



## **Land North of Piperdam Drive Protected Species Survey Update Report**

Ref: CC0801/R1

14<sup>th</sup> July 2021

Prepared by:

Niall Currie BSc(Hons) ACIEEM, Senior Ecologist

Reviewed by:

Chris Cathrine BSc(Hons) MCIEEM FLS FRES FRSA, Director

Caledonian Conservation Ltd

E: [info@caledonianconservation.co.uk](mailto:info@caledonianconservation.co.uk)

T: 01786 836961

M: 07789 77 11 66

A: Office 2 and 3, Craigarnhall

Bridge of Allan, Stirling, FK9 4NG

## Contents

Summary.....	1
1 Introduction.....	3
2 Legislation .....	4
2.1 The Habitats Directive.....	4
2.2 The Birds Directive.....	5
2.3 The Wildlife and Countryside Act 1981 (as amended).....	5
2.3.1 Birds .....	5
2.3.2 Other animals.....	5
2.3.3 Plants and fungi .....	5
2.3.4 Non-native species.....	5
2.4 Protection of Badgers Act 1992.....	6
2.5 Scottish Biodiversity List.....	6
2.6 UK Birds of Conservation Concern.....	6
3 Methods.....	7
3.1 Desk-based Study.....	7
3.2 Protected Species Survey .....	7
3.3 Other Protected Faunal Species .....	10
3.4 Target notes.....	11
3.5 Potential Survey Limitations .....	11
4 Results .....	12
4.1 Desk-based Study.....	12
4.1.1 Designated Site Search Results.....	12
4.1.2 Data Search Results .....	12
4.2 Habitat Description.....	13
4.3 Protected Species Survey.....	13
4.3.1 Target Notes .....	13
4.3.2 Protected Mammals .....	15
4.3.3 Birds .....	16
4.3.4 Amphibians and Reptiles.....	18
4.3.5 Invertebrates .....	18
5 Conclusion and Recommendations.....	19
6 References .....	21
APPENDIX 1: Figures .....	23
APPENDIX 2: Weather Data .....	3
APPENDIX 3: Data Search .....	4
APPENDIX 4: Photographs.....	6



## Summary

---

Caledonian Conservation Ltd was commissioned by Phil Mulholland to carry out a protected species survey update at Land North of Piperdam Drive, Piperdam, Angus. The proposal is for a farm shop, restaurant, car park, biomass plant and house with access from the A923.

The open habitat present within the site as a result of recent clearfelling of commercial conifer plantation is of limited suitability for protected species. However seven potential bat roosting features of low suitability were identified along the northern boundary of the site. Of these two potential bat roost features are in trees planned to be felled and two are within close proximity of the proposed visibility splay.

One stick nest was recorded in a mature tree on the northern boundary of the site, which is planned to be felled. No signs of current use were observed, however it is possible the nest could be re-used by wood pigeon or another species in future.

Squirrel feeding signs were recorded within the Sitka spruce plantation to the south of the site.

No other signs of protected species were found, however potentially suitable habitat features were recorded for protected reptile species including basking opportunities at the edge of woodland habitat and on sparsely vegetated ground and hibernation sites in brash piles.

Based on the results of the survey, bats, nesting birds and reptiles have been identified as potential ecological constraints for planned operations. Appropriate mitigation and good practice measures are recommended to be put in place prior to and during works to safeguard protected species.

The following recommendations are made:

- All wild bats are European Protected Species and all their roosts are protected under the Wildlife and Countryside Act 1981, (as amended in Scotland), the Nature Conservation (Scotland) Act 2004, and the Conservation (Natural Habitats &c.) Regulations 1994 (as amended). Bat roosts are protected at all times, even when the bats are not present. Targeted bat roost surveys should be carried out within 24 hours prior to felling the trees described in Target Notes 1 and 2. Additionally, if any works are planned within 30 m of the tree described in Target Note 4, it should also be included in targeted bat roost surveys.
- Bat behaviour can be negatively affected by artificial lighting directed towards roost sites by delaying exiting from roosts or deterring their use altogether. Lighting can also negatively affect the foraging behaviour and movements of some bat species and their prey (Bat Conservation Trust & Institution of Lighting Professionals, 2018). Lighting during the construction and operational phase of the development should be designed to minimise disturbance to bat roosting and foraging by ensuring it is directed away from potential roost features and commuting and foraging habitat such as lines of trees and woodland edges.
- Reptiles are protected from intentional or reckless harm under the Wildlife and Countryside Act 1981 (as amended in Scotland). Note that there is no accepted mitigation to allow destruction of hibernaculum features during the hibernation season. No potential reptile hibernaculum features should be damaged during the hibernation season (September to April inclusive). It is recommended that clearance of brash piles takes place outwith the hibernation season. A watching brief will be maintained during the active season (February to October inclusive), and if a reptile is found, works will stop as soon as it is safe to do so, and will not

recommence until appropriate mitigation has been designed in consultation with an ecologist and agreed with NatureScot.

- All wild birds, eggs and their nests (while in use) are protected under The Wildlife and Countryside Act 1981 (as amended in Scotland). If construction is scheduled to take place during the bird breeding season (March to August inclusive for most species, but any time of year for crossbills, Schedule 1 species for which the site offers suitable habitat), pre-construction surveys for nesting birds should be undertaken where vegetation clearance or tree felling is required. If any nesting birds are found to be present during pre-construction checks, appropriate mitigation would be required (such as buffer zones around nests within which all works are excluded).
- It is recommended that a pre-construction protected species survey is carried out focussing on red squirrel. If any protected mammal shelters or resting places are found, all activities should stop as soon as it is safe to do so, and until appropriate mitigation has been agreed in consultation with an ecologist and agreed with NatureScot. If any protected mammals are found to be present during pre-construction checks, appropriate mitigation would be required (such as buffer zones around dreys and shelters/resting sites, within which all works are excluded). If a protected mammal shelter is found, it may be necessary to apply for and attain a derogation licence from NatureScot before works can commence legally.
- Standard good practice measures should also be followed during construction works, such as covering of excavations/trenches overnight and/or provision of escape ramps.

# 1 Introduction

---

Caledonian Conservation Ltd was commissioned by Phil Mulholland to carry out a protected species survey update at Land North of Piperdam Drive, Piperdam, Angus (hereafter referred to as 'the Site'). The proposal is for a farm shop, restaurant, car park, biomass plant and house with access from the A923.

The site as defined by Phil Mulholland and adjacent land (where access permitted) was surveyed for protected species (focussing on mammals and birds). See Figure 1, Appendix 1 for a map of the Site. Hiddleston & Feist architects drawings should be referred to for the development plans including the construction footprint. This was an update to surveys carried out in 2019 (Yule, 2019), following felling of the conifer plantation which previously covered the site.

Field surveys were undertaken by Niall Currie (Senior Ecologist) on 1<sup>st</sup> July 2021. Mapping of the survey results using ArcMap 10 and reporting was also carried out by Niall Currie.

This report should be read alongside the following additional documents:

- Original Ecological Impact Assessment report (Yule, 2019)
- Planning Application; and
- Hiddleston & Feist architects drawings.

## 2 Legislation

---

The following sections summarise relevant legislation.

### 2.1 The Habitats Directive

Bats and otter are European Protected Species (EPS) and are provisioned with legal protection under the EC Habitats and Species Directive. This is transposed into UK law by the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland). This legislation defines European Protected Species (EPS) (Annex IV), and makes it an offence to deliberately or recklessly:

- Capture, injure or kill an EPS;
- Harass an EPS or group;
- Disturb an EPS at a place it uses for shelter or protection;
- Disturb an EPS while it is rearing or otherwise caring for its young;
- Obstruct access to a place an EPS uses for shelter or protection or to otherwise deny the animal use of that place;
- Disturb an EPS in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species; or
- Disturb an EPS in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young.

