



National Grid

# Ecological Baseline Report (Animal)

Visual Impact Provision (VIP)

Snowdonia Project

660952

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**RSK**

# RSK GENERAL NOTES

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK.

## EXECUTIVE SUMMARY

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1. This report presents the results of terrestrial ecological surveys (for Badgers, Bats, Breeding Birds, Reptiles, Otters, Water Voles and Wintering Birds) carried out by RSK Environment Ltd November 2017, September 2018 and March 2019 on behalf of National Grid for the Visual Impact Provision (VIP), Snowdonia Project.
2. The Ecological Survey Area (as defined in *Figure 1* in Section 5 of this report) is located near the village of Minffordd, Gwynedd in north-west Wales, and is c.108 ha in size between Ordnance Survey Grid Reference SH 5922 3888 and SH 6252 3788.
3. The majority of the Ecological Survey Area is estuary habitat, small pockets of broad-leaved woodland, marshy grasslands and areas of pastoral and residential land.
4. There are five outlier Badger setts within the Ecological Survey Area, with activity levels high in the north-western areas. A main sett is likely to be in close vicinity to these outliers.
5. The habitats within the Ecological Survey Area are suitable for foraging and commuting bats. Survey results indicate a diverse assemblage of bats to be present within the Ecological Survey Area.
6. The majority of breeding bird species recorded are situated in the areas identified as good quality habitat such as buildings, hedgerows trees and scrub.
7. Reptiles are present throughout the Ecological Survey Area including Common Lizard, Slow-worm, Adder and Grass Snake.
8. Evidence of Otter activity was found in two locations within the Ecological Survey Area, although no holts were recorded.
9. No evidence of Water Vole was recorded within the Ecological Survey Area.
10. No wintering bird species were recorded in nationally or internationally important numbers. Eleven Red List species and 17 Amber List species were recorded.
11. No incidental observations of Polecats, Hedgehog or Brown Hare were recorded within the Ecological Survey Area.

# CONTENTS

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<b>EXECUTIVE SUMMARY .....</b>	<b>ii</b>
<b>1 INTRODUCTION .....</b>	<b>5</b>
1.1 Purpose of this Report.....	5
1.2 Ecological Context.....	5
<b>2 METHODS.....</b>	<b>6</b>
2.1 Badgers .....	6
2.1.1 Survey Constraints .....	6
2.2 Bats .....	6
2.2.1 Transect Surveys.....	6
2.2.2 Static Surveys.....	8
2.2.3 Tree Assessments and Survey .....	9
2.2.4 Survey Constraints .....	10
2.3 Breeding Birds .....	10
2.3.1 Criteria for Evaluation .....	10
2.3.2 Breeding Bird Survey.....	12
2.3.3 Nightjar Survey .....	12
2.3.4 Survey Constraints .....	13
2.4 Reptiles.....	13
2.4.1 Artificial Refuge Surveys .....	13
2.4.2 Survey Constraints .....	14
2.5 Otter and Water Vole.....	14
2.5.1 Otter Survey .....	14
2.5.2 Water Vole Survey.....	14
2.5.3 Survey Constraints .....	15
2.6 Wintering Bird Survey.....	16
2.6.1 Interpretation of Survey Results .....	16
2.6.2 Survey Constraints .....	17
2.7 Other Notable Species .....	18
<b>3 RESULTS.....</b>	<b>19</b>
3.1 Badgers .....	19
3.2 Bats .....	19
3.2.1 Transect Surveys.....	19
3.2.2 Static Surveys.....	21
3.2.3 Tree Assessment and Surveys .....	23
3.3 Breeding Birds .....	26
3.4 Reptiles.....	27
3.5 Otter and Water Vole.....	28
3.5.1 Otter.....	28
3.5.2 Water Vole.....	28
3.6 Wintering Birds .....	28
3.7 Other Notable Species .....	30
<b>4 REFERENCES .....</b>	<b>31</b>
<b>5 FIGURES.....</b>	<b>33</b>
<b>APPENDIX A: LEGISLATION.....</b>	<b>34</b>

<b>APPENDIX B: SUMMARY OF BIRD SPECIES.....</b>	<b>37</b>
<b>APPENDIX C: BREEDING CRITERIA.....</b>	<b>39</b>
<b>APPENDIX D: WINTERING BIRD SURVEY DATA.....</b>	<b>40</b>

# 1 INTRODUCTION

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## 1.1 Purpose of this Report

This baseline report presents the results of terrestrial ecological surveys (for Badgers, Bats, Breeding Birds, Reptiles, Otters, Water Voles and Wintering Birds) carried out by RSK Environment Ltd between November 2017, September 2018 and March 2019 on behalf of National Grid for the Visual Impact Provision (VIP), Snowdonia Project (here on referred to as the Proposed Project). The results of the 2018 and 2019 surveys serve as an update to those undertaken in 2017 where required.

The Proposed Project will make use of a provision of £500 million for electricity transmission owners to mitigate the visual impact of existing electricity infrastructure in nationally protected landscapes in Great Britain. For National Grid, which is the transmission owner in England and Wales, this means mitigating the effects of existing infrastructure on the visual amenity and landscapes of National Parks and Areas of Outstanding Natural Beauty (AONBs). The Proposed Project seeks to underground a 3km stretch of overhead line (OHL) within a cable tunnel.

Ecological surveys were commissioned to provide baseline information on habitats, vegetation and protected species to inform the environmental appraisal process and any habitat regulations assessment (HRA) which may be required.

The results of terrestrial botanical surveys (including the Phase 1 Habitat Survey) are provided in Technical Appendix 7A, Habitat Regulations Assessments associated with the terrestrial environment are provided in Technical Appendix 7C and botanical surveys of saltmarsh habitat on the Dwyryd Estuary (2016) are provided in Technical Appendix 16B of the Environmental Assessment Report, the results are therefore not duplicated in this report.

## 1.2 Ecological Context

The OHL under consideration crosses the Dwyryd Estuary south of Penrhyndeudraeth in the county of Gwynedd. The Dwyryd Estuary lies within the Pen Llŷn a'r Sarnau Special Area of Conservation (SAC) and Morfa Harlech Site of Special Scientific interest (SSSI).

The Ecological Survey Area (shown on Figure 1) is located near the village of Minffordd, Gwynedd in north-west Wales, and is c.108 ha in size. It includes Minffordd in the west, land south of the village of Penrhyndeudraeth, the estuary associated with the River Dwyryd and land within Snowdonia National Park to the south-east of Llandecwyn train station. The Ecological Survey Area is located between Ordnance Survey Grid Reference SH 5922 3888 and SH 6252 3788. The majority of the Ecological Survey Area is estuary habitat, with agricultural land and residential areas common, particularly to the west. There are also hedgerows with scattered trees and small pockets of broad-leaved woodland. In the eastern extreme of the Ecological Survey Area, rocky outcrop, marshy grassland and dense bracken dominate. There is a road network throughout and this includes the A487 and the adjoining A497 in the west.

## 2 METHODS

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### 2.1 Badgers

A Badger (*Meles meles*) survey has been carried out by appropriately trained ecologists with experience of carrying out such surveys in July 2018. A systematic survey of the Ecological Survey Area (*Figure 1*) was carried out, focusing on habitats that are suitable for Badgers, including grassland, woodland and hedgerows. The Badger survey comprised a detailed search for signs of Badger activity including latrines (droppings), footprints, paths, feeding evidence, hairs and setts.

#### 2.1.1 Survey Constraints

Some areas of the Ecological Survey Area were not accessible due to landowner restrictions. Where possible, these areas were viewed from outside the land parcel boundary; however, a full Badger survey of these areas has not been carried out.

