to support sett creation. The site is connected to agricultural habitats and is bordered by residential properties. The site is likely to suffer high levels of human noise and light disturbance. It is unlikely badgers are present on the site, or rely on the site as a key foraging



habitat.

- 4.3.3 Barn Owls: Barn Owls (*Tyto alba*) require a mixed habitat including rough grassland, field margin strips, set aside and ditches/watercourses for hunting. Barn Owls require between 1 and 47 hectares of suitable roosting and hunting habitats, as stated by the Barn Owl Conservation Trust, barnowltrust.org.uk, accessed April 2018. The proposed development site does not contain the required open grassland habitats for foraging, or barn style buildings for roosting. The site is unlikely to support Barn Owls.
- 4.3.4 Bats: There are twenty-three bat records of five bat species within 2km of the site:- Common Pipistrelle (*Pipistrellus pipistrellus*), Unidentified Pipistrelle bat (*Pipistrellus Sp.*), Noctule (*Nyctalus noctula*), Daubenton's bat (*Myotis daubentonii*) and unidentified bats (*Chiroptera Sp.*). Sixteen of these records are historical with the rest being over 1km away. The proposed development site connects to surrounding agricultural land, with bats possibly roosting in residential dwellings to the west and south. There are gardens and a mature hedgerow with gaps in it to both side of the track creating ideal foraging and commuting corridors.
- 4.3.5 Dormice: The data search did not reveal any records of Hazel Dormice (*Muscardinus avellanarius*) within 2km of the site. Dormice are usually found in deciduous broadleaved woodland habitats, and are vulnerable to habitat fragmentation and disturbance. Dormice are found primarily in the south of England. Dormice populations have plummeted in recent years, with their range in the UK shrinking rapidly and population numbers continuing to decline. South Yorkshire is outside of their known habitat range, as stated in the *Dormouse Conservation Handbook, second edition, written by Paul Bright, Pat Morris and Tony Mitchell-Jones, 2006*. There are no known Dormouse reintroduction sites within 5km of the proposed development site. It is unlikely that the proposed development site supports Dormice as there is no hedgerow connectivity between the site and adjacent fields.
- 4.3.6 Invertebrates: There are five hundred and ninety-six records of invertebrates within 2km of two hundred and eighty-eight invertebrate species. Twelve of these species are within 500m of the site -: Brimstone (*Gonepteryx rhamni*), Comma (*Polygonia c-album*), Large White (*Pieris brassicae*), Orange Tip (*Anthocharis cardamines*), Red Admiral (*Vanessa atalanta*), Ringlet (*Aphantopus hyperantus*), Small Tortoiseshell (*Aglais urticae*), Small White (*Pieris rapae*), and Speckled Wood (*Parage aegeria*) Butterflies. Cinnabar moth (*Tyria jacobaea*), Banded Demoiselle (*Calopteryx splendens*), and an Alder leaf beetle (*Agelastica alni*). During the survey several invertebrate species were observed using the site. The site is likely to support butterflies, moths, wasps and flies. It is highly likely that invertebrate's species are using the site to feed, live and breed.



- 4.3.7 Nesting Birds: Records revealed one thousand and ninety-eight records of one hundred and nineteen bird species within 2km. Within 500m there are twenty-two bird species. There are seven schedule 1 bird species recorded within 2km and none recorded within 500m. There were twenty-three bird species that were red listed and forty bird species that are amber listed as Birds of Conservation Concern BoCC. Records of were birds feeding, flying, mating, building nests. Birds were heard singing and observed in the vegetation and flying over the site. The vegetation and hedgerow have moderate ecological value for birds and offer nesting and feeding opportunities. It highly likely that site will support nesting birds.
- 4.3.8 Otters: The data search revealed eight records of Otters (*Lutra lutra*) within 1km of the site boundary. Otters have been recorded as exploiting virtually all types of water and waterway in the UK. Although populations in England and Wales are confined mainly to fresh water, they readily exploit suitable coastal habitats in Scotland as well as elsewhere. Otters require vegetation along bank sides, and prefer tree lined/wooded bank areas (*Ecology of the European Otter, Conserving Natura 2000 Rivers 2010*). The site does not contain the water bodies and riparian habitats required to support breeding or hunting Otters. It is unlikely Otters are using the site.
- 4.3.9 Plants: There are four thousand and eleven plant species within 2km. Six of these plant species are Invasive plant species -: Himalayan Balsam (*Impatiens glandulifera*), Japanese Knotweed (*Fallopia japonica*), New Zealand Pigmyweed (*Crassula helmsii*), Candian Waterweed (*Elodea canadensis*), Giant Hogweed (*Heracleum mantegazzianum*) and Cotoneaster (*Cotoneaster*). None of these invasive plant species were observed on site during the survey. It is unlikely that species will translocate to the site on their own accord. However, Field Horsetail (*Equisetum arvense*) was observed at the bottom of the hedgerow boundary to the east of the site. No rare plants were found on site during the survey.
- 4.3.10 Reptiles: The data search found six records of reptiles within 2km of Grass snakes (*Natrix natrix*) and Adders (*Vipera berus*). All records were over 1km away from site. Reptiles rely on conditions that allow them to maintain their body temperature. They need to be able to bask and also to be able to avoid extremes of temperature. Reptiles require a mosaic of habitat, including grassland, bare ground and refugia piles/areas, preferring habitats where Bracken is sparse and tree numbers are low (*Habitat Management for Reptiles, Amphibian and Reptile Trust ARC, accessed 2018*). The site does not contain the range of habitats and interconnectivity required to support reptiles. It is unlikely reptiles are present on site.
- 4.3.11 Water Voles: There are seventeen records of Water Voles (*Arvicola amphibious*) within 1km of the site. Water voles generally prefer channels with



slow flowing water and steep sided banks, ideally around 45-60 degrees, to enable them to burrow successfully into them. They burrow up to two meters into the banks, and usually have more than one entrance. One entrance is often at the water level to give access to the burrow quickly for refuge, with a second often located higher up to allow access should the water level increase. Water voles are very sensitive to changes in water levels and the need to escape when they rise. Water voles generally prefer watercourses with swards of dense vegetation along the banks and within the channel, to provide both refuge and food. Although they are omnivorous, the diet of water voles is almost completely vegetarian, and comprises a wide range of grasses, reeds, tall ruderal, marginal and emergent vegetation (*Water Vole Conservation and Management, 2016*). The site does not contain the required aquatic habitats and riparian corridors of vegetation to support Water Vole. It is unlikely that Water Vole are present on site.