It is also an offence to:

- Damage or destroy a breeding site or resting place of such an animal (note that this does not need to be deliberate or reckless to constitute an offence); and
- Keep, transport, sell or exchange or offer for sale or exchange any wild EPS or any part or derivative of one (if obtained after 10 June 1994).

Derogation licences may be granted for certain purposes that would otherwise be illegal. Regulation 44 (2e) of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland) allow licenses to be granted for:

- Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.

In order to satisfy the requirements for a license, the proposed development must fulfil the following:

- That there is no satisfactory alternative (including the alternative of doing nothing); and
- That the action authorised will not be detrimental to the maintenance of the otter population at a favourable conservation status in their natural range.

The Habitats Directive also identifies plant species (Annex V) and habitats which require conservation in their own right (Annex I). Another major provision of the Directive is the identification and classification of Special Areas of Conservation (SACs) for rare or vulnerable species and habitats.

## 2.2 The Birds Directive

Annex I of Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive') lists bird species that are of conservation importance at a European level.

One of the main provisions of the Directive is the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable Annex I bird species, as well as for all regularly occurring migratory species.

Legislation prohibits activities that have a negative effect on the conservation objectives of an SPA.

## 2.3 The Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 (as amended in Scotland) is the primary legislation protecting animals, plants, and certain habitats in the UK, including all wild birds and their nests, eggs and chicks.

### 2.3.1 Birds

Under this legislation, it is an offence to intentionally or recklessly kill, injure or take any wild bird or their eggs, or to take, damage, destroy, obstruct or otherwise interfere with the nest of any wild bird while it is in use or being built.

- **Schedule 1:** additional protection of birds at or around their nests is afforded to rare breeding species in the UK, and/or species under threat of human persecution. These species are listed on Schedule 1 of the Act.

Certain Schedule 1 raptor species are afforded further protection under Schedules 1A and/or A1 of the Act:

- **Schedule A1:** the nests of birds included on Schedule A1 of the Act are protected year round; and
- **Schedule 1A:** birds included on Schedule 1A of the Act are protected from harassment year round.

Note that it is not possible to obtain derogation licences to permit commercial forestry or development activities that are illegal under legislation that protects wild birds.

### 2.3.2 Other animals

Animals listed under Schedule 5 of the Act are afforded protection which is variable but can include intentional and reckless harm to individuals and/or habitat / places of shelter depending on the species.

### 2.3.3 Plants and fungi

Plants listed under Schedule 8 of the Act are afforded protection which is variable but can include intentional and reckless harm to plants and fungi.

### 2.3.4 Non-native species

In addition, under the Wildlife and Countryside Act 1981 (as amended in Scotland by the Wildlife and Natural Environment (Scotland) Act 2012) it is an offence to:

- release an animal to a location outside its native range;



- allow an animal to escape from captivity to a location outside its native range;
- otherwise cause an animal not in the control of any person to be at a location outside its native range; and
- plant, or otherwise cause to grow, a plant in the wild at a location outside its native range.

## 2.4 Protection of Badgers Act 1992

Badgers are protected under the Protection of Badgers Act 1992 (as amended in Scotland). This legislation makes it an offence to deliberately or recklessly:

- Kill, injure, take, possess or cruelly ill-treat a badger, or attempt to do so;
- Interfere with a sett by damaging or destroying it;
- Obstruct access to, or any entrance of, a badger sett; or
- Disturb a badger when it is occupying a sett.

Anyone found guilty of an offence is liable to a fine of up to £5,000 and/or six months imprisonment.

Derogation licences may be granted for certain purposes that would otherwise be illegal. A licence must be obtained from NatureScot for any work that may cause disturbance to a badger or involves the damage or destruction of a sett. Note that licences are not generally issued during the badger breeding season (30<sup>th</sup> November to 1<sup>st</sup> July).

## 2.5 Scottish Biodiversity List

The Scottish Biodiversity List (SBL) is a list of habitats and species that the Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland. It was developed to meet the requirements of Section 2 (4) of the Nature Conservation (Scotland) 2004 Act for the conservation of biodiversity, and (along with biodiversity lists from other UK countries) supersedes the UK Biodiversity Action Plan. Public bodies must consider SBL species when reporting on their 'Biodiversity Duty' (as defined and required by the Nature Conservation (Scotland) Act 2004 and Wildlife & Natural Environment (Scotland) Act 2011).

## 2.6 UK Birds of Conservation Concern

The UK Birds of Conservation Concern (BoCC) is a periodic national review assessing the population and trends for UK breeding bird species. It uses a traffic light system to indicate an increasing level of conservation concern. Species that have a declining range and/or population, or that are vulnerable to population effects due to their small population size, are Red- or Amber-listed, depending on the extent of the decline or vulnerability, while those which are stable, increasing, or experiencing only small declines, are Green-listed. The most recent review (BoCC 4) was published in December 2015 (Eaton *et al.* 2015). Although not a legal document, this is a useful framework within which to consider conservation status of birds.

### 3 Methods

---

A protected species survey was undertaken on 1<sup>st</sup> July 2021. The survey area comprised the 'Site', plus adjacent plantation and woodland to the south and west.

The survey area is shown in Figure 1, Appendix 1. Full details of the survey methods are provided below. Details of hourly weather conditions are presented in Table A2.1, Appendix 2.

#### 3.1 Desk-based Study

The desk-based study involved a search for designated sites and notable species records.

A search of designated sites was carried out within an area of 2 km of the development.

The National Biodiversity Network (NBN) Atlas<sup>1</sup> was searched for notable records of flora and fauna within 2 km of the centre of the site recorded within the last 10 years. This included a search for protected species and invasive species. Only records with licences allowing commercial use were included (CC-BY, CCO, OGL).

#### 3.2 Protected Species Survey

A protected species survey was undertaken across the survey area with a focus on protected mammals.

The survey involved searching for evidence of protected mammal species. Reference was made to relevant field guides, and standard survey guidance was followed. A summary of the relevant guidance and field signs for each species is presented in Table 1.

All signs of protected species were recorded as descriptive target notes, with locations recorded using a hand-held Global Positioning System (GPS) device, and photographs taken where appropriate.

---

<sup>1</sup> NBN Atlas available at <https://nbnatlas.org/>

**Table 1. Summary of relevant field guides/survey guidance, signs searched for and survey buffer area for protected mammal survey**