### 2.2 Bats

Habitats were assessed for their suitability for foraging and commuting bats during a preliminary ecological appraisal undertaken by AECOM in October and November 2015. Areas of particular interest vary between species, but generally include sheltered areas and habitats with good numbers of insects such as woodland edges, hedgerows, watercourses and species-rich or rough grassland. Watercourses are particularly favoured by Daubenton's bat (*Myotis daubentonii*) which feeds over water by a technique known as 'trawling'. Habitats and areas of particular interest to foraging and commuting bats on and adjacent to the site are:

- Ysbyty Bron y Garth Site of Special Scientific Interest (SSSI) - located in the west of the Ecological Survey Area, designated for the presence of a Lesser Horseshoe bat maternity roost;
- Meirionnydd Oakwoods and Bat Sites Special Area of Conservation (SAC) – located at the north west of the Ecological Survey Area, designated for the presence of Lesser Horseshoe bat maternity roosts;
- edges of woodland and scrub;
- tree lines; and,
- hedgerows and ditches.

Bat activity surveys were undertaken by suitably qualified and experienced ecologists in undertaking surveys of this type.

#### 2.2.1 Transect Surveys

Transect surveys followed methodology outlined in Collins (2016) to identify areas of high commuting and foraging activity and the species involved (large roosts can sometimes also be identified from patterns of activity). Survey visits were undertaken seasonally between May and September 2018. A supplementary second summer visit was also undertaken.

Two transect routes were covered during the surveys, as agreed with Gwynedd Council. These focused-on areas of the Proposed Project which are within or adjacent to terrestrial designated sites and around the areas where the tunnel head houses are proposed. Transect routes are shown in *Figure 3a and 3b*.

Given the size of the Ecological Survey Area and the habitats present, the Proposed Project falls under the category of 'large-sized site comprising of medium habitat quality' as defined by Collins (2016). Current guidance for Proposed Projects of this type is for at least one transect per month between April and October (totalling seven survey visits), including at least one dusk and pre-dawn within one 24-hour period, and the use of automated static bat detectors. However, due to the location of the site and the sub-optimal weather conditions in April, June and October and with previous data available, it was judged that surveys during these months were not required, this was agreed with Gwynedd Council.

Transects consisted of 2-hour dusk surveys across the Ecological Survey Area, consisting of walking sections with five-minute monitoring stops at previously identified locations with high quality habitat where bats were likely to be encountered. On each visit, a set transect route was walked in suitable weather (above 7°C with little or no rain and no strong winds) using a Batlogger detector and a Duet detector, which allow both targeted and continuous recordings during the survey in both frequency division and time expansion formats. Surveys commenced at sunset and lasted until 2 hours after sunset. The direction of each transect alternated between each month to take into consideration changes in activity across the Ecological Survey Area throughout the season. Bat passes were marked on a map so that statistics on passes and numbers of bats could later be calculated.

*Table 1* details the dates and survey times for each activity survey completed. Weather conditions recorded at the beginning and end of each survey were also recorded. These are provided in *Table 2*.

**Table 1. Survey dates and timings for each transect survey**

Date	Survey Type	Sunset/ Sunrise Time	Start Time	End Time
23/05/2018	Dusk – Transect 1	21:20	21:20	23:20
24/05/2018	Dusk – Transect 2	21:21	21:21	23:21
11/07/2018	Dusk – Transect 1	21:38	21:38	23:38
12/07/2018	Dusk – Transect 2	21:37	21:37	23:37
13/08/2018	Dusk – Transect 2	20:47	20:47	22:47
14/08/2018	Dusk – Transect 1	20:45	20:45	22:45
04/09/2018	Dusk – Transect 1	19:58	19:58	21:58
05/09/2018	Dawn – Transect 2	19:56	19:56	21:56

**Table 2. Weather conditions at the beginning and end of each transect survey**

Date	Air Temperature (°C)	Cloud Cover (Octa)	Wind Speed (Beaufort)	Precipitation
23/05/2018	16/13	1/1	2/2	None
24/05/2018	15/12	8/8	2/1	None
11/07/2018	19/19	2/7	2/2	None
12/07/2018	21/19	8/8	2/2	None
13/08/2018	19/17	8/8	2/1	None
14/08/2018	19/17	8/8	2/2	Light rain towards end of survey.
04/09/2018	13/10	2/1	2/1	None
05/09/2018	17/14	1/7	1/1	None

Levels of bat activity were quantified by the number of bat passes recorded during each walking section or monitoring stop. A single pass by a bat was defined by a gap of one second or more between the end and beginning of the next bat call. Species were identified either in the field or through the analysis of recordings using Bat Sound® and Bat Explorer® software programs.

### 2.2.2 Static Surveys

Wildlife Acoustics Song Meter 2 Bat+ (SM2) detectors were used to monitor two different monitoring points (MPs) (see *Figure 3a*), seasonally between May and September 2018, with a supplementary second summer survey. These surveys followed methodology outlined by Collins (2016) by which SM2s were left out for five consecutive nights each month. The SM2 detectors provided complementary data derived from longer recording periods with each monitoring point corresponding with the following habitat:

- MP1 within valley mire habitat, (OS grid reference: SH 62261 37748); and
- MP2 on woodland edge, (OS grid reference: SH 59515 38801).

The above locations were identified as providing potentially high-quality habitat for both commuting and foraging bats where the number of passes by bats was likely to be high.

Survey dates (shown in *Table 3*) were selected when the predicted weather forecast indicated suitable weather conditions for foraging and commuting bats (*i.e.* air temperature above 7°C, the absence of strong winds and no precipitation). The surveys were designed to provide information on the level of bat activity and composition of bat species using the site, the relative importance of features and locations and how patterns of bat activity may change throughout the year. The information collected was used to compliment the information collected during the bat transect surveys as the SM2s collected information over a longer period.

**Table 3. Survey dates for static detector deployment**

Monitoring Point	May 2018	July 2018	August 2018	September 2018
<b>MP1</b>				
Start	24/05/2018	11/07/2018	14/08/2018	Failure
End	29/05/2018	13/07/2018	20/08/2018	Failure
<b>MP2</b>				
Start	Failure	11/07/2018	14/08/2018	05/09/2018
End	Failure	15/07/2018	20/08/2018	07/09/2018

The units were set up to continuously record from 30 minutes before sunset until 30 minutes after sunrise. The microphones were mounted on extension cables at least 3m off the ground. All recordings were stored on memory cards and analysed using the Kaleidoscope Pro® software program. All automated identifications from the software were double checked by an experienced ecologist for quality assurance purposes. Echolocation calls were identified down to species or genus level depending on the type of bat encountered (i.e. it is not possible to reliably identify species belonging to the genus *Myotis*, *Plecotus* and *Nyctalus* species) and the quality of the recording.

The level of bat activity was quantified by the number of files (*i.e.* passes) for each recorded species for each night and monitoring period. The Kaleidoscope analysis software produced a single file for each pass made by an echolocating bat. Note that there is no way of extrapolating how many bats were being recorded from this acoustic only data and any comparisons between deployments, spatially or temporally, or relative abundance of species activity would be subject to a number of questionable assumptions.

### 2.2.3 Tree Assessments and Survey

All trees present within the Ecological Survey Area were surveyed for their bat roost potential from ground level. Features which were considered suitable for use by bats, such as holes, cracks, flaking bark and climbing plants, were noted as far as is possible from ground level. Any direct evidence of bats, such as actual sightings or droppings, were recorded if found.

Those trees that were classified as having suitable features and as having moderate roosting potential during the ground level tree assessment (GLTA) were subject to two aerial inspection of features using climbing equipment and an endoscope. These surveys were completed as presence/likely absence surveys and any bats observed were recorded. Further, any incidental signs evidence of bats was also recorded e.g. staining, droppings, scratch marks. Inspections were carried out during the bat active season (May to August inclusive) to provide representative information regarding tree usage. This method was considered appropriate to conclude likely presence/ absence of roosting bats as all potential roost features (PRFs) could be accessed and fully inspected.

A further five trees were scoped in, in March 2019 due to potential removal as part of an access route. These trees were subject to GLTA to identify PRFs and then inspected using climbing equipment and an endoscope to provide an accurate classification.