4.3.12 West European Hedgehog: The data search revealed eight records of hedgehogs (*Erinaceus europaeus*) within 2km of the site boundary with two of these records being 500m away from the site. The site is likely to support nesting and breeding hedgehogs due to the dense bramble, scrub and mature hedgerow. The habitats on site and adjacent to the site offer foraging opportunities for hedgehogs. The development is likely to impact on the available foraging habitat for hedgehogs and restrict movement of hedgehogs locally and with the removal of vegetation will limit the foraging opportunities for Hedgehogs.

4.3.13 White Clawed Crayfish: The data search did not reveal any records of White Clawed Crayfish (*Austropotamobius pallipes*) within 2km of the site boundary. White Clawed Crayfish require slow flowing waterbodies, high quality water of pH 6.8-8.6, rocks, debris, rubble or submerged vegetation for breeding purposes. White Clawed Crayfish are limited in their range as they are unable to travel significant distances over terrestrial habitats as stated in Guidance on Habitat for White-clawed Crayfish and its Restoration by Stephanie Peay, July 2002. The site does not contain the required waterbody to support White Clawed Crayfish; therefore, it is unlikely the site supports this species.

*The absence of any signs of or features considered valuable for supporting protected species, **cannot** be considered evidence that these species are absent from a site, or that these species will not occupy the site in the future. It must therefore always be recommended that work be conducted with care and vigilance. Should any protected species be encountered during work (please see **Appendix 6**), work should stop immediately and JCA or Natural England contacted.*

4.4 Impacts of Proposed Development

4.4.1 **Table 5** below summarizes the likely impacts the proposed development will



have on protected species present/likely present on site:

Table 5: The indicative potential impacts of the proposed development on protected species likely and/or found to be present on site.

Species	Negative Impact (includes scale and nature of impact)
Amphibians	None perceived
Barn Owls	None perceived
Bats	The vegetation and mature hedgerow on site may support foraging and commuting bats. Further assessment will be required, including the provision of mitigation (if required) and enhancement such as integral boxes, incorporated into the proposed development plans.
Badgers	None perceived
Dormice	None perceived
Invertebrates	The loss of vegetation will have a significant loss of habitats for feeding and breeding insects, which are food for birds and bats. It is important that the proposed development plans incorporate flora which are high in pollen and nectar and will attract insects to feed on, along with grasses for insects to breed. To mitigate for this loss insect boxes for insects must be installed on site.
Nesting Birds	Scrub that is to be removed will have a negative impact if removed during the breeding bird season. If vegetation removal takes place between April to September, then a nesting bird survey will be required to ensure there is no loss of nesting opportunities. Bird boxes are recommended to ensure there is no long detrimental impacts on nesting birds.
Otter	None perceived
Plants	None perceived
Reptiles	None perceived
Water Vole	None perceived
White-clawed Crayfish	None perceived
Other Species	Hedgehogs are likely to be negatively impacted by the development. Hedgehog holes and corridors are to be incorporated into the development plans to limit the impact of the development on hedgehog movements. Vegetation must be searched to ensure no hedgehogs are nesting within the dense vegetation.

*NB: The overall impact of the proposed development is based upon plans provided by Michael Denton Associates, see drawing: 18:04:7071:01 as included in **Appendix 2**. This report has been compiled and produced by JCA Ltd, and accounts for and assesses the likely impacts on local wildlife populations and biodiversity that is to occur as a result of the development given in **Appendix 2**. Should these plans change then this report will need revising and the potential impacts re-evaluating.*



5. Conclusions

- 5.1 JCA Ltd were commissioned to carry out a Preliminary Ecological Appraisal Survey and related report by Michael Denton Associates in order to determine the potential impacts of the proposed development on on-site habitats, species and local priority habitats at **Land off Lesmond Crescent, Little Houghton**.
- 5.2 The site was surveyed on the 3rd September 2019 by Amanda Beck Cert/HE in Field Ecology, Diploma in Field and Conservation Ecology, CIEEM Member.
- 5.3 After conducting a thorough site investigation and a detailed Desktop Study, we consider **Land off Lesmond Crescent, Little Houghton** to contain habitats of moderate ecological value (please see **Section 3.5**).
- 5.4 The site is not situated within influencing distance of any nature conservation sites of either statutory or non-statutory designation.
- 5.5 The site contains the following habitats of negligible to low ecological value: Amenity grassland, earth banks, fencing, introduced shrubs, tall ruderals and walls.
- 5.6 The site contains the following habitats of moderate ecological value: Defunct hedgerow, dense scrub, intact hedgerow, and other habitats
- 5.7 One non-native invasive species was found on the site boundary: Field Horse tails (*Equisetum arvense*) were found in the hedgerow to the east.

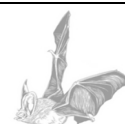
Summary:

The site has moderate potential for invertebrates, hedgehogs commuting and foraging bats and nesting and feeding birds.

To enhance the proposed development faunal boxes for bats, birds and insects must be incorporated into the development plans along with hedgehog holes put into any fencing proposed on site. Lighting must be in line with the Institute of Lighting Professionals (ILP 2018) for wildlife.

Additional survey work will be required for bats. Bat transect surveys are required to determine the presence/absence of foraging and commuting bats in the onsite.