Species	Relevant guidance/survey method followed	Field signs
Badger ( <i>Meles meles</i> )	<ul style="list-style-type: none"> <li>• Roper (2010);</li> <li>• Bang &amp; Dahlstrøm (2006)</li> <li>• SNH, 2002</li> </ul>	<ul style="list-style-type: none"> <li>• Setts;</li> <li>• Footprints;</li> <li>• Latrines/dung pits (used as territorial markers);</li> <li>• Hairs – highly distinctive, and often become snagged on fences;</li> <li>• Feeding signs – snuffle holes (small scrapes where badgers have searched for earthworms, insects or tubers); and Paths.</li> </ul>
Bats	<ul style="list-style-type: none"> <li>• Collins (2016)</li> </ul>	<ul style="list-style-type: none"> <li>• See text below table.</li> </ul>
Otter ( <i>Lutra lutra</i> )	<ul style="list-style-type: none"> <li>• Scottish Natural Heritage (SNH) (2008)</li> <li>• Bang &amp; Dahlstrøm (2006)</li> <li>• Chanin (2003)</li> </ul>	<ul style="list-style-type: none"> <li>• Holts – below ground resting places;</li> <li>• Couches – above ground resting places;</li> <li>• Footprints;</li> <li>• Spraints – faeces used as territorial markers, with a characteristic sweet odour;</li> <li>• Prey remains; and</li> <li>• Paths and slides.</li> </ul>
Pine marten ( <i>Martes martes</i> )	<ul style="list-style-type: none"> <li>• Bang &amp; Dahlstrøm (2006)</li> <li>• Cresswell <i>et al.</i> (2012)</li> </ul>	<ul style="list-style-type: none"> <li>• Faeces – recognisable by their size, shape, and content, and also distinguishable from fox (<i>Vulpes vulpes</i>) droppings by their smell, if not desiccated<sup>1</sup>;</li> <li>• Dens – usually in hollows in trees, but also subterranean dens amongst tree roots, should no suitable tree dens be present; and</li> <li>• Footprints – may be found on softer ground and can be differentiated from fox and other mustelids by size and shape.</li> </ul>
Red squirrel ( <i>Sciurus vulgaris</i> )	<ul style="list-style-type: none"> <li>• Gurnell <i>et al.</i>, 2009</li> </ul>	<ul style="list-style-type: none"> <li>• Visual observations of animals;</li> <li>• Squirrel dreys;</li> <li>• Footprints; and</li> <li>• Feeding signs (such as conifer cones gnawed in a manner characteristic to squirrels).</li> </ul>
Water vole ( <i>Arvicola amphibius</i> )	<ul style="list-style-type: none"> <li>• Dean (2021)</li> <li>• Dean <i>et al.</i> (2016)</li> <li>• Strachan <i>et al.</i> (2011)</li> </ul>	<ul style="list-style-type: none"> <li>• Burrows;</li> <li>• Droppings/latrines;</li> <li>• Footprints; and feeding signs – gnawed vegetation, and grazed 'lawns' which are often associated with burrows.</li> </ul>

**Notes:**

<sup>1</sup> If there is doubt over identity of scats (Davison *et al.*, 2002), DNA analysis can be used to identify whether they were deposited by pine marten.

The Bat Conservation Trust (BCT) has produced guidelines (Collins, 2016) to assess the suitability of both roosting and foraging/commuting habitat for bats. This involves a combination of preliminary ecological appraisal of habitats and preliminary roost assessments. Further surveys may or may not be implemented based on results of the preliminary assessment.

Table 2 (adapted from Collins, 2016) summarises features of both roosting and foraging/commuting habitat in terms of suitability to bats. Roosting habitat should be assessed independently of foraging/commuting habitat, using professional judgement.

**Table 2. Guidelines for assessing the potential suitability of habitat features for bats.**

Suitability	Description	
	Roosting	Foraging/Commuting
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by foraging or commuting bats.
Low	<p>A structure with one or more potential roost sites that could be used by individual bats opportunistically, but not on a regular basis due to marginal conditions.</p> <p>A tree of sufficient size and age to contain potential roost features but with none seen from the ground, or with very limited potential.</p>	Habitat that could be used by small numbers of foraging or commuting bats, but which is isolated from surrounding habitat (e.g. gappy hedgerow or unvegetated stream).
Moderate	A structure or tree with one or more potential roost sites that could be used by bats, but unlikely to support a roost of high conservation status (with respect to roost type only).	Continuous habitat connected to the wider landscape that could be used by foraging or commuting bats, such as lines of trees or scrub.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and for longer periods of time.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging or commuting bats (e.g. river valleys, woodland edge, tree-lined watercourses).

### 3.3 Other Protected Faunal Species

In addition, areas of suitable habitat for reptiles, protected mammals and nesting birds and high value invertebrate habitat were identified as follows:

- **Invertebrates:** Varied habitat structure is particularly important for supporting terrestrial invertebrate communities of conservation importance, as species often depend on specific microhabitats. Some key habitats are known to be particularly important for supporting rich invertebrate communities (Gibson, 1998; English Nature, 2005; Buglife, 2009; Buglife, 2012; Macadam et al. 2013; Buglife, 2016; Cathrine, 2000), and these include:
  - Semi-natural broad-leaved woodland (and native pine woodland in Scotland);
  - Flower-rich grasslands;
  - Peatland;

- Vegetated shingle;
  - Wetlands (e.g. damp flushes, ponds, streams, rivers, wet woodland and coastal habitats); and
  - Open Mosaic Habitat on Previously Developed Land (also known as 'brownfield').
- **Reptiles:** areas of dense scrub or tussocky grassland with a south-facing aspect as well as bare patches, and potential refugia such as rocks, rubble and log/wood piles (Cathrine, 2018).
  - **Nesting birds:** as birds will nest in a wide variety of habitats, an overall assessment of habitat suitability was made, with a particular focus on identifying habitat suitability for species included on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended), such as barn owl (*Tyto alba*). The survey included searches for signs of breeding birds such as nests, pellets and feeding signs. Additionally birds observed through sight and sound were recorded. Notes taken on whether they were observed within the site or on adjacent land and behaviour displayed. The bird survey methods used by Yule (Yule, 2019) were not repeated as point counts are most appropriate for habitats where visibility is limited, such as in dense woodland.

### 3.4 Target notes

Descriptive 'target notes' of particular areas or features of interest were taken as required, with photographs taken where appropriate, and locations recorded using hand-held GPS devices.

### 3.5 Potential Survey Limitations

Weather conditions were excellent throughout the survey visit (still, dry, with good visibility), although a dry period of weather prior to the visit meant that recent tracks left by mammals were difficult to detect. However, the main approach to assessing potential presence of these species is through identification of suitable habitat features, which can be seen regardless of weather conditions.

Access was limited to land owned by the client and adjacent conifer plantation to the south, therefore private land such as gardens and farmland was not surveyed.

None of the limitations above are considered significant.

Some potential bat roost features could not be fully assessed, since depth of holes and crevices were difficult to determine from ground level (Target notes 1,2, and 4).

The limitations on bat roost suitability assessments have been fully considered in the recommendations detailed below.

No other potential limitations to the survey were identified.

## 4 Results

---

### 4.1 Desk-based Study

#### 4.1.1 Designated Site Search Results

A search of digital datasets indicates that there are no statutory designated sites within 2 km of the proposed development site. The majority of the site is included in a 42.19 Ha polygon (Wood ID 19763) listed in the Ancient Woodland Inventory (AWI) of Scotland within the Long-Established, of Plantation Origin (LEPO) category. However, no indicators of ancient semi-natural woodland such as native veteran trees or communities of ancient woodland vascular were identified during the survey. The line of mature broadleaved trees adjacent to the A923 are not within this polygon. It should be noted that the AWI listings are based on a desk-based exercise using historic map sources. Ground-truthing of polygons to determine where ancient woodland fragments have persisted was not undertaken when the AWI was compiled, therefore inclusion of land on the AWI is not necessarily an indication of high conservation value.

Full citations for statutory designated sites can be requested from Caledonian Conservation Limited or can be obtained at <https://sitelink.nature.scot/>.

#### 4.1.2 Data Search Results

NBN Atlas was searched within 2 km of the approximate centre of the proposed site. Only records with licences allowing commercial use were included (CC-BY, CCO, OGL). Details of species records, sources, and citations are provided in Table A3.1 in Appendix 3. Relevant records are summarised below.

##### 4.1.2.1 Protected Mammals

One record of common pipistrelle (*Pipistrellus pipistrellus*) was found 2km SSE of site (SNH data).