## 2.2.4 Survey Constraints

During transect surveys, bats and their direction of flight were easiest to observe during the period just after sunset when light levels were still high. As the light faded, visual observation often became impossible and 'heard not seen' records were made. When this occurred only the location of the bat pass could be recorded and not the direction of flight.

It assumed that the static detectors deployed in May and September (MP2 and MP1 respectively) suffered complete failure as no records were taken on these machines during this period. Detectors suffered partial failures during the following periods:

- MP 1 July – recorded three days of the planned five days.
- MP 2 July – recorded four days of the planned five days.
- MP 2 September – recorded three days of the planned five days.

A consequence of these failures may be that certain species may be under-recorded due to shortened monitoring periods (Skalak *et al.* 2012). However, the assessment of the site should not be significantly impacted as a range of important species were detected multiple times across each transect and monitoring periods. Furthermore, historical data from surveys undertaken by RSK in 2016 is readily available.

Five trees were inspected in March 2019 during the bat hibernation season. Therefore, the inspections were only suitable for assessing PRFs and not presence or likely-absence. These features may be used by bats during the active season.

## 2.3 Breeding Birds

The objectives of the breeding bird surveys were to:

- identify areas of good and poor breeding habitat within the Ecological Survey Area;
- identify the distribution of breeding birds within the Ecological Survey Area;
- locate any birds protected under Schedule 1 of The Wildlife and Countryside Act 1981 within the Ecological Survey Area; and
- identify any breeding species for which special mitigation may be required.

### 2.3.1 Criteria for Evaluation

#### 2.3.1.1 Determination of Habitat Quality

Habitats within the Ecological Survey Area were assessed for their suitability to support breeding birds based upon the following criteria:

- density of suitable nesting habitat including trees, scrub and high reed beds;
- level of management, i.e. grazing/regular mowing; and
- level of disturbance, i.e. regular tidal flooding.

#### 2.3.1.2 Determination of Breeding Status

The breeding status of each species is classified into three categories: confirmed breeding; probable breeding, and possible breeding. The behaviour, sex, age and location of individual birds allow conclusions to be drawn about breeding status, based

on categories devised by the European Ornithology Atlas Committee (EOAC), 1979. It is also possible that species are merely present in a habitat and are not actually breeding. Breeding evidence used in this report follows EOAC guidelines, 1979, these are provided in Appendix C. Birds not thought to be breeding and birds flying-over are classed as non-breeding.

### **2.3.1.3 Species Richness**

Species richness followed a methodology devised by Fuller (1980) which measured the diversity of a sites breeding assemblage using certain criteria for a simple site assessment. This gives an assessment of importance according to the following categories - Local (25-49 species), County (50-69 species), Regional (70-84 species) and National (85+ species).

### **2.3.1.4 Identification of Birds of Conservation Concern**

A number of criteria are available to determine the conservation status of those bird species recorded. These criteria aid in evaluating the function of the Ecological Survey Area for breeding birds and thus the value of the breeding bird assemblage. The most appropriate of these are used in this assessment including:

- The Birds Directive - Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (this is the codified version of Directive 79/409/EEC as amended) creates a comprehensive scheme of protection for all wild bird species naturally occurring in the European Union. The Birds Directive bans activities that directly threaten birds, such as the deliberate killing or capture of birds, the destruction of their nests and taking of their eggs, and associated activities such as trading in live or dead birds.
- Wildlife and Countryside Act 1981 Schedule 1 Species – All Schedule 1 bird species are protected from intentionally killing and injuring, and from the destruction of nests, eggs and dependent young. Schedule 1 species are also protected from disturbance whilst nesting or attempting to make a nest.
- Birds of Conservation Concern (Eaton *et al.* 2015) – Under this approach bird populations are assessed, using quantitative criteria, to determine the population status of each species and then placed on one of three lists: Red, Amber or Green. Red list species are of high conservation concern, being either globally threatened, having historical UK population declines between 1800 and 1995 or a rapid population decline or breeding range contraction by 50% or more in the last 25 years. Amber list species are of medium conservation concern due to a number of factors, for example having suffered between 25% and 49% contraction of UK breeding range or a 25-49% reduction in breeding or non-breeding populations over the last 25 years. Species that have a five year mean of 1-300 breeding pairs (bp) in the UK or an unfavourable European conservation status or for which the breeding population in the UK represents 20% or more of the European breeding populations are also listed on the Amber list. Green list species have a favourable conservation status.
- National and local biodiversity action plans (BAP) – The United Kingdom BAP (UK Biodiversity Steering Group 1995, reviewed 2007) lists a number of bird species of conservation concern, for which national targets and priorities have

been set in order to address those species' needs. In June 2007 after a review of the UK BAP an additional 22 priority bird species were added to the list of species for which species action plans (SAPs) will be prepared.

### 2.3.1.5 Importance Thresholds

When assessing the importance of sites used by birds, a system was developed, and thresholds set where if 1% of a species (or subspecies) population is represented at a site then the site is important for this species for the size of the population (Fuller, 1980). For example, where a site supports 1 % of the international population the site is important at international level, where a site supports 1 % of the national population the site is important at the national level etc.

RSK have adopted these thresholds of importance in assessing the importance of some breeding species identified during these surveys. For example, if 1 % of a species breeding population is identified at any population size then it is important at that level.

### 2.3.1.6 Nomenclature

The nomenclature for common and scientific names and the taxonomic ordering of species accounts follows that contained in The British List: A checklist of Birds of Britain (7th edition), Dudley *et al.* 2006, also taking into account amendments that have been made by the British Ornithological Union (BOU) since it was published.

### 2.3.2 Breeding Bird Survey

The breeding bird survey methodology was based on the Common Bird Census (CBC) methodology devised jointly by the British Trust for Ornithology (BTO), the Royal Society for the Protection of Birds (RSPB) and the Joint Nature Conservancy Council (JNCC), (Gilbert *et al.* 1998). All breeding bird surveys were undertaken at or just after sunrise to coincide with the period of peak bird activity. A visit was made to all features that may function as nesting bird habitat within the Ecological Survey Area. All birds seen or heard were recorded onto base maps along with notes of behaviour that may indicate breeding.

### 2.3.3 Nightjar Survey

Local records of breeding Nightjar (*Caprimulgus europaeus*) prompted an additional survey methodology to be used. This involved recording Nightjar call (churr) and undertake patrolling flight-lines in secluded habitat such as bog, heath, woodland or plantation edge. Whilst displaying in this way Nightjar can be seen and heard for considerable distances and therefore can be recorded by a suitably experienced surveyor. Dusk surveys of suitable habitat were undertaken on each date of the breeding bird survey and a transect walked. Had Nightjar been seen or heard then numbers of churring males would have been recorded and their territories mapped,

The dates of the surveys and general weather conditions are shown in *Table 4*.

**Table 4. Dates of Breeding Bird Surveys and the Weather Conditions**

Survey Visit	Date/ time	Survey Type	Weather
1	05 April 2018, 6.30-10.30am	BBS	Cloud: 4, Wind: 2, Temp: 5° Dry
2	10 May 2018, 6-10 am	BBS	Cloud: 2, Wind: 0, Temp: 15° Dry

Survey Visit	Date/ time	Survey Type	Weather
3	11 May 2018, 21-22.30	Nightjar	Cloud: 2, Wind: 0, Temp: 12° Dry
4	19 June 2018, 22.30-23.30	Nightjar	Cloud: 8, Wind: 1, Temp: 14° Dry
5	20 June 2018, 6-10 am	BBS	Cloud 8, Wind 1, Temp 17° Light rain showers
2	20 June 2018	Nightjar	Cloud: 0, Wind: 0, Temp: 14° Dry
3	21 June 2018, 6-10 am	BBS	Cloud: 3, Wind: 2, Temp: 17° Light rain showers

### 2.3.4 Survey Constraints

Surveys were undertaken at the ideal time of year and during good weather for breeding bird surveys. In spite of the good conditions, it is not realistic to expect to record every bird using the site during survey visits. However, the surveys were sufficient to record any important assemblages, and to identify areas of particular interest.