If vegetation is to be removed during the bird breeding period, then a Nesting Bird Survey will be required.



6. Recommendations

5.8 Based on the findings outlined in this report the following recommendations are made:

Bats: As the site has been considered to have a moderate potential of supporting foraging and commuting bats, we recommend that transect surveys should be carried out to establish the species assemblage, abundance and distribution of bats on Land off Lesmond Crescent. Please refer to **Appendix 7** for bat survey calendar.

Transect surveys are used to assess the level of bat activity at a site. This can be done either by using equipment such as an AnaBat device and manually walking around the site with frequency division bat detectors documenting the number of passes and interceptions, other bat equipment may be used if required-: night binoculars and echo touch meters to enable better identification of bat species using the site. If it is confirmed that the site is important for foraging bats a mitigation plan needs to be devised so the development causes as little impact on local bat populations as possible. It is recommended at **The Land off Lesmond Crescent** that **3** surveys are required as the site is difficult to walk through. Please refer to **Appendix 7** for bat survey calendar.

As the site has been considered to have a moderate potential of supporting foraging and commuting bats, **3** transect surveys between April to August will be required, with **4** surveyors.

- **Birds:** Vegetation around the site has the potential to support nesting birds; any vegetation clearance must be conducted outside the bird breeding season if possible, September to February. The breeding bird season runs approximately from March to August. If work is to be conducted during this period, then a nesting bird survey will be required prior to the removal of vegetation. This survey must be carried out by a qualified ecologist.
- **Hedgehogs:** The vegetation on the site provides ideal nesting habitat for hedgehogs, which are legally protected during hibernation and while raising their young. If this vegetation is to be removed it should be hand searched immediately prior to removal to ensure no hedgehogs are currently nesting in the vegetation. Hedgehog holes must be incorporated into any new fencing being erected to allow for the movement of hedgehogs on site.
- **Invertebrates:** Due to the removal of vegetation on site a range of invertebrate insect boxes and high nectar and pollenating plants must be incorporated into the proposed development to ensure habitat and food is available for breeding insects.



- **Lighting Design:** Inappropriate lighting in the vicinity of bat roosts can cause disturbance to bat populations and individuals and could be constituted as an offence under the Wildlife and Countryside Act 1981. As such, we have prepared guidance in line with the information provided by the Institute of Lighting Professionals (ILP, 2018) to aid in planning lighting schemes with the aim of limiting the impact that lighting may have on local bat populations.

It is important to avoid:

- Uniform levels of luminance across the site.
- Metal halide and florescent lighting.
- Upward tilting lighting that increases skyline luminance.

Instead the following should be installed:

- Dark buffer zones.
- Screening in the form of vegetation, fences and structures.
- Appropriately designated darkened areas.
- Luminaries absent of UV elements
- LED luminaries with a sharp cut-off, low intensity and good rendition.
- Peak luminaire wavelength at a minimum of 550nm.
- Downward directional luminaires with upward light ratios of 0%
- Lower light columns to limit light spill.
- Recessed internal light fixtures.
- Window glazing treatments or automated blind systems.
- **A Biodiversity Enhancement Plan** should be designed pre-construction to be implemented post construction during the landscaping phase of the development. This plan will aim to ensure there is no net loss of habitats on site and to increase biodiversity and opportunities for wildlife on site, due to the result of the proposed development. The biodiversity enhancement plan will aim to provide opportunities for local wildlife to ensure the development does not have a significant detrimental impact on local or national wildlife populations. The Biodiversity Enhancement Plan should include:



- Quantities and locations of faunal boxes for bats, birds, hedgehogs and insects.
- Native shrub/tree/grass/hedgerow planting.
- Gaps in fencing to allow movement for hedgehogs and other small mammals
- Low level 'wildlife friendly' lighting options and lighting buffer zones
- Management scheme on vegetation clearance.
- See **Appendix 7** for a calendar showing the survey season for these additional surveys.



5. References

Guidelines for surveys and report writing:

British Standards Institute (BSI), (2013) *BS 42020:2013, Biodiversity - Code of practice for planning and development*. London.

Chartered Institute of Ecology and Environmental Management (CIEEM), (2015) *Guidelines for Ecological Report Writing*. Winchester.

Joint Nature Conservation Committee (JNCC), (2010) *Handbook for Phase 1 habitat survey: A technique for environmental audit*.

Websites:

Advice on protected species is consolidated at:

Environmental management: Wildlife and habitat conservation - GOV.UK (2016) Gov.uk. Available at: <https://www.gov.uk/topic/environmental-management/wildlife-habitat-conservation> (Accessed: 21 September 2016).

Magic Map Application (2016) *Magic.defra.gov.uk*. Available at: <http://magic.defra.gov.uk/MagicMap.aspx> (Accessed: 21 September 2016).

The RSPB (2016). Available at: <http://www.rspb.org.uk/> (Accessed: 21 September 2016).

Surveys and mitigation plans: protected species - Detailed guidance (2015) Gov.uk. Available at: <https://www.gov.uk/guidance/surveys-and-mitigation-plans-protected-species> (Accessed: 21 September 2016).

Within this detailed guidance on surveys and mitigation information is available on the following protected species:

- Bats
- Natterjack toads
- Otters
- Reptiles
- Water voles
- White-clawed crayfish
- Wild birds
- Hazel dormice
- Great crested newts
- Badgers

Wildlife licences: when you need to apply - Detailed guidance (2014) Gov.uk. Available at: <https://www.gov.uk/guidance/wildlife-licences> (Accessed: 21 September 2016).

Within this detailed guidance on licensing information is available on licences for the following protected species:

- Bats
- Natterjack toads
- Otters
- Reptiles
- Water voles
- White-clawed crayfish
- Wild birds
- Hazel dormice
- Great crested newts
- Badgers

As well as:

- Non-native Bumblebee species
- Deer
- Freshwater fish
- Invertebrates
- Mink, coypu, muskrat and grey squirrel
- Plants



Species Specific Information:

Badgers:

Natural England, (2007) *Badgers and Development: A Guide to Best Practice and Licensing*.