One hundred and ninety-three records of red squirrel (*Sciurus vulgaris*) were found to the south and west of the site (SWT data).

##### 4.1.2.2 Birds

Records of dipper (*Cinclus cinclus*) (Amber Listed (Eaton *et al.* 2015)), marsh harrier (*Circus aeruginosus*) (Schedule 1) (record available at 10km resolution only) and tree sparrow (*Passer montanus*) (Red Listed, SBL) were found (BTO data). Breeding habitat within the site and adjacent land is unsuitable for dipper and marsh harrier and is of low suitability for tree sparrow.

##### 4.1.2.3 Invasive Non-Native Species

Twenty-eight records of grey squirrel (*Sciurus carolinensis*) were found to the west of the site around Piperdam village (SWT data).

##### 4.1.2.4 Other relevant notable species records

No other notable species records were found.

## 4.2 Habitat Description

Habitat within the site comprised of open ground (Photo 1), as a result of the recent clearfell of commercial conifer plantation. Brash has been gathered and piled in the south of the site leaving the majority of the land with sparsely vegetated ground with frequent bare patches. An early successional plant community dominated by species such as common sorrel, foxglove and heath bedstraw has begun to develop. A single row of mature broadleaves dominated by oak (*Quercus* sp.) with occasional sycamore (*Acer pseudoplanatus*) and ash (*Fraxinus excelsior*) line the A923. Spoil piles are present in the east of the site near the access track.

Mature Sitka spruce (*Picea sitchensis*) plantation is adjacent to the site boundary on the south with a small area of mixed plantation to the west and a narrow strip of larch (*Larix* sp.) and Scots pine (*Pinus sylvestris*) to the east.

## 4.3 Protected Species Survey

The search for signs of protected mammals such as shelters, feeding signs and footprints and signs of breeding/roosting birds such as old nests and owl pellets was undertaken. Where present, signs of protected species were recorded as target notes.

In addition, areas of habitat suitable for supporting reptiles, protected amphibians and terrestrial invertebrate communities of conservation importance were also identified.

### 4.3.1 Target Notes

A total of 14 target notes were recorded during the Extended Phase 1 habitat survey. Details of target notes identifying habitat features and signs of protected species are described in Table 3, and shown in Figure 2, Appendix 1. Photographs are provided in Appendix 3.



**Table 3. Details of Target Notes recorded during the protected species survey update**

Target Note	Category	Grid reference	Description	Photo Number
1	Bat	NO3063535270	Bat potential roost feature (PRF) (Low suitability) - sycamore (tree tag 744) with rot hole from snapped branch (depth of hole could not be assessed from ground level).	
2	Bat	NO3073635254	Bat PRF (Low suitability) - oak (tree tag 736) with decay from snapped limb with possible crevices (difficult to assess depth from ground level).	2
3	Bat	NO3082635241	Bat PRF (Low suitability) - oak (tree tag 726) crevices under flaking bark on dead branches.	3
4	Bat	NO3087035236	PRF (Low suitability) - oak (tree tag 721) with small rot hole (depth of hole could not be assessed from ground level)	4
5	Bat	NO3092535239	PRF (Low suitability) - oak (tree tag 713) with two split branches and one snapped branch in crown.	5
6	Bat	NO3096735231	PRF (Low suitability) - oak (tree tag 701) small crevices and fissures where limbs have snapped.	6
7	Bat	NO3098035231	PRF (Low suitability) - oak (tree tag 709) with small rot holes.	7
8	Squirrel	NO3051235176	Squirrel feeding signs.	8
9	Squirrel	NO3053435162	Squirrel feeding signs.	
10	Squirrel	NO3065235124	Squirrel feeding signs.	
11	Squirrel	NO3084935106	Squirrel feeding signs.	
12	Bird	NO3062235274	Oak (tree tag 749) with bird nest (probable wood pigeon ( <i>Columba palumbus</i> ) or carrion crow ( <i>Corvus corone</i> )). No signs of current use.	9
13	Reptile	NO3072535164	Brush piles and sparsely vegetated ground with bare patches showing potential for reptile basking and refuge.	10
14	Invertebrate	NO3073435150	Sparsely vegetated south-facing mounds with potential to support basking and burrowing invertebrate species.	11

## 4.3.2 Protected Mammals

### 4.3.2.1 Badger

No badger setts or definitive signs of badger were recorded during the survey, however holes in the fence along the western boundary of the site may have been caused by this species. Potentially moderately suitable habitat for setts exists in adjacent wooded land, however this land is subject to significant disturbance. The site offers poor foraging potential for this species due to the thin, rocky soil, which is unlikely to support significant worm populations – frequently a major component of badgers' diet. However, badgers may occasionally pass through the site. Surrounding arable land may provide foraging opportunities and badgers are likely to be present in the surrounding area. Anecdotal evidence from a local resident confirmed that badgers are present in the area.

### 4.3.2.2 Bats

Habitat within the majority of the site is considered to be of negligible suitability for foraging, commuting and roosting bats, due to the open nature of the habitat, with little vegetation structure. However, bats may forage along the boundaries of the site, where forestry plantation and other tree cover is present on adjacent land. Additionally, a row of mature broadleaves along the northern site boundary, dominated by oak, with occasional sycamore both provides a corridor for foraging and commuting bats and a number of low suitability potential bat roost features. These features exist as a result of wood decay or snapped branches (Target Notes 1-7, Photos 2-7). Based on Hiddleston & Feist Architects drawings felling of the trees with potential roost features described in Target Notes 1, 2 and 12 is proposed to create visibility splays for site access. Additionally, the bat potential roost features described in Target Notes 3 and 4 are both within approximately 10 m of the visibility splays for the proposed site access.

The adjacent conifer plantation to the south and young mixed woodland to the west of the site are unlikely to offer good roosting opportunities, however buildings and mature trees with decay features in the wider landscape may offer additional roosting habitat. A record of common pipistrelle was found in the data search and anecdotal reports from a local resident encountered during the survey included bat sightings in gardens.

The surrounding arable dominated land to the north and east offers limited habitat for this species, however more tree cover exists to the south and west across Piperdam village and Piperdam Golf and Leisure Resort, which links to small extents of forestry in the wider landscape.

### 4.3.2.3 Red Squirrel

Squirrel feeding signs were recorded within the Sitka spruce plantation to the south of the site. However red squirrel feeding signs cannot be reliably distinguished from those of the non-native invasive grey squirrel (*Sciurus carolinensis*) and both species are known to occur in the area (SWT data). Anecdotal evidence of red squirrel presence in the area was received from a local resident while carrying out the survey. No dreys were recorded during the survey, therefore red squirrels may use habitat adjacent to the site for feeding, but currently do not appear to shelter or breed within the immediate vicinity of the site. The data search found 193 red squirrel and 28 grey squirrel records in the search area.

#### 4.3.2.4 Other Protected or Notable Mammal Species

No other signs of protected mammal species were recorded, however a local resident encountered on-site provided anecdotal evidence of hedgehog (*Erinaceus europaeus*) (SBL priority species) sightings in nearby gardens. This species may occasionally use the site for feeding or commuting, however habitat with better developed vegetation structure such as field margins and gardens is likely to be favoured by hedgehogs.

#### 4.3.3 Birds

One stick nest (probable wood pigeon (*Columba palumbus*) or carrion crow (*Corvus corone*) was recorded in a mature tree on the northern boundary of the site. (Target Note 12). No signs of current use were observed, however it is possible the nest could be re-used by wood pigeon or another species in future (Ferguson-lees *et al.*, 2011). The tree in which this nest is located is planned to be felled as part of the development.