## 2.4 Reptiles

The reptile surveys were led by an experienced ecologist who is a full member of CIEEM (Chartered Institute of Ecology and Environmental Management) and a chartered ecologist (CEcol) with over eleven years' experience in reptile surveys. Methodology followed that outlined in the Herpetofauna Worker's Manual (Gent & Gibson 1998).

### 2.4.1 Artificial Refuge Surveys

The standard method for establishing reptile presence is to use artificial refugia (roofing felt or corrugated roofing 'tins' c. 0.5m<sup>2</sup>) placed in the areas of the Ecological Survey Area identified as being suitable habitat for reptiles. The artificial refugia attract reptiles, which use them for shelter and to aid temperature regulation, which allows surveyors to find reptiles that would otherwise be widely dispersed and well-hidden.

Five suitable areas were identified and surveyed using this method; this included vegetated tracks/paths, grassland and the banks of waterbodies including ditches. A total of 260 artificial refugia were placed in the suitable habitat (equating to c.68 refugia per hectare) and then checked periodically in April and May 2018 (when reptiles are active). The locations of the areas surveyed are shown in *Figure 8*. The refugia were checked for reptiles on seven occasions during suitable weather (ideally in bright sunshine between the hours of 0800 to 1100 and 1600 to 1830 with air temperatures between 9 and 15°C, or if there is hazy or intermittent sunshine and little wind then between 9 and 18°C, but not during rain) (*Table 6*).

When checking refugia, a general watch was kept for other signs of reptiles, e.g. Grass Snake (*Natrix natrix*) eggs, excrement or sloughed skins (often found beneath refuges).

A scoring system for categorising the indicative size of reptile populations present (for more common species) (Froglife, 1999) has been used to assess the indicative population sizes present within the Ecological Survey Area, see *Table 5* below. This scoring system gives a population size estimate described as low, good or exceptional. This is based on the maximum number of reptiles observed in one survey period across each reptile survey area.

**Table 5. Reptile Population Size**

Species	Low Population Score 1	Good Population Score 2	Exceptional Population Score 3
Adder	<5 reptiles /ha	5-10/ha	> 10/ha
Common Lizard	<5 reptiles /ha	5-20/ha	>20/ha
Grass Snake	<5 reptiles /ha	5-10/ha	>10/ha
Slow-worm	<5 reptiles /ha	5-20/ha	>20/ha

**Table 6. Weather Conditions**

Date	Start Time	End Time	Start Temp (°C)	End Temp (°C)	Rain	Wind (0-12)	Cloud (0-8)
05/04/18	09:30	11:30	6	10	None	0	0
16/04/18	09:30	11:30	10	11	None	2	4
20/04/18	09:30	11:30	11	13	None	2	4
01/05/18	08:00	10:00	10	14	None	3	5
09/05/18	08:30	10:30	9	12	Rained overnight prior to survey	2	6
16/05/18	09:00	11:00	9	10	None	3	5
24/05/18	08:30	10:30	15	16	None	2	7

## 2.4.2 Survey Constraints

No survey constraints have been identified.

## 2.5 Otter and Water Vole

Surveys of all suitable habitats within the Ecological Survey Area (*Figure 1*) were carried out. The surveys were carried out on two occasions, one early season (May 2018) and one late season (August 2018) in line with the latest Water Vole Guidance (2016). The surveys focused on ditches, water courses and ponds within the Ecological Survey Area. The areas surveyed are shown on *Figure 9*.

### 2.5.1 Otter Survey

The Otter (*Lutra lutra*) survey comprised a detailed search for signs of Otters including spraint (droppings), footprints, slides, paths, feeding evidence, holts (underground resting places) or couches (temporary resting places).

### 2.5.2 Water Vole Survey

Habitat was assessed for Water Voles (*Arvicola amphibius*) according to subjective criteria, which were then used to categorise habitat according to suitability for the species. The following habitat factors are taken into consideration:

- water quality;

- water-level regime;
- channel dimensions;
- bank type and material;
- vegetation for cover and food sources;
- shading;
- predation and competition; and
- habitat management.

Habitat suitability was classified as follows:

- Suitable – habitat that has all the elements required for Water Voles certainly in the summer, and probably through most winters.
- Suitable (Sub-optimal) – habitat that has some of the habitat features that are suitable for Water Vole, but with some constraints so that suitability throughout the year is not certain.
- Unsuitable – habitat lacking one or more crucial element for use by Water Voles. This category does not necessarily preclude the habitat being used by commuting Water Voles, but it would not be able to support a resident population.

Survey for evidence of Water Vole followed standard methods adapted from Strachan and Moorhouse (2011). All suitable habitats were systematically and thoroughly searched for signs of the species where access was possible. April and May are suitable times of the year to survey for Water Voles as they are active above ground, and latrines are maintained from February through to November by territorial individuals (Strachan and Moorhouse, 2011). For those habitats that were classed as suitable, a repeat survey for evidence was carried out in August 2018.

Surveys involved an intensive search of the bank side and water-edge habitat, searching for Water Vole field signs including:

- burrows;
- feeding platforms and evidence of feeding;
- food remains;
- latrines; and
- footprints.

### **2.5.3 Survey Constraints**

Many of the features surveyed were dry, shallow or overgrown at the time of survey making them unsuitable or sub-optimal habitat at this time of year (April and May). Where features were overgrown there are inherent difficulties with surveying effectively for evidence of Water Vole and Otter.

In some cases, it was not possible to survey a feature at water level because of deep water. Where this was the case the feature was surveyed from the banks using binoculars.

## 2.6 Wintering Bird Survey

Wintering bird surveys were undertaken to assess the wintering bird assemblage of the Dwyryd Estuary within the Ecological Survey Area.

One visit per month was undertaken from October 2017 to March 2018 inclusive to record the numbers of wintering birds and spring passage birds. Surveys were timed to observe birds at various tidal cycles. The details of dates, times, tides and weather conditions during the surveys are shown in *Table 7*.

**Table 7. Wintering bird survey timings and weather conditions**

Survey no.	Date	Time of Survey	High Tide	Temp (°C)	Wind (Beaufort)	Cloud (Octas)	Weather observations
1	26/10/17	08:30 to 16:00	00:31 and 12:52	10	3	6	Mild, light breeze.
2	30/11/17	08:30 to 16:00	05:25 and 17:48	4	4	8	Showery, breezy.
3	14/12/17	08:30 to 16:00	05:45 and 18:07	3	3	8	Showery and windy
4	11/01/18	08:00 to 16:00	03:59 and 16:28	2	0	4	Calm, cloudy spells.
5	23/02/18	08:00 to 14:00	00:57 and 13:33	-2	2	2	Sunny, frosty, calm
6	20/03/18	09:00 to 15:30	10:07 and 22:24	2	2	5	Overcast, bright sunny spells.

All birds observed from each survey location were counted and recorded with the main aims of obtaining peak counts for all species and locating significant feeding and/or roosting assemblages. Observations of terrestrial species of birds present around the sites were also recorded during all survey visits. All birds, seen or heard, were recorded using standardised BTO methodology codes and symbols. Special attention was given to undertaking counts of any notable assemblages of feeding and/or roosting birds and to Schedule 1, Birds of Conservation Concern and UKBAP/LBAP species.

### 2.6.1 Interpretation of Survey Results

The data was compiled into summary tables giving information on location, species and peak counts in relation to international, national and local importance. The bird assemblages were then evaluated with special emphasis on Schedule 1, Birds of Conservation Concern, UKBAP species and peak counts that are potentially of importance, as summarised below. Lists and tables of birds were compiled using the order and species used in the British Ornithologists Unions (BOU), 2017. The British List: a checklist of the birds of Britain (9th Edition). Ibis 160: 190-240.

A full list of species observed is shown in *Table 15* and a summary of all Schedule 1, Birds of Conservation Concern and UKBAP species observed during the twelve visits is given *Table 16*.