Competencies for Species Survey: Badger, Chartered Institute of Ecology and Environmental Management CIEEM, 2013. Accessed 2018-06-21

Bats:

Bat Conservation Trust, (2007) *Bats, Development & Planning in England*. London.

Mitchell-Jones, A. and McLeish, A. (ed.). (2004) *Bat Workers' Manual*. 3rd ed. JNCC.

The Bat Worker's Manual, Anthony J. Mitchell-Jones, 2015

Bats: surveys and mitigation for development projects, <https://www.gov.uk/guidance/bats-surveys-and-mitigation-for-development-projects> Accessed 2018-06-21

Guidance note 8: bats and artificial lighting in the UK, bats and the built environment series, Bat Conservation Trust and ILP, produced 2018, accessed November 2018. <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>

Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition, Bat Conservation Trust, written 2016

Dormice:

Bright, P., Morris, P. and Mitchell-Jones, A. (1996) *The dormouse conservation handbook*. Peterborough: English Nature.

Great Crested Newts:

Langton, T., Beckett, C. and Foster, J. (2001) *Great Crested Newt Conservation Handbook*. Halesworth: Froglife. pdf

Advice note 4 (revised) - *Amphibian Disease Precautions, A Guide for UK Fieldworkers*, Amphibian and Reptile Conservation trust, 2017. Accessed 2018-06-21

Otters: Natural England, (2007) *Species Information Note SIN006, Otter: European protected species*.

Reptiles and Amphibians:

Baker, J., Beebee, T., Buckley, J., Gent, T. and Orchard, D. (2011) *Amphibian Habitat Management Handbook*. 1st ed. Bournemouth: Amphibian and Reptile Conservation.

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Water Vole Conservation and Management: Lessons From Four Case Studies, Jemma Louise Gaskin, 2016

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Strachan R, (1998), *Water Vole Conservation Handbook*, Wildlife Conservation Research Unit, University of Oxford, Oxford. Strachan R, and Moorhouse, T. (2006),

Water Vole Conservation Handbook, 2nd Edn. Wildlife Conservation Research Unit, University of Oxford, Oxford.

Strachan, R. (2009), *Populations and Persistence – Developing a Strategy for Conserving Water Voles in the UK*, Presentation to Warwickshire Wildlife Trust, 2nd April 2009, Environment Agency, Wales

Strachan, R. and Holmes-Ling, P (2003), *Restoring water voles and other biodiversity to the wider countryside*. Wildlife Conservation Research Unit, Oxford.

Strachan, R., Moorhouse, T. and Gelling, M. (2011), *Water Vole Conservation Handbook*, 3rd Edn, WILDCRU

White-clawed Crayfish:

Peay, S. (2002) *Guidance on Habitat for White-clawed Crayfish and its Restoration*. Kendal: English Nature



Relevant Legislation:

Wildlife and Countryside Act 1981, (c. 69) (as amended). Available at:

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Countryside and Rights of Way Act 2000 (c.37). Available at:

<http://www.legislation.gov.uk/ukpga/2000/37/contents>

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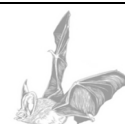
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The Hedgerow Regulations 1997 (No. 1160). Available at:

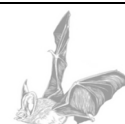
<http://www.legislation.gov.uk/uksi/1997/1160/contents/made>

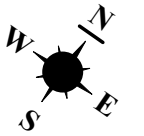
(Accessed: 21 September 2016)



Appendices

Appendix 1: Phase 1 Habitat Map





**Appendix 1:
Phase 1 Habitat Map**

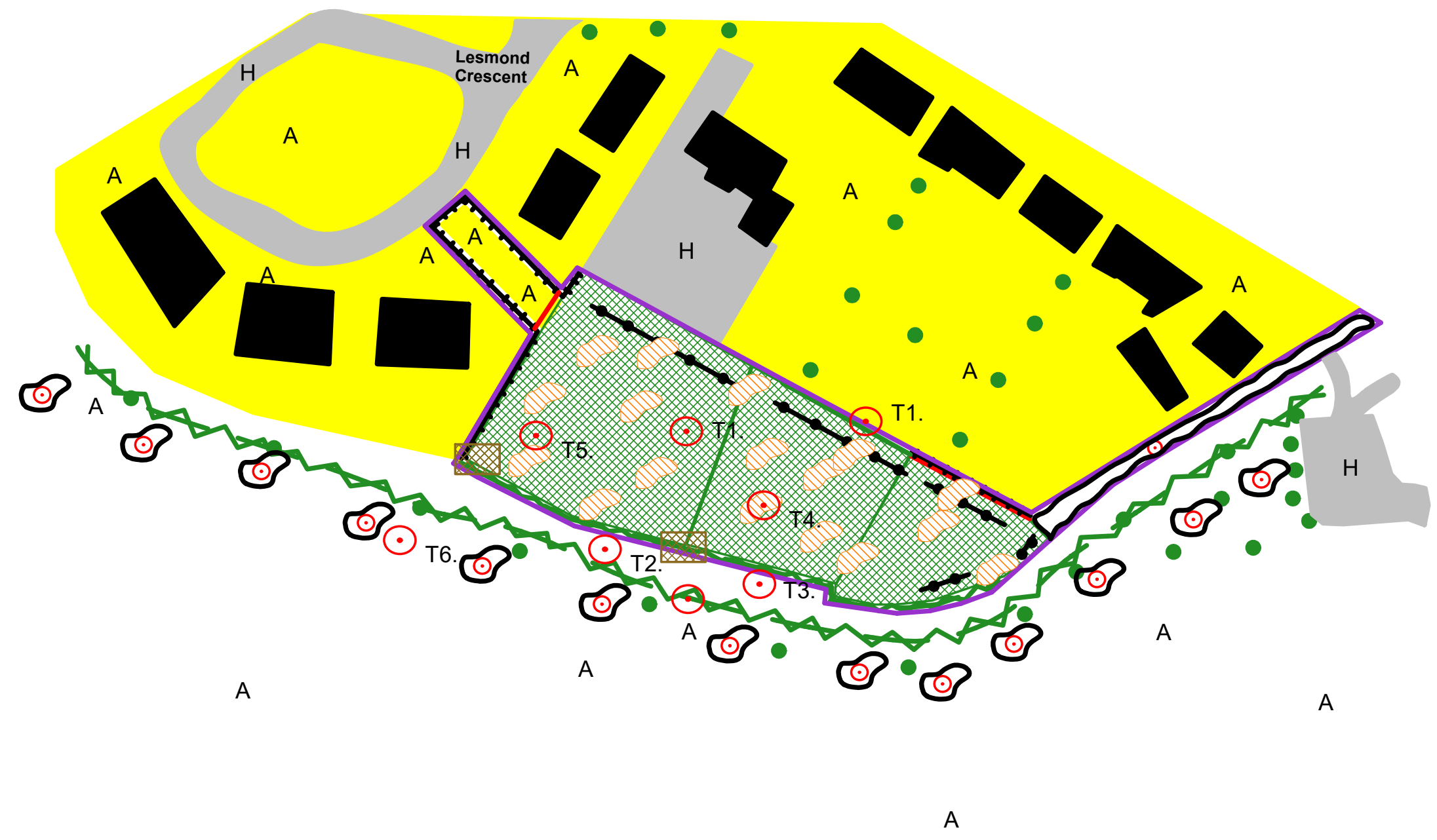
Address: Land off Lesmond Crescent,
Little Houghton, Barnsley, South
Yorkshire, S72 0EZ
JCA Ref: 15288a/AmB