During the survey a small number of bird species were recorded within the site boundary: blackbird, buzzard (*Buteo buteo*), chaffinch (*Fringilla coelebs*), dunnock (*Prunella modularis*), wren (*Troglodytes troglodytes*) and wood pigeon (see Table 4). Wren and possibly dunnock may nest within brash piles, however the habitat within the site is of low suitability for most breeding bird species. Other species such as buzzard, chaffinch and wood pigeon are likely to use the site for feeding rather than shelter. A number of common woodland and farmland species were also recorded on adjacent land (Table 4) including song thrush (*Turdus philomelos*) (Red Listed, SBL) and yellowhammer (*Emberiza citrinella*).

**Table 4. Bird species recorded during the protected species survey update (SBL = Scottish Biodiversity List)**

Common name	Scientific name	Conservation status	Location	Notes
Blackbird	<i>Phylloscopus trochilus</i>		Site	Observed
Buzzard	<i>Buteo buteo</i>		Site	Circling above site
Chaffinch	<i>Fringilla coelebs</i>		Site	Observed
Dunnock	<i>Prunella modularis</i>	Amber Listed	Site	Singing
Wood pigeon	<i>Columba palumbus</i>		Site	Observed
Wren	<i>Troglodytes troglodytes</i>		Site	Observed on brush pile
Skylark	<i>Alauda arvensis</i>	Red Listed, SBL	Arable land to north	Singing
Yellowhammer	<i>Emberiza citrinella</i>	Red Listed, SBL	Arable field margin to east	Singing
Blackbird	<i>Turdus merula</i>		Adjacent Sitka spruce plantation	Singing
Bullfinch	<i>Pyrrhula pyrrhula</i>	Amber Listed, SBL	Adjacent Sitka spruce plantation	Calling
Chaffinch	<i>Fringilla coelebs</i>		Adjacent Sitka spruce plantation	Singing
Coal tit	<i>Periparus ater</i>		Adjacent Sitka spruce plantation	Calling
Goldcrest	<i>Regulus regulus</i>		Adjacent Sitka spruce plantation	Singing
Jay	<i>Garrulus glandarius</i>		Adjacent Sitka spruce plantation	Alarm calling
Robin	<i>Erithacus rubecula</i>		Adjacent Sitka spruce plantation	Singing
Song thrush	<i>Turdus philomelos</i>	Red Listed, SBL	Adjacent Sitka spruce plantation	Observed
Willow warbler	<i>Phylloscopus trochilus</i>	Amber Listed	Adjacent Sitka spruce plantation	Singing
Wood pigeon	<i>Columba palumbus</i>		Adjacent Sitka spruce plantation	Calling
Wren	<i>Troglodytes troglodytes</i>		Adjacent Sitka spruce plantation	Singing

Mature cone-producing conifers were present within the survey area; principally Sitka spruce to the south and west, as well as a small stand of larch and Scots pine to the east, which may support breeding crossbills (*Loxia curvirostra*). Crossbills (*Loxia curvirostra*) are protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and may breed at any time of year. However, the surrounding landscape is generally comprised of very open habitat dominated by arable farmland, so crossbills may only pass through the landscape infrequently.

No suitable roosting habitat was identified for barn owl (*Tyto alba*) and the sparse vegetation structure across much of the site was of low suitability for field voles (*Microtus agrestis*) and bank voles (*Myodes glareolus*) – the main prey species of barn owl – however some vole feeding signs were observed. Therefore, barn owls may occasionally use the site for foraging.

#### **4.3.4 Amphibians and Reptiles**

No amphibians or reptiles were observed during the survey. The site is of low suitability for amphibians due to the lack of vegetation structure. However, some features of value to reptiles were noted within the site. Sparsely vegetated ground (which may offer basking opportunities) adjacent to brash piles and woodland edge (refuge areas) (Target Note 13, Photos 1 & 10) may be suitable for species such as common lizard (*Zootoca vivipara*). However much of the surrounding landscape, which is dominated by arable land, is of low suitability for reptiles, fragmenting habitat, and population numbers may be at low levels, if present.

#### **4.3.5 Invertebrates**

Bare and sparsely vegetated ground is of value to invertebrates (e.g. for basking and burrowing) and can support invertebrate communities of conservation importance, particularly when it occurs in close proximity to other habitats that meet additional requirements of invertebrate species. Although much of the site is sparsely vegetated with bare patches (Target Notes 13 & 14, Photos 1, 10 & 11) and some floral abundance, there is limited variation in habitat within the site and adjacent habitats. Therefore, the site and surrounding habitat is overall currently considered to be of relatively low value to invertebrate communities.

## 5 Conclusion and Recommendations

---

The open habitat present within the site as a result of recent clearfelling of commercial conifer plantation is of limited suitability for protected species. However, seven potential bat roosting features of low suitability were identified along the northern boundary of the site. Two of these trees (Target Notes 1 & 2) are proposed for felling and a further two trees (Target Notes 3 & 4) are within close proximity of the proposed visibility splay. Due to the survey limitations at the time of survey (see section 3.5 Potential Survey Limitations) and the resulting uncertainty regarding the accurate determination of the bat roost potential of some of the trees, further surveys are recommended for two trees that are planned to be felled (Target Notes 1 & 2). If any works are planned within 30 m of the tree described in Target Note 4, it should also be included in targeted surveys.

One stick nest (probable wood pigeon or carrion crow) was recorded in a mature tree on the northern boundary of the site, which is planned to be felled. Potentially suitable habitat for crossbill (Schedule 1 species) was identified within the survey area where mature cone producing conifers are present, however the surrounding habitat is of relatively low suitability for this species.

Squirrel feeding signs were recorded within the Sitka spruce plantation to the south of the site.

No other signs of protected species were found, however potentially suitable habitat features were recorded for protected reptile species including basking opportunities at the edge of woodland habitat and on sparsely vegetated ground and hibernation sites in brash piles.

Based on the results of the survey, bats, nesting birds and reptiles and have been identified as potential ecological constraints for planned operations. Appropriate mitigation and good practice measures are recommended to be put in place prior to and during works to safeguard protected species. Further details of recommended mitigation are given below.

The following recommendations are made:

- All wild bats are European Protected Species and all their roosts are protected under the Wildlife and Countryside Act 1981, (as amended in Scotland), the Nature Conservation (Scotland) Act 2004, and the Conservation (Natural Habitats &c.) Regulations 1994 (as amended). Bat roosts are protected at all times, even when the bats are not present. Targeted bat roost surveys should be carried out within 24 hours prior to felling the trees described in Target Notes 1 and 2. Additionally, if any works are planned within 30 m of the tree described in Target Note 4, it should also be included in targeted bat roost surveys.
- Bat behaviour can be negatively affected by artificial lighting directed towards roost sites by delaying exiting from roosts or deterring their use altogether. Lighting can also negatively affect the foraging behaviour and movements of some bat species and their prey (Bat Conservation Trust & Institution of Lighting Professionals, 2018). Lighting during the construction and operational phase of the development should be designed to minimise disturbance to bat roosting and foraging by ensuring it is directed away from potential roost features and commuting and foraging habitat such as lines of trees and woodland edges.
- Reptiles are protected from intentional or reckless harm under the Wildlife and Countryside Act 1981 (as amended in Scotland). Note that there is no accepted mitigation to allow destruction of hibernaculum features during the hibernation

season. No potential reptile hibernaculum features should be damaged during the hibernation season (September to April inclusive). It is recommended that clearance of brash piles takes place outwith the hibernation season. A watching brief will be maintained during the active season (February to October inclusive), and if a reptile is found, works will stop as soon as it is safe to do so, and will not recommence until appropriate mitigation has been designed in consultation with an ecologist and agreed with NatureScot.