### **2.6.1.1 Peak Counts**

The peak counts of waterfowl recorded from each of the visits have been compared to the international and national importance thresholds that are given for all wildfowl and wader species in the *WeBS 2016/17 Waterbirds in the UK* Report, which is the most recent report compiled by the BTO. The thresholds represent 1% of the international or national populations and therefore the peak numbers needed to reach levels of international and national importance. A local importance threshold has also been calculated using criteria for designating sites of nature conservation importance (SNCIs) where the threshold is set at 0.5 % of the total national population. These data have been used to assess the international, national and local importance of the peak counts of waterfowl recorded during the surveys.

### **2.6.1.2 Identifying Birds of Conservation Concern**

A number of criteria are available to determine the conservation status of those bird species recorded. These criteria aid in evaluating the function of the site for wintering birds and thus the value of the wintering bird assemblage. The most appropriate of these are:

- Wildlife and Countryside Act 1981 Schedule 1 Species – All bird species are protected from intentionally killing and injuring, and from the destruction of nests, eggs and dependent young. Schedule 1 species are also protected from disturbance whilst nesting or attempting to make a nest
- Birds of Conservation Concern (Eaton *et al.* 2015) – Under this approach bird populations are assessed, using quantitative criteria, to determine the population status of each species and then placed on one of three lists: Red, Amber or Green. Red list species are globally threatened and include those whose population or range has declined rapidly in recent years and those that have declined historically and not shown a substantial recent recovery. Amber list species are of medium conservation concern due to a number of factors and include those that have suffered a moderate decline in population or range in recent years, those with a population that has declined historically but has made a substantial recent recovery, rare breeders and those with internationally important or localised populations. Green list species are those with stable or increasing populations and that are not presently of conservation concern.
- National and local biodiversity action plans (BAP) – The United Kingdom BAP (UK Biodiversity Steering Group 1995, reviewed 2007) lists a number of bird species of conservation concern, for which national targets and priorities have been set in order to address those species' needs. In June 2007 after a review of the UK BAP an additional 22 priority bird species were added to the list of species for which species action plans (SAPs) were prepared.

### **2.6.2 Survey Constraints**

No survey constraints have been identified.

## 2.7 Other Notable Species

During the surveys outlined above, a record was made of any incidental sightings of other notable species, including Polecats (*Mustela putorius*), Hedgehog (*Erinaceus europaeus*) and Brown Hare (*Lepus europaeus*).

## 3 RESULTS

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### 3.1 Badgers

Five outlier Badger setts were recorded within the Ecological Survey Area. Activity levels across the Ecological Survey Area is high, with evidence such as latrines, hairs, paths and 'snuffle' holes. Further, there were frequent sightings of Badgers during the bat activity transect surveys. Highest concentrations of field signs were seen in the north-western region of the Ecological Survey Area, particularly associated with agricultural pasture, woodland and along the field boundaries.

Four outlier setts are located on the north-western edge of the Ecological Survey Area and this, coupled with the high levels of activity is indicative of a main sett being near the boundary of the Ecological Survey Area. A singular outlier sett is located on the edge of a grazed pasture in the southern areas of the Ecological Survey Area.

The specific locations of Badger setts are confidential and therefore Figure 2 showing the locations have not been included in this baseline report.

### 3.2 Bats

#### 3.2.1 Transect Surveys

*Table 8* details the total number of bat passes recorded for each transect between May and September 2018.

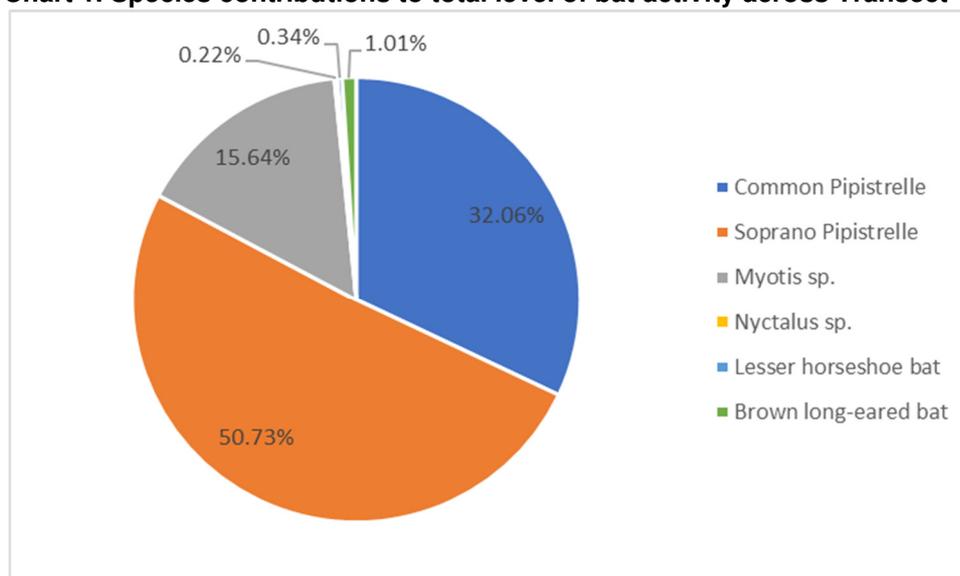
On Transect 1, at least six different species of bat were recorded during the transect surveys including; Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Brown Long-eared Bat (*Plecotus auritus*) and Lesser Horseshoe (*Rhinolophus hipposideros*). The *Nyctalus* sp. on site is either Noctule bat (*Nyctalus noctula*) and/or Leisler's bat (*Nyctalus leisleri*). Based on geographic distributions, the *Myotis* sp. was likely to be one or more of four 'common' myotids: Brandts bat (*Myotis brandtii*), Daubenton's bat (*Myotis daubentonii*), Natterer's bat (*Myotis nattereri*) or Whiskered bat (*Myotis mystacinus*). Over the course of the surveys, Soprano Pipistrelle attributed for 50.73 % of all activity recorded (foraging and commuting) on the site. This was followed by Common Pipistrelle (32.06 %), *Myotis* sp. (15.64 %), Brown Long-eared Bat (1.01 %), Lesser Horseshoe (0.34%) and *Nyctalus* sp. (0.22%), as shown in *Chart 1*.

On Transect 2, the same species as Transect 1 were recorded. Over the course of the surveys, Soprano Pipistrelle attributed for 63.06 % of activity (foraging and commuting) recorded on the site. This was followed by Common Pipistrelle (21.64 %), *Myotis* sp. (13.06 %), Lesser Horseshoe (1%), *Nyctalus* sp. (0.87 %) and finally Brown Long-eared Bat (0.37 %) as shown in *Chart 2*. Similarly to Transect 1, the *Nyctalus* sp. is either Noctule and/or Leisler's bat and the *Myotis* sp. is likely to be one or more of four 'common' myotids: Brandts bat, Daubenton's bat, Natterer's bat or Whiskered bat.