NOT TO SCALE

KEY	
	Amenity grassland
	Hard standing
	Tall Ruderal
	Introduced shrubs
	Buildings
	Scattered broad-leaved trees
	Dense scrub
	Intact hedge (Species-poor)
	Defunct hedge (native species-rich)
	Gravel/grass track
	Fence
	Earth bank
	Arable
	Wall
	Proposed Development Area
	Target note



Arboricultural & Ecological Consultants



Appendix 2: Proposed Development Plan



Appendix 3: Photographic Evidence



Photo 1: View of strip of land to Lesmond Crescent.



Photo 2: View of site from Lesmond Crescent in the south looking north.

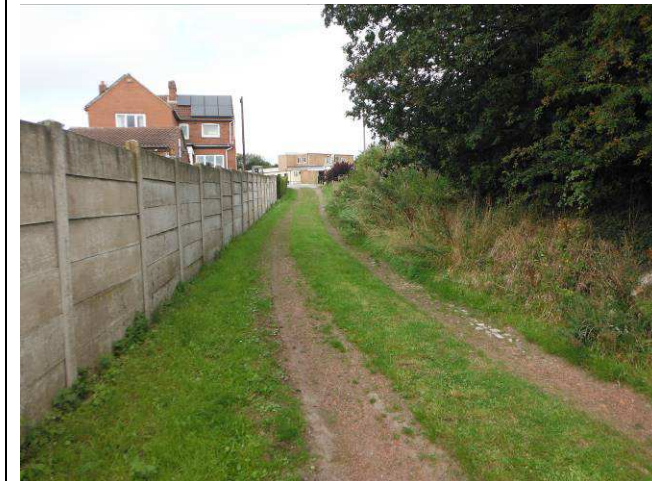


Photo 3: View towards top of road in the north.



Photo 4: Entrance onto site in the east.



Photo 5: Track leading north from the site.



Photo 6: Dense vegetation across the site.





Photo 7: Site boundary to the west (right) leading down the track to sub-station.



Photo 8: View to northwest.



Photo 9: View from north looking towards eastern boundary line.



Photo 10: View from east looking west to back gardens.



Photo 11: View from the north-west boundary onto site.



Photo 12: Eastern view further up track of farmland adjacent to site.

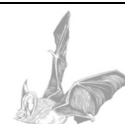




Photo 13: Gap in hedgerow on the boundary line to the east.



Photo 14: Open farmland to the east opposite the site.



Appendix 4: Species List

To be submitted to the appropriate Local Records Centre

Site Name: Land off Lesmond Crescent, Little Houghton

Provided by: JCA Ltd

Grid Ref: SE4322505018

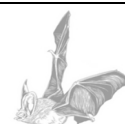
Verified by: Amanda Beck

Table 6: Complete list of species encountered during survey.

Common Name	Scientific Name	Number	Comment
Parasitic wasp	<i>Agriotypus armatus</i>	1	In grassland on track to sub-station.
Common bent grass	<i>Agrostis capillaris</i>	N/A	None
Cow Parsley	<i>Anthriscus sylvestris</i>	N/A	None
Hedge Bindweed	<i>Calystegi sepium</i>	N/A	None
Rosebay Willowherb	<i>Chamerion angustifolium</i>	N/A	None
Creeping Thistle	<i>Cirsium arvense</i>	N/A	None
Hawthorn	<i>Crataegus monogyna</i>	N/A	None
Teasel	<i>Dipsacus fullonum</i>	N/A	None
Crane fly Sp.	<i>Diptera Sp.</i>	1	On vegetation.
Field Horsetail	<i>Equisetum arvense</i>	N/A	None
Fallopia aubertii	<i>Fallopia aubertii</i> (L. Henry) <i>Holub</i>	N/A	None
Fescue grass	<i>Festuca Sp.</i>	N/A	None
Cleavers	<i>Galium aparine</i>	N/A	None
Herb Robert	<i>Geranium robertianum</i>	N/A	None
Common Ivy	<i>Hedera helix</i>	N/A	None
Common Hogweed	<i>Heracleum sphondylium</i>	N/A	None
Swallow	<i>Hirundo rustica</i>	3	Gleaming insects on the wing over the site and across the fields opposite the site.