- All wild birds, eggs and their nests (while in use) are protected under The Wildlife and Countryside Act 1981 (as amended in Scotland). If construction is scheduled to take place during the bird breeding season (March to August inclusive for most species, but any time of year for crossbills, Schedule 1 species for which the site offers suitable habitat), pre-construction surveys for nesting birds should be undertaken where vegetation clearance or tree felling is required. If any nesting birds are found to be present during pre-construction checks, appropriate mitigation would be required (such as buffer zones around nests within which all works are excluded).
- It is recommended that a pre-construction protected species survey is carried out focussing on red squirrel. If any protected mammal shelters or resting places are found, all activities should stop as soon as it is safe to do so, and until appropriate mitigation has been agreed in consultation with an ecologist and agreed with NatureScot. If any protected mammals are found to be present during pre-construction checks, appropriate mitigation would be required (such as buffer zones around dreys and shelters/resting sites, within which all works are excluded). If a protected mammal shelter is found, it may be necessary to apply for and attain a derogation licence from NatureScot before works can commence legally.
- Standard good practice measures should also be followed during construction works, such as covering of excavations/trenches overnight and/or provision of escape ramps.

## 6 References

---

- Bang, P. and Dahlstrøm, P. 2006. *Animal Tracks and Signs*. Oxford University Press, Oxford.
- Bat Conservation Trust and Institution of Lighting Professionals. 2018. *Bats and the Built Environment series: Guidance Note 08/18 Bats and artificial lighting in the UK*. Institution of Lighting Professionals, Rugby.
- Buglife. 2012. *Scottish Invertebrate Habitat Management: Brownfields*. Buglife – The Invertebrate Conservation Trust, Stirling.
- Buglife. 2016. *Good planning practice for invertebrates: surveys*. Buglife – The Invertebrate Conservation Trust, Peterborough.
- Cathrine, C. 2018. *ARG UK Advice Note 10: Reptile Survey and Mitigation Guidance for Peatland Habitats*. Amphibian and Reptile Groups of the United Kingdom.
- Cathrine, C. 2020. How to Consider Terrestrial Invertebrates in Ecology Projects. *CIEEM Webinar*. 4 November 2020. Available at: <https://cieem.net/resource/cieem-webinar-how-to-consider-terrestrial-invertebrates-in-ecology-projects/> [Accessed February 2021.]
- Chanin, P. 2003. *Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No. 10*. English Nature, Peterborough.
- CIEEM. 2017. *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.
- Collins, J. (ed.). 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3<sup>rd</sup> edition)*. The Bat Conservation Trust, London.
- Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trehwella, W.J., Wells, D. and Wray, S. (Eds.) 2012. *UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation*. The Mammal Society, Southampton.
- Dean, M. 2021. *Water Vole Field Signs and Habitat Assessment: A Practical Guide to Water Vole Surveys (Conservation Handbooks)*. Pelagic Publishing, Exeter.
- Dean, M., Strachan, R., Gow, D. and Andrews, R. 2016. *Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*. Eds. Fiona Mathews and Paul Chanin. The Mammal Society, London.
- Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud and Gregory, R. The Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. *British Birds* 108 (December 2015: 708–746).
- English Nature. 2005. *Organising surveys to determine site quality for invertebrates. A framework guide for ecologists*. English Nature, Peterborough.
- Ferguson-lees, J., Castell, R., Leech, D., Toms, M. 2011. *A field guide to nest monitoring*. British Trust for Ornithology, Thetford.
- Gibson, C.W.D. 1998. *Brownfield: Red data – The values artificial habitats have for uncommon invertebrates*. English Nature Resources Report No 273. English Nature.
- Gurnell, J., Lurz, P., McDonald, R., and Pepper, H. 2009. *Practical Techniques for Surveying and Monitoring Squirrels*. Forestry Commission Practice Note FCPN011. Forestry Commission.



Macadam, C., Bairner, S. and Cathrine, C. 2013. *Open mosaic habitats on previously developed land: survey and recommendations for habitat planning and management in Scotland*. Scottish Natural Heritage Commissioned Report No. 606. SNH, Inverness.

Roper, T.J. 2010. *Badger*. HarperCollins Publishers, London.

Scottish Natural Heritage. 2002. *Scotland's Wildlife: Badgers and Development*. SNH, Battleby. Available online at: <http://www.snh.org.uk/pdfs/publications/wildlife/badger.pdf>.

Scottish Natural Heritage. 2008. *Scotland's Wildlife: Otters and Development*. SNH online publication: <http://www.snh.org.uk/publications/on-line/wildlife/otters/default.asp>.

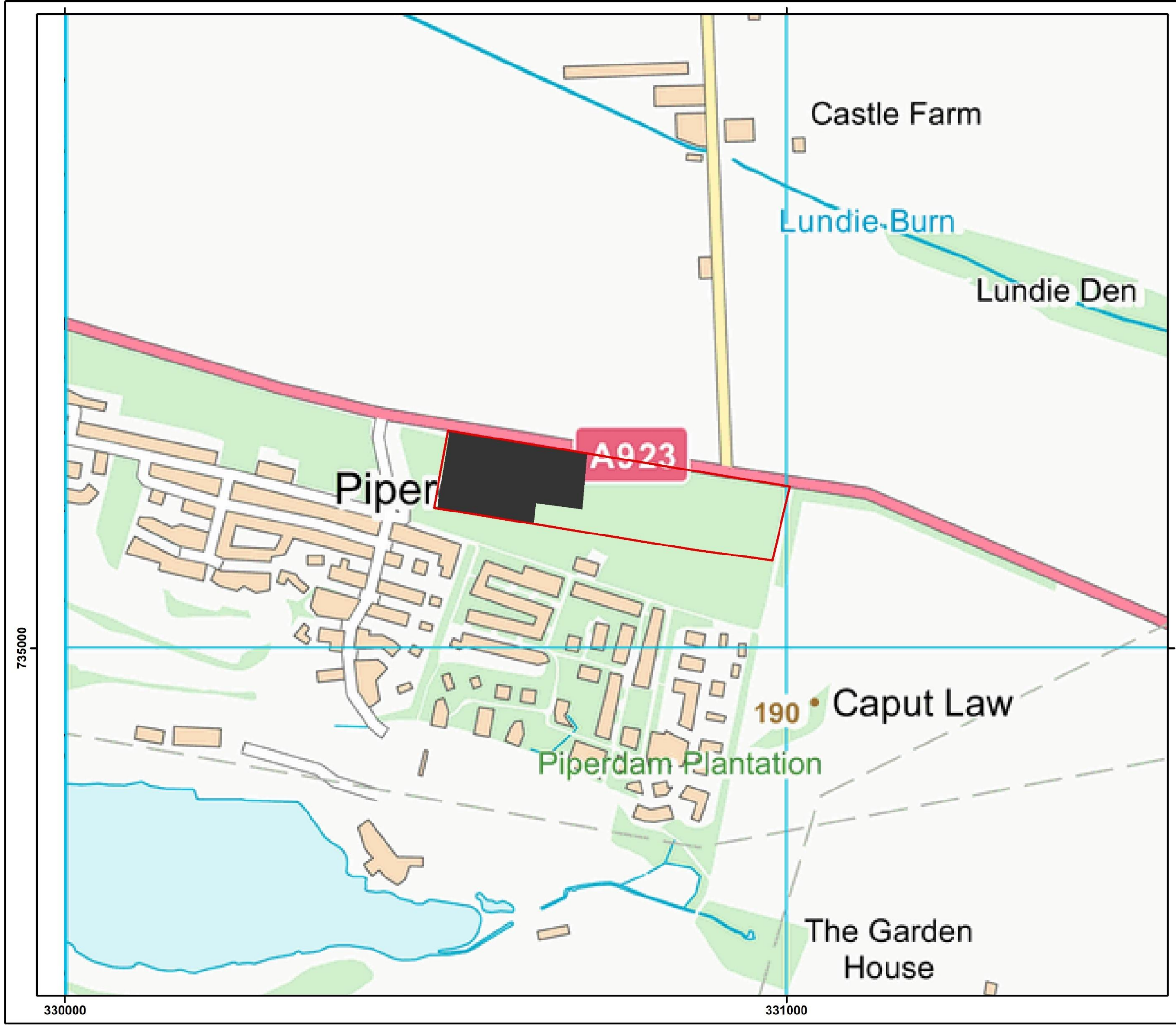
Strachan, R., Moorhouse, T. and Gelling, M. 2011. *Water Vole Conservation Handbook*, 3<sup>rd</sup> edition. Wildlife Conservation Research Unit, Oxford.