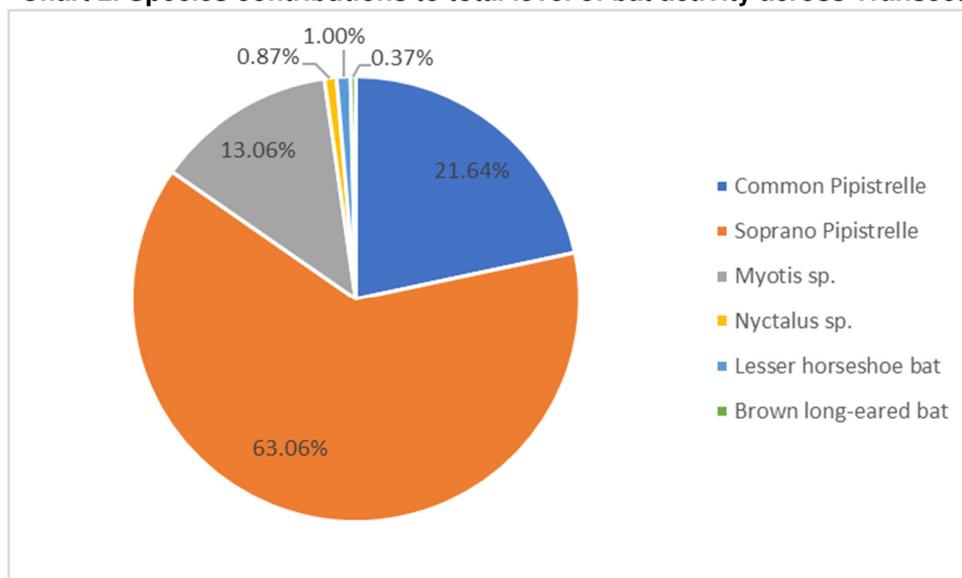
**Table 8. Total number of bat passes recorded during each transect survey**

Species	May	July	August	September	TOTAL
<b>Transect 1</b>					
Common Pipistrelle	69	84	71	61	<b>285</b>
Soprano Pipistrelle	87	73	153	138	<b>451</b>
<i>Myotis</i> sp.	2	22	76	39	<b>139</b>
<i>Nyctalus</i> sp.	0	0	1	1	<b>2</b>
Lesser horseshoe bat	1	0	1	1	<b>3</b>
Brown long-eared bat	4	0	1	4	<b>9</b>
<b>TOTAL</b>	<b>163</b>	<b>179</b>	<b>303</b>	<b>244</b>	<b>889</b>
<b>Transect 2</b>					
Common Pipistrelle	57	50	15	52	<b>174</b>
Soprano Pipistrelle	130	83	182	112	<b>507</b>
<i>Myotis</i> sp.	1	14	72	18	<b>105</b>
<i>Nyctalus</i> sp.	4	0	3	0	<b>7</b>
Lesser horseshoe bat	1	0	2	5	<b>8</b>
Brown long-eared bat	0	0	1	2	<b>3</b>
<b>TOTAL</b>	<b>193</b>	<b>147</b>	<b>275</b>	<b>189</b>	<b>804</b>

**Chart 1. Species contributions to total level of bat activity across Transect 1**



**Chart 2. Species contributions to total level of bat activity across Transect 2**



For both transects, the August surveys had the peak level of bat activity recorded (total of 303 passes on Transect 1 and 275 passes on Transect 2). The highest number of different bat species was recorded in the August surveys (at least six species for both transects).

Bat activity within Transect 1 was mostly uniform across each season (*Figure 4a-d*). Bats were observed mostly along the northern boundary of the route, with cliff faces providing a robust linear feature for commuting. A large amount of foraging activity was seen in the most north-western region in ‘valley mire’ habitat. This area was particularly wet and gave rise to large congregations of flying insects. To the south-east bats were observed both foraging and commuting along a sloped area, dominated by Bracken. During each transect, large numbers of bat passes were observed near artificial lighting adjacent to residential properties. Light-tolerant species including Common and Soprano Pipistrelle were observed foraging in these areas, taking advantage of insects attracted by the red light.

In comparison, bat activity within Transect 2 varied across each season, with bats observed more frequently in different areas (*Figure 5a-d*), although some general trends were observed. Activity was seen frequently along the woodland edge to the west of the transect area, which forms the boundary of the Meirionnydd Oakwoods and Bat Sites SAC designated partially for the presence of Lesser Horseshoe bats. A hedgerow protruding from this woodland was also observed as a strong commuting route. The woodland block east of Garth Sealing End Compound (SEC) was observed to be good foraging and commuting habitat as was a drainage ditch running through the woodland itself and along the northern edge of the transect route. Generally, the linear features within the transect area are well linked and provide excellent commuting routes to and from the neighbouring SAC. Similarly, to Transect 1, light-tolerant species were seen taking advantage of artificial lighting near residential properties.

### 3.2.2 Static Surveys

A summary of the results for each monitoring point are given in *Tables 8* and *9* for MP1 and MP2 respectively.

Across both monitoring points at least seven different species of bat were recorded; Common Pipistrelle, Soprano Pipistrelle, *Myotis* sp., *Nyctalus* sp., Lesser horseshoe, Greater horseshoe (*Rhinolophus ferrumequinum*) and Brown Long-eared Bat. Soprano Pipistrelle and Common Pipistrelle bats were recorded most frequently across both monitoring points and mostly on a nightly basis. *Myotis* sp. were the next most frequently recorded. At MP1 the next most frequently recorded species was Brown Long-eared Bat, followed by *Nyctalus* sp. and Lesser Horseshoe. Greater Horseshoe passes were recorded less frequently. At MP2 the next most frequent recorded species was Lesser Horseshoe followed by Greater Horseshoe. *Nyctalus* sp. and Brown Long-eared Bat passes were recorded less frequently.

Overall the highest levels of activity were recorded at MP1 within the valley mire habitat at the most eastern region of the Ecological Survey Area. Due to the wet conditions of this habitat, large congregations of flying insects were present at dusk, which may contribute to the higher levels of activity (likely from foraging bats) in comparison to MP2 – a woodland edge where commuting behaviour may be more typical. *Tables 9 and 10* present the number of files recorded for each monitoring point. This metric corresponds to the number of passes per species (intervals of one second between bat calls represents a new pass).

**Table 9. Number of files containing each species for Monitoring Point 1**

Species	May 2018	July 2018	August 2018	September 2018 (Failed)	TOTAL
Common Pipistrelle	758	28	604	-	<b>1390</b>
Soprano Pipistrelle	975	28	1812	-	<b>2815</b>
<i>Myotis</i> sp.	36	8	138	-	<b>182</b>
<i>Nyctalus</i> sp.	1	0	29	-	<b>30</b>
Lesser Horseshoe bat	9	0	16	-	<b>25</b>
Greater Horseshoe bat	1	8	0	-	<b>9</b>
Brown long-eared bat	44	3	6	-	<b>53</b>
<b>TOTAL</b>	<b>1824</b>	<b>75</b>	<b>2605</b>	-	<b>4504</b>

**Table 10. Number of files containing each species for Monitoring Point 2**

Species	May 2018 (Failed)	July 2018	August 2018	September 2018	TOTAL
Common Pipistrelle	-	301	303	16	<b>620</b>
Soprano Pipistrelle	-	613	912	325	<b>1850</b>
<i>Myotis</i> sp.	-	423	41	3	<b>467</b>
<i>Nyctalus</i> sp.	-	2	17	0	<b>19</b>
Lesser Horseshoe bat	-	0	161	0	<b>161</b>
Greater Horseshoe bat	-	64	0	49	<b>113</b>
Brown long-eared bat	-	11	7	0	<b>18</b>
<b>TOTAL</b>	-	<b>1414</b>	<b>1441</b>	<b>393</b>	<b>3248</b>

### 3.2.3 Tree Assessment and Surveys

The majority of the trees within the Ecological Survey Area are in good condition and do not support features suitable for roosting bats. *Figure 6* shows individual trees which are of moderate or low suitability for roosting bats. These trees all featured at least one roost feature but were of a large enough size to possess more that could not be viewed from ground level.

*Table 11a* shows the species, location and features identified on each tree.

Upon aerial and endoscope inspection, no bats were observed in any of the trees and no evidence of roosting within the features was recorded. During the second inspection of the trees, no bats or evidence of roosting bats was recorded. Results were sufficient to conclude the likely absence of bats from these trees.

*Table 11b* shows the species, location and features and further survey recommendations of five trees scoped in March 2019.