Hydrangea	<i>Hydrangea Sp.</i>	N/A	None
White Nettle	<i>Lamium album</i>	N/A	None
Nipplewort	<i>Lapsana communis</i>	N/A	None
Privet	<i>Ligustrum vulgare</i>	N/A	None
Perennial grass	<i>Lolium perenne</i>	N/A	None
Pineapple Weed	<i>Matricaria discoidea</i>	N/A	None
Black Medick	<i>Medicago lupulina</i>	N/A	None
Purple Moor Grass	<i>Molinia caerulea</i>	N/A	None
Speckled wood Butterfly	<i>Pararge aegeria</i>	1	Flying around Hawthorn hedgerow on boundary of site.
Tree Sparrow	<i>Passer montanus</i>	3	In Bramble on site and flying in Privet hedgerow of back garden.
Small White Butterfly	<i>Pieris rapae</i>	4	Flying across the site, settling on vegetation then moving off.
Narrow Leaved Plantain	<i>Plantago lanceolata</i>	N/A	None
Broad Leaved Plantain	<i>Plantago major</i>	N/A	None
Comma Butterfly	<i>Polygonia c-album</i>	1	Flying around nettles on site.
Rhododendron Sp.	<i>Rhododendron Sp.</i>	N/A	None
Rose Sp.	<i>Rosacea Sp.</i>	N/A	None
Bramble	<i>Rubus fruticosus</i>	N/A	None
Sorrel	<i>Rumex acetosa</i>	N/A	None
Broad-Leaved Dock	<i>Rumex obtusifolius</i>	N/A	None
Goat Willow	<i>Salix caprea</i>	N/A	None
Sow thistle	<i>Sonchus oleraceus</i>	N/A	None
Comfrey	<i>Symphytum officinale</i>	N/A	None
Parasitic fly	<i>Tachinae fera</i>	1	Sitting on Comfrey leaf.



Dandelion	<i>Taraxacum officinale</i>	N/A	None
White Clover	<i>Trifolium repens</i>	N/A	None
Wren	<i>Troglodytes troglodytes</i>	1	Flew from hedgerow across site.
Blackbird	<i>Turdus merula</i>	1	Flew from hedgerow across site to back gardens.
Common Nettle	<i>Urtica dioica</i>	N/A	None
Red Admiral Butterfly	<i>Vanessa atalanta</i>	1	Flying across the site landing on vegetation then moving off.
Painted Lady Butterfly	<i>Vanessa cardui</i>	1	On vegetation.



Appendix 5: Glossary

Activity surveys - are used to assess the level of bat activity at a site. This can be done either by using equipment such as an AnaBat device, or manually walking around a site with a heterodyne detector, documenting the number of bat passes and interceptions.

Dawn surveys - begin around 2 hours before and up to sunrise when bats are returning to their roosts from foraging, and swarming behaviour can be seen close to roost entrances.

Dusk surveys - begin around 30 minutes before sunset and up to 2 hours afterwards. These are done in order to see bats emerging from their roost sites at night.

Echolocation – is a system similar to sonar that allows bats to travel and forage even in total darkness. Bats make a call and then listen to the returning echoes in order to build up a map of their surrounding area. This allows bats to gauge the identity and distance of an object by how long the echo takes to return to them.

Habitat - the ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism.

Hibernation - is a state of inactivity and metabolic depression characterized by lower body temperature, slower breathing, and lower metabolic rate. Hibernating animals conserve energy, especially during winter when food is short, tapping energy reserves, i.e. body fat, at a slow rate.

Hibernacula - typically consist of underground sites, such as caves and cellars, which remain relatively cold and humid. Bats will hibernate to conserve energy over the winter months when falling temperatures cause a drop in the abundance of insects. These will typically be colonised around November to around March.

Insectivorous – is when an organism feeds exclusively on insects.

Nocturnal - a behaviour characterized by being active during the night and sleeping during the day.

Maternity roosts – colonised around late May early June and consist of mature females and their young. These roosts need to be warm and quiet, and are used up until around August, with females typically leaving first and then the young.

Mating roosts – mating begins around late October to November. Males of most species use special mating calls to attract females. These can include purrs, clicks and buzzing.

Roost – a site where bats live during the day, rear young and hibernate. These can be in manmade structures, such as buildings, bridges, tunnels, cellars and mines, or natural features such as mature trees and caves.

Roosts in buildings – many types of buildings will be used by bats. The most likely sites are agricultural buildings (e.g. farmhouses and barns), buildings with exposed wooden beams (greater than 20cm thick), buildings with weather boarding and/or hanging tiles, and buildings close to woodland and/or water.

Roosts in trees – these are typically in mature trees with deep sheltered cracks, under loose sections of bark, or in woodpecker holes.

Species – a group of organisms in which all members can interbreed and produce viable offspring.

Summer roosts (non-breeding) - these are generally occupied by groups of males and immature females during the summer, and are usually only occupied for a short period before the group moves to another location.

Swarming – a behaviour exhibited by bats returning to their roost sites at dawn. Bats can be seen repeatedly flying to and from the roost entrance, making it much easier for consultants to identify where roosts are on a building or structure.

Temporary/Transitory roosts – These are used after hibernation (March – April) before mature females disperse to maternity roosts and male/immature females colonise summer (non-breeding) roosts. Similarly, temporary roosts form before hibernation (August -October).

Underground Roosts – these are typically used during the winter and can be mines, caves, tunnels or cellars.