Yule, B. 2019. *Wildlife Population Survey*. Lundie Muir, August 2019. Eassie by Glamis.

## APPENDIX 1: Figures

---

**Key**  
 Site boundary  
 Development Footprint

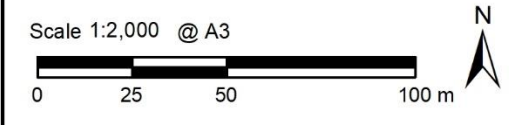
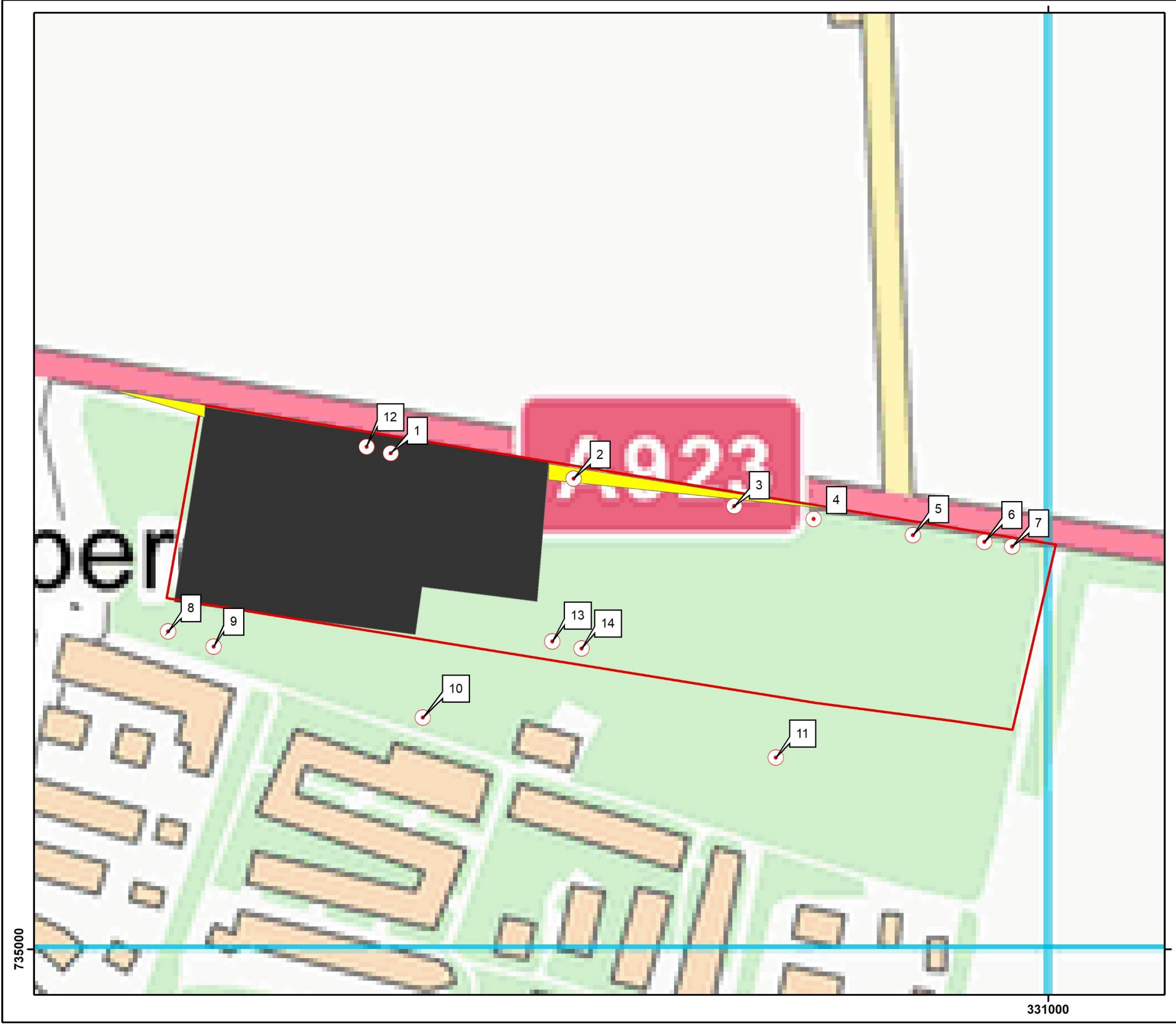


Scale 1:5,000 @ A3  
  
 0 25 50 100 m



**Figure 1**  
**Site Location**  
 Land North of Piperdam Drive  
 Protected Species Survey

- Key**
- Target note
  - Site boundary
  - Visibility splays
  - Development footprint



**Figure 2**  
**Target Notes**  
 Land North of Piperdam Drive  
 Protected Species Survey

## APPENDIX 2: Weather Data

---

Table A2.1. Survey weather data summary.

Date	Surveyor	Start Time	Hour	Visibility	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Frost	Snow
01/07/21	NC	09:20	1	2	0	-	0	0	2	0	0
			2	2	1	NE	0	0	2	0	0
			3	2	1	NE	0	0	2	0	0

NC = Niall Currie

## APPENDIX 3: Data Search

---

Table A3.1. Data search results.

Group	Order	Common name	Species	Designation	Number of records	Location	Data provider	Dataset name	Licence
Mammal	Chiroptera	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	European Protected Species	1	2km SSE of site	NatureScot SNH	Bat Casework Recording log 2014	OGL
Mammal	Rodentia	Red squirrel	<i>Sciurus vulgaris</i>	Schedule 5 of the Wildlife and Countryside Act (1981) as amended.	193	South and west of site, closest: NO305352	The Scottish Squirrel Database	Scottish Wildlife Trust	CC-BY
Bird	Passeriformes	Dipper	<i>Cinclus cinclus</i>	Amber Listed	5	SW of site	British Trust for Ornithology	Birds (BTO/JNCC/RSPB partnership)	OGL
Bird	Falconiformes	Marsh harrier	<i>Circus aeruginosus</i>	Schedule 1	1	10 km resolution only	British Trust for Ornithology	Birds (BTO/JNCC/RSPB partnership)	OGL
Bird	Passeriformes	Tree Sparrow	<i>Passer montanus</i>	Red, SBL	2	Approximately 1km E of site	British Trust for Ornithology	Birds (BTO/JNCC/RSPB partnership)	OGL
Invasive Non-native Species	Rodentia	Grey squirrel	<i>Sciurus carolinensis</i>	Schedule 9 of the Wildlife and Countryside Act (1981) as amended.	28	Piperdam, W of site	The Scottish Squirrel Database	Scottish Wildlife Trust	CC-BY