**Table 11a. Trees with roosting potential, inspected via aerial and endoscope surveys – 2018**

Tree No.	Species	Grid Ref	DBH* (m)	Feature Description	Distance radially from trunk (m)	Height (m)	Aspect	Feature entrance orientation	Bat Roost Potential	Survey 1	Survey 2
1	<i>Quercus robur</i> (Pedunculate Oak)	SH 59713 38783	2 x 0.5	Twin stem with fissure on limb. On network rail fence under OHL.	1.5	5.5	N	N	Moderate	<b>Absent</b>	<b>Absent</b>
2	<i>Quercus robur</i> (Pedunculate Oak)	SH 59770 38781	0.5	Twin stem with callouses where two trunks meet. Two features.	0	2 & 3	Centre	N/S	Moderate	<b>Absent</b>	<b>Absent</b>
3	<i>Quercus robur</i> (Pedunculate Oak)	SH 59766 38782	0.5	Rotten trunk with cracks and splits. Woodpecker holes also present.	0	6 & 7	W	W	Moderate	<b>Absent</b>	<b>Absent</b>
4	<i>Salix</i> sp. (Willow species)	SH 59965 38712	1	Large fallen limb with two knot holes.	0	4.5	N	N	Moderate	<b>Absent</b>	<b>Absent</b>
5	<i>Quercus robur</i> (Pedunculate Oak)	SH 59975 38702	0.5	Multiple features, cracks, splits, knot holes and fallen branches.	Varies	1 – 5	W & S	W & S	Moderate	<b>Absent</b>	<b>Absent</b>
6	<i>Quercus robur</i> (Pedunculate Oak)	SH 59981 38703	0.75	Knot holes and cracks in limbs.	1	6	W	W	Moderate	<b>Absent</b>	<b>Absent</b>

\*Diameter at Breast Height

**Table 11b. Trees with roosting potential, inspected from ground level and via aerial and endoscope inspection – 2019**

Tree No.	Species	Grid Ref	DBH (m)	Feature Description	Distance radially from trunk (m)	Height (m)	Aspect	Feature entrance orientation	Bat Roost Potential	Further Survey Requirement
7	<i>Quercus robur</i> (Pedunculate Oak)	SH 62466 37826	1	Snapped limb, with rotting heart would into main trunk and second cavity in primary limb.	0.5	4	N	N	Low	<b>No Further Survey- Precautionary Measures Felling / Removal.</b>
8	<i>Quercus robur</i> (Pedunculate Oak)	SH 62447 37804	1.75	Shearing would with several small cavities and dense woody ivy with numerous crevices.	1	4-8	SE & Various	SE & Various	Moderate	<b>Two survey visits in bat active season.</b>
9	<i>Salix caprea</i> (Goat Willow)	SH 62437 37795	0.5	Snapped main stem with large exposed hollow in main trunk, accessible from various aspects. Snapped limb with rot hollow also present.	0 – 1	3	Central & SE	Various & SE	Low	<b>No Further Survey- Precautionary Measures Felling / Removal.</b>
10	<i>Quercus robur</i> (Pedunculate Oak)	SH 62422 37780	1.5	Snapped limb, gaps between heart wood and bark. Snapped limb rotten section extending into tree. Second rot hole by snapped limb. All shallow and exposed.	1.5	2	N, NW	N, NW	Low	<b>No Further Survey- Precautionary Measures Felling / Removal.</b>
11	<i>Quercus robur</i> (Pedunculate Oak)	SH 62388 37737	1.25	No PRFs observed.	-	-	-	-	Negligible	<b>No further action required.</b>

### 3.3 Breeding Birds

Figures for the April, May and June surveys detailing survey results are presented on *Figures 7a, 7b and 7c* respectively.

A total of 45 species were recorded. A complete species list summarising the breeding status, based on the European Ornithology Atlas Committee (EOAC) criteria is presented in Appendix C.

Nightjar were not recorded during the surveys, but nocturnal surveys did add Tawny Owl (*Strix aluco*) to the species lists.

Interpreting the data using the EOAC criteria, 17 species (37%) are confirmed as breeding, ten (22%) are categorised as probable breeding species and nine (19%) as possible breeding species. In addition, eight species (18%) are categorised as either non-breeding species or were simply recorded flying over the site.

Eight bird species were listed as migrants or non-breeding including: Canada Goose (*Branta canadensis*), Common Gull (*Larus canus*), Curlew (*Numenius arquata*), Grey Heron (*Ardea cinerea*), Lesser Black-backed Gull (*Larus fuscus*), Little Egret (*Egretta garzetta*), and Peregrine (*Falco peregrinus*).

Of all the bird species recorded, one is listed on Annex 1 on the EU Birds Directive and is on the Schedule 1 on the Wildlife and Countryside Act 1981. Of those breeding or possible breeding, six are Amber Species of Conservation and five are Red Species of Conservation Concern. These birds and their breeding status are all listed in *Table 12*.

**Table 12. Bird Species Recorded during the Breeding Bird Surveys of Conservation Concern, their Conservation Status and their Breeding Status**

English name	Scientific name	Conservation Status	Breeding Status
Common Gull	<i>Larus canus</i>	BoCC Amber	Non Breeder
Curlew	<i>Numenius arquata</i>	BoCC Red/UK BAP	Non Breeder
Dunnock	<i>Prunella modularis</i>	BoCC Amber/UK BAP	Confirmed
Herring Gull	<i>Larus argentatus</i>	BoCC Red/UK BAP	Non Breeder
House Martin	<i>Delichon urbicum</i>	BoCC Amber	Possible
House Sparrow	<i>Passer domesticus</i>	BoCC Red/UK BAP	Confirmed
Linnet	<i>Carduelis cannabina</i>	BoCC Red/UK BAP	Confirmed
Mallard	<i>Anas platyrhynchos</i>	BoCC Amber	Possible
Meadow Pipit	<i>Anthus pratensis</i>	BoCC Amber	Confirmed
Mistle Thrush	<i>Turdus viscivorus</i>	BoCC Red	Confirmed
Peregrine	<i>Falco peregrinus</i>	Schedule 1/Annex 1	Non Breeder
Skylark	<i>Alauda arvensis</i>	BoCC Red/UK BAP	Possible
Song Thrush	<i>Turdus philomelos</i>	BoCC Red/UK BAP	Confirmed
Tawny Owl	<i>Strix aluco</i>	BoCC Amber	Possible
Willow Warbler	<i>Phylloscopus trochilus</i>	BoCC Amber	Confirmed

A map of areas of good habitat (marked in red) and poor habitat, or where birds were noted as infrequent or absent (marked in green) is presented in *Figure 7d*.

### 3.4 Reptiles

The results of the surveys are presented in *Table 13* and the location of the reptile survey areas is shown in *Figure 8*. Sufficient survey visits were conducted to allow a population size class assessment to be made, however care should be taken when interpreting population size results. They are presented here as a guide only. Population size classes, (based on the criteria in *Table 4*) are shown in *Table 14*. The codes used in the tables are as follows:

- Af (*Anguis fragilis*) – Slow-worm;
- Nn (*Natrix natrix*) – Grass Snake; and
- Zv (*Zootoca vivipara*) – Common Lizard.

One Grass Snake was recorded incidentally in the Ecological Survey Area at survey location 2, but none were found during the reptile surveys. This has been attributed to a low population in *Table 14*. In addition, there was an incidental sighting of a Grass Snake in a ditch in the field to the north of survey location 4. Unlike 2016, no Adders (*Vipera berus*) were recorded at survey location 5. Amphibians, including Common Toads (*Bufo bufo*) and Common Frogs (*Rana temporaria*) were recorded under the felts during surveys.

**Table 13. Reptile Data**

Survey Location	Area (Ha)	No. of Tins	Check						
			1	2	3	4	5	6	7
1	0.2	40	-	1 Zv (j)	1 Zv	-	-	-	-
2	0.16	10	-	1 Af	1 Af	2 Af	-	1 Af	2 Af
3	0.02	20	-	-	-	-	-	1 Af	2 Af, 2 Nn
4	0.17	30	-	-	3 Zv	-	-	-	-
5	3.2	160	-	2 Zv, 3 Af	3 Zv, 1 Af	2 Zv, 1 Af	1 Zv (j), 1 Af	1 Zv, 1 Af	1 Zv, 5 Af
<b>Totals</b>			-	<b>4Af 3Zv</b>	<b>2Af 7Zv</b>	<b>3Af 2Zv</b>	<b>1Zv 1 Af</b>	<b>1Zv 3Af</b>	<b>9Af 1Zv 2Nn</b>

**Table 14. Population Sizes (based on Table 4)**

Survey Location	Area (Ha)	Grass Snake	Common Lizard	Slow-worm
1	0.2	-	Low	-
2	0.16	-	-	Good
3	0.02	Exceptional	-	Exceptional
4	0.17	-	Good	-
5	3.2	Low	Low	Low

Peak counts of reptiles were recorded on visit seven in late May 2018.