Appendix 6: Protected Species Information

The following species are protected under EU law, such as the Conservation (Natural Habitats, &c.) Regulations (2017):

- All UK bat species
- Dormouse
- Great Crested Newt and Natterjack Toad
- Large Blue Butterfly
- Otter
- Pine Marten
- Polecat
- Scottish Wild Cat
- Smooth Snake and Sand Lizard
- Various aquatic and plant species

These species are afforded the highest protection in the UK. Under this protection it is an offence to; deliberately capture, injure or kill any wild animal of a European protected species; deliberately disturb wild animal of any such species; deliberately take or destroy the eggs of such an animal, or damage or destroy a breeding site or resting place of such an animal.

In addition to this it is an offence to be in possession of, or to control, transport, sell or exchange, or to offer for sale or exchange, a European Protected species.

The following species are protected under UK law, such as the Wildlife and Countryside Act 1981:

- Badger
- Nesting birds
- Red Squirrel
- Reptiles (Adder, Common lizard, Grass snake, Slow worm)
- Water Vole
- White Clawed Crayfish
- Various bird species i.e. Barn Owl
- Various plant species

Therefore under this protection it is an offence to; kill, injure or take any of the above species.

Nesting birds are only protected during the breeding season whilst on their nest. In addition to the adults being protected, the eggs, young and nest itself whilst in use are protected.

The Wildlife and Countryside Act 1981 also contains measures to prevent the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales (e.g. Japanese Knotweed and Himalayan Balsam).

Badgers are protected under The Protection of Badgers Act 1992. Under this legislation it is an offence to; take, injure, kill, or cruelly ill-treat a badger; interfere with a badger sett; sell or possess a live badger; or mark or ring a badger.

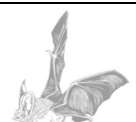
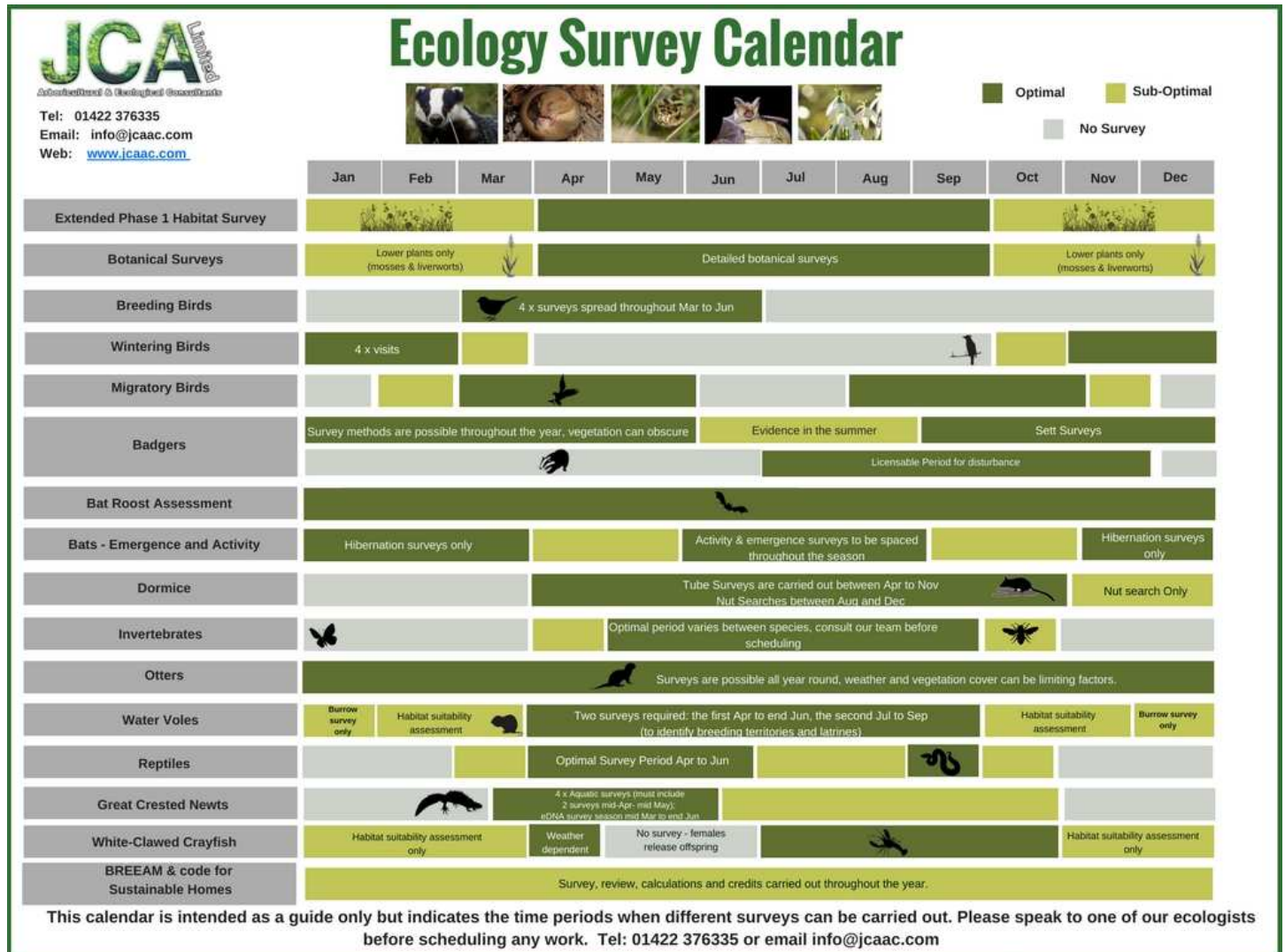
The following habitat types are protected under UK Law:

- Habitats that are used by protected species
- Habitats that fall within designated sites
- Hedgerows
- Individual trees/woods can be protected under Tree Preservation Orders



Appendix 7: Survey Calendar

Figure 2: Survey calendar for protected species and habitat surveys.



Appendix 8: Author Qualifications

Principal Consultant and Managing Director

Jonathan Cocking

F.R.E.S., Tech. Cert. (Arbor.A), PDipArb (RFS) FArborA CBiol MSB. MICFor.