## APPENDIX 4: Photographs

---



**Photograph 1: Overview of habitat within site. Photo: Niall Currie**

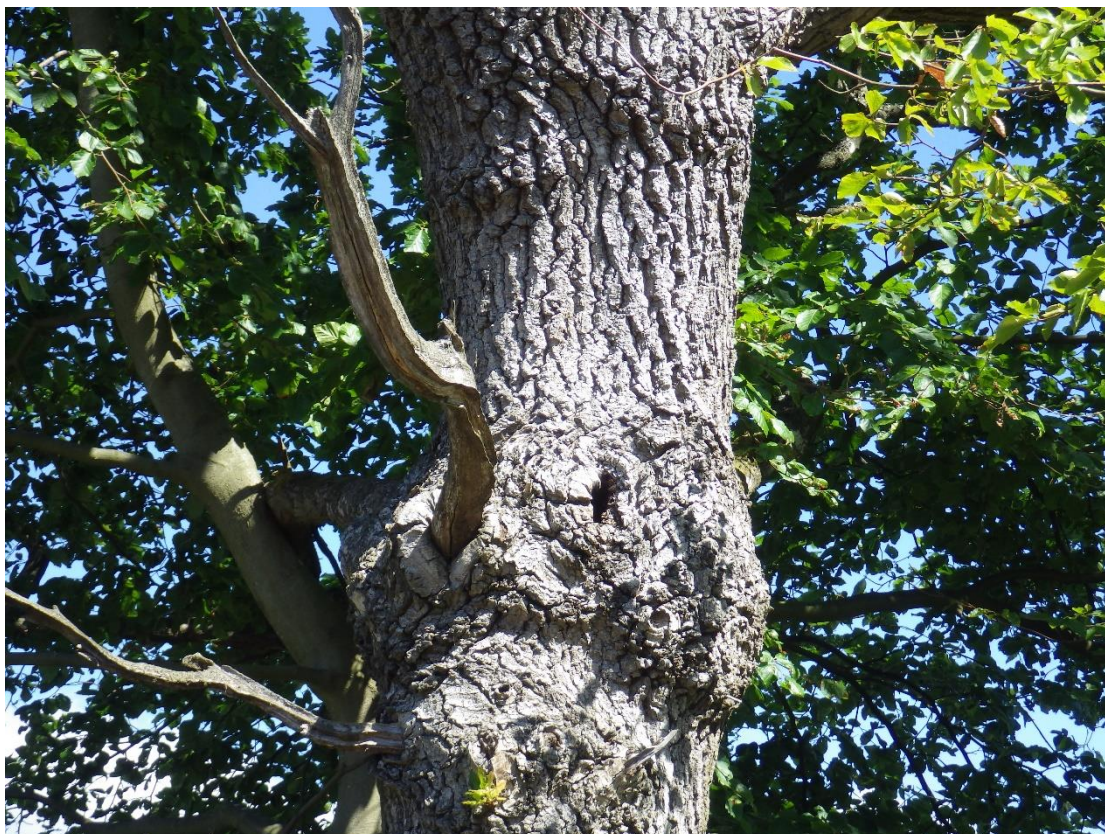


**Photograph 2: Bat PRF (Low) – oak (tree tag 736) decay from snapped limb with possible crevices (Target Note 2). Photo: Niall Currie**

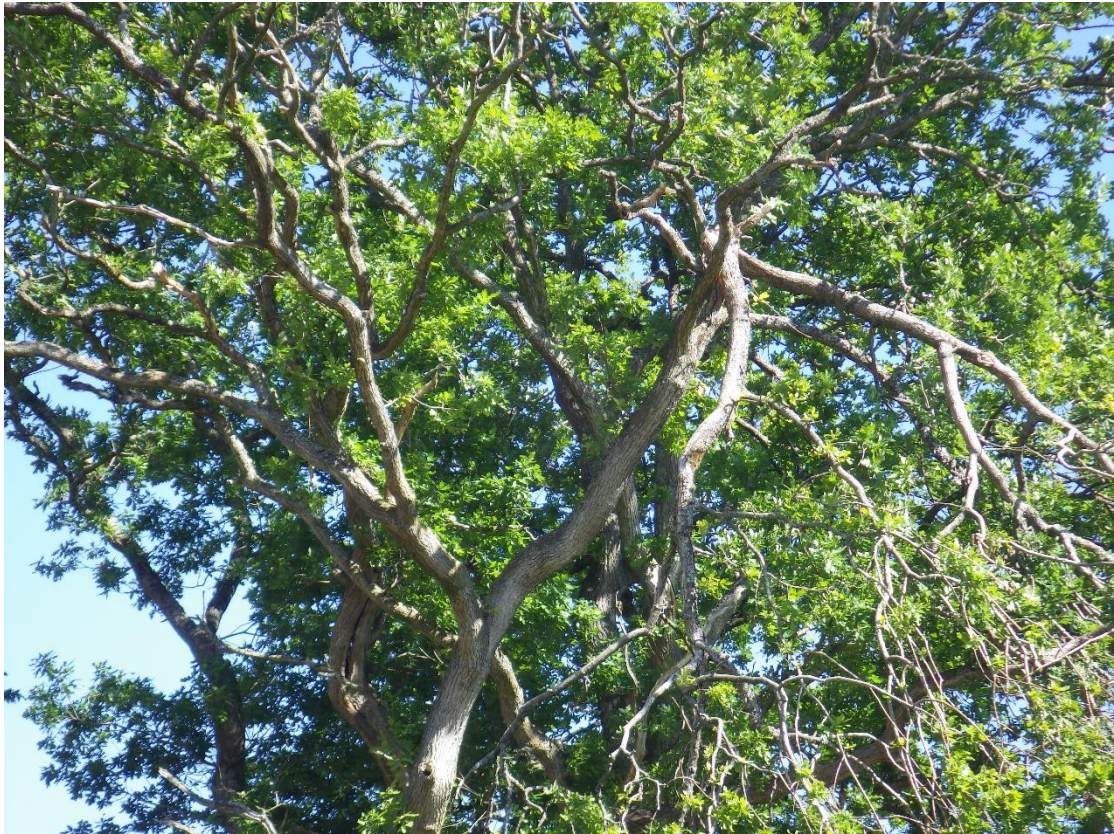




**Photograph 3: Bat PRF (Low) - oak (tree tag 726) with flaking bark on dead branches (Target Note 3). Photo: Niall Currie**



**Photograph 4: Bat PRF (Low) - oak (tree tag 721) with small rot hole (Target note 4). Photo: Niall Currie**



**Photograph 5: Bat PRF (Low) - oak (tree tag 713) with two split branches and one snapped branch in crown (Target Note 5). Photo: Niall Currie**



**Photograph 6: Bat PRF (Low) - oak (tree tag 701) small crevices and fissures where limbs have snapped (Target Note 6). Photo: Niall Currie**



**Photograph 7: PRF (Low) - oak (tree tag 709) with small rot holes (Target Note 7).  
Photo: Niall Currie**



**Photograph 8: Cone with squirrel feeding signs (Target Note 6). Photo: Niall Currie**



**Photograph 9: Oak (tree tag 749) with bird nest (probable wood pigeon or carrion crow) (Target Note 9). Photo: Niall Currie**



**Photograph 10: Brush piles and sparsely vegetated ground with bare patches showing potential for reptile basking and refuge. (Target Note 13). Photo: Niall Currie**



**Photograph 11: Sparsely vegetated south-facing mounds (Target Note 14). Photo: Niall Currie**