## 3.5 Otter and Water Vole

### 3.5.1 Otter

Evidence of Otter activity was found in two locations within the Ecological Survey Area. This included footprints and recent spraints recorded within the watercourse under the A487 road at the north western end of the site as well as Otter spraints in a ditch at the south-eastern end of the site (*Figure 9*). No holts were recorded.

### 3.5.2 Water Vole

No evidence of Water Vole was recorded within the Ecological Survey Area. A total of 21 ditches, water courses and ponds were surveyed across the site (*Figure 9*). These included field drains, drainage ponds, ornamental ponds and tidal watercourses. Of the features surveyed:

- 1 was classed as suitable;
- 8 were classed as suitable (sub-optimal); and,
- 12 were classed as unsuitable.

## 3.6 Wintering Birds

A total of 54 bird species was recorded during the visits to the Dwyrdd Estuary and a full list of these species is shown in *Table 15*. Full tabulated data sheets for each survey visit are provided in Appendix D.

**Table 15. Bird species recorded during the surveys**

English name	Latin name	English name	Latin name
Canada Goose	<i>Branta canadensis</i>	Merlin‡**	<i>Falco columbarius</i>
Barnacle Goose*	<i>Branta leucopsis</i>	Peregrine Falcon‡	<i>Falco peregrinus</i>
Common Shelduck*	<i>Tadorna tadorna</i>	Eurasian Jay	<i>Garrulus glandarius</i>
Mallard*	<i>Anas platyrhynchos</i>	Eurasian Magpie	<i>Pica pica</i>
Northern Pintail‡*	<i>Anas acuta</i>	Jackdaw	<i>Coloeus monedula</i>
Eurasian Teal*	<i>Anas crecca</i>	Carrion Crow	<i>Corvus corone</i>
Common Goldeneye‡*	<i>Bucephala clangula</i>	Northern Raven	<i>Corvus corax</i>
Common Merganser	<i>Mergus merganser</i>	Eurasian Blue Tit	<i>Cyanistes caeruleus</i>
Common Pheasant	<i>Phasianus colchicus</i>	Great Tit	<i>Parus major</i>
Grey Heron	<i>Ardea cinerea</i>	Eurasian Skylark**†	<i>Alauda arvensis</i>
Little Egret	<i>Egretta garzetta</i>	Eurasian Wren	<i>Troglodytes troglodytes</i>
Great Cormorant	<i>Phalacrocorax carbo</i>	Common Starling**†	<i>Sturnus vulgaris</i>
Eurasian Sparrowhawk	<i>Accipiter nisus</i>	Common Blackbird	<i>Turdus merula</i>
Common Buzzard	<i>Buteo buteo</i>	Fieldfare‡**	<i>Turdus pilaris</i>
Eurasian Oystercatcher*	<i>Haematopus ostralegus</i>	Redwing‡**	<i>Turdus iliacus</i>
Eurasian Curlew**†	<i>Numenius arquata</i>	Song Thrush**	<i>Turdus philomelos</i>
Common Snipe*	<i>Gallinago gallinago</i>	Mistle Thrush**	<i>Turdus viscivorus</i>
Common Redshank*	<i>Tringa totanus</i>	European Robin	<i>Erithacus rubecula</i>
Black-headed Gull*	<i>Larus ridibundus</i>	European Stonechat	<i>Saxicola rubicola</i>
Mediterranean Gull‡*	<i>Ichthyaeetus melanocephalus</i>	House Sparrow**†	<i>Passer domesticus</i>
Mew Gull*	<i>Larus canus</i>	Dunnock*	<i>Prunella modularis</i>

English name	Latin name	English name	Latin name
Great Black-backed Gull*	<i>Larus marinus</i>	White Wagtail	<i>Motacilla alba</i>
Herring Gull**†	<i>Larus argentatus</i>	Meadow Pipit*	<i>Anthus pratensis</i>
Lesser Black-backed Gull*	<i>Larus fuscus</i>	Common Chaffinch	<i>Fringilla coelebs</i>
Common Wood Pigeon	<i>Columba palumbus</i>	Common Linnet**†	<i>Linaria cannabina</i>
Eurasian Collared Dove	<i>Streptopelia decaocto</i>	European Goldfinch	<i>Carduelis carduelis</i>
Common Kestrel*	<i>Falco tinnunculus</i>	Eurasian Siskin	<i>Spinus spinus</i>

‡ Schedule 1 species

\*\* Red list Birds of Conservation Concern

\* Amber list Birds of Conservation Concern

† UKBAP species

No species were recorded in internationally or nationally important numbers. Seven Schedule 1 species and six species listed on the UKBAP were recorded. Eleven species on the Red List of BoCC (2015) and seventeen in the Amber List were recorded. These notable species recorded during the visits have been summarised in *Table 16*.

There were no notable patterns of bird movement. The estuarine inlet is sandy and therefore is less attractive to wintering birds than the typical muddy inlets. The survey location was also too far inland to detect movements of birds along the coast. *Figure 10a-e* highlights the general bird movements and feeding areas during each survey.

**Table 16. Notable wintering birds recorded during the visits**

Species	Schedule 1 Species	UKBAP Species	Red List Species	Amber List Species
Barnacle Goose	-	-	-	✓
Common Shelduck	-	-	-	✓
Mallard	-	-	-	✓
Northern Pintail	✓	-	-	✓
Eurasian Teal	-	-	-	✓
Common Goldeneye	✓	-	-	✓
Eurasian Oystercatcher	-	-	-	✓
Eurasian Curlew	-	✓	✓	-
Common Snipe	-	-	-	✓
Common Redshank	-	-	-	✓
Black-headed Gull	-	-	-	✓
Mediterranean Gull	✓	-	-	✓
Mew Gull	-	-	-	✓
Great Black-backed Gull	-	-	-	✓
Herring Gull	-	✓	✓	-
Lesser Black-backed Gull	-	-	-	✓
Common Kestrel	-	-	-	✓
Merlin	✓	-	✓	-

Species	Schedule 1 Species	UKBAP Species	Red List Species	Amber List Species
Peregrine Falcon	✓	-	-	-
Eurasian Skylark	-	✓	✓	-
Common Starling	-	✓	✓	-
Fieldfare	✓	-	✓	-
Redwing	✓	-	✓	-
Song Thrush	-	-	✓	-
Mistle Thrush	-	-	✓	-
House Sparrow	-	✓	✓	-
Dunnock	-	-	-	✓
Meadow Pipit	-	-	-	✓
Common Linnet	-	✓	✓	-

### 3.7 Other Notable Species

No incidental observations of Polecats, Hedgehog or Brown Hare or any other notable species were recorded in the Ecological Survey Area.

## 4 REFERENCES

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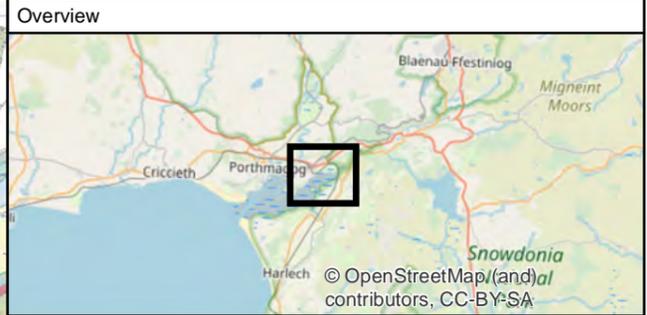