Jonathan is a Registered Consultant and Fellow of the Arboricultural Association and sits on its Professional Committee. He has 31 years' experience in the Arboricultural profession and served for eight years as Senior Arboriculturist with a large local authority before establishing JCA in 1997. Jonathan has since developed JCA's portfolio of services and its extensive client base. He is a Chartered Biologist, a Chartered Arboriculturalist and an Expert Witness with much experience of litigation work.

Technical Director

Toby Thwaites

BSc (Hons), HND (Arboriculture).

Toby joined JCA in 1998 after graduating in Ecology at the University of Huddersfield and has since graduated in Arboriculture at the University of Central Lancashire. A former JCA team leader and Consulting Arboriculturist, Toby is now Technical Director and oversees all office and on-site activities at JCA and is on hand to offer technical support and advice.

Consulting Staff: Ecology

David Bodenham, Consultant Ecologist

BSc Ind (Hons) Zoology, MSc Biodiversity and Conservation.

An advocate of evidence-based conservation David's long-standing interest in the natural world and the conservation of our planet's biodiversity, led him to a career in conservation biology and ecology. He has worked for such institutions as the University of Leeds and the Discovery Channel and his work ranges from conservation research, to science education and film-making. After studying a BSc in Zoology (Ind) and an MSc in Biodiversity and Conservation, David gained the myriad of skills needed as a conservation biologist and ecologist. David has now worked as a consultant within the ecological industry for over 9 years with companies across the UK. David specialises in European Protected Species Licencing and Biodiversity Action Plans.

Licencing and accreditations:

Natural England Bat Survey Level 2 - Class Licence CL18, Natural England Great Crested Newt Survey Level 2 - Class Licence CL09, CITB - Health, Safety and Environment CSCS, Memberships: British Ecological Society, British Arachnological Society, Bat Conservation Trust

Jenny Butler, Consultant Ecologist

AMEnvSc, BSc (Hons) Environmental Science.

Jenny joined JCA's ecology department in 2017, bringing with her a bachelor degree in Environmental Science from Bangor University. Jenny has previously worked as an Environmental Consultant for an Agri-Environment company and as a freelance ecological consultant. She holds a Level 2 Natural England, Welsh and Scottish bat licences, level 2 Natural England, Welsh and Scottish Great Crested Newt licences and is currently working towards her Hazel Dormouse and Natterjack Toad licences. Jenny is a member of the Bat Conservation Trust, Botanical Society for Britain and Ireland (BSBI) and the Arboricultural Association. Jenny is an active volunteer for the West Yorkshire, South Lancashire and Clwyd bat groups, as well as a volunteer for the Shropshire Dormouse Monitors. Jenny holds a CSCS Card and is DBS checked.

Amanda Beck, Ecological Officer

Cert/He in Field Ecology, Diploma Field and Conservation Ecology, CIEEM member.

Amanda joined JCA's ecology department in 2018, previously working as a freelance Ecological Consultant in North Wales and as a trainee Ecologist in South Wales. She has a background surveying for botanical, amphibians, birds, terrestrial and marine mammals along with small mammal trapping and invertebrate research work on SSSI sites. She has practical experience in habitat management and creation while working as a volunteer for North Wales Wildlife Trust. Amanda is currently studying for a MSc in Biological Recording and Ecological Monitoring with Manchester Metropolitan University. She is a member of the Butterfly Conservation Trust, Bat Conservation Trust, Clwyd Bat Group and the British Hedgehog Preservation Society. Amanda is DBS checked and holds a Natural England level 1 bat licence and Natural England Level 2 Great Crested Newt licence.

Joe Earnshaw, Trainee Ecologist

BSc (Hons), MSc Biodiversity and Conservation.

Joe joined the ecology department of JCA in 2018 after taking part in JCA's student training programme. He initially obtained a bachelor degree in Animal Management from Askham Bryan College, York. He has since furthered his education and brings to the company an MSc in Biodiversity and Conservation from the University of Leeds. Joe has expertise in aquatic invasive species identification and control.



The information which we have prepared and provided is true and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct. We confirm that the opinions expressed are our true and bona fide opinions.

Signed



.....

Amanda Beck *Cert/He in Field Ecology, Diploma Field and Conservation Ecology,*
CIEEM member

11th September 2019

Proofread by



.....

Jenny Butler *AMIEEnvSc, BSc (Hons) Environmental Science*

11th September 2019

For and on behalf of **JCA Ltd**

Registered Office:

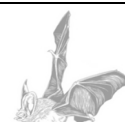
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ECOLOGICAL SERVICES

Ecological Pre-Planning Services

- Phase 1 Habitat Surveys
- Great Crested Newt eDNA Sampling
- Protected species: Bat, Wintering and Nesting Bird, Badger, Amphibian, Otter, Water Vole, White-Clawed Crayfish, Dormice and Reptile Surveys.
- Preparation for Environmental Impact Assessment (EIA)
- Invasive Species Surveys
- Code for Sustainable Homes
- Butterfly & Insect Surveys

Ecological Post-Planning Services

- Biodiversity Enhancement Plans
- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)
- Planting Schemes
- Monitoring of bird or bat boxes.

ARBORICULTURAL SERVICES

Guidance for Architects & Developers

- British Standard 5837 Surveys
- Arboricultural Implications Assessments (AIA)
- Arboricultural Method Statements (AMS)

Advice for Engineers, Loss Adjusters and Insurers

- Tree Surveys for Subsidence
- Heave Assessment
- Tree Root Identification

Advice for Local Authorities and Social Housing

- Tree Safety Surveys
- Specialist Decay Detection
- Landscape and Orchard Design

Tree Advice for the Legal Profession

- Subsidence Litigation
- Personal Injury and Accident Investigation
- Expert Witness, Planning Inquiries and Appeals

Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

Tree Health and Pest and Disease Management

- Pest and Disease Surveys
- Tree Health Checks
- Disease Mitigation and Control



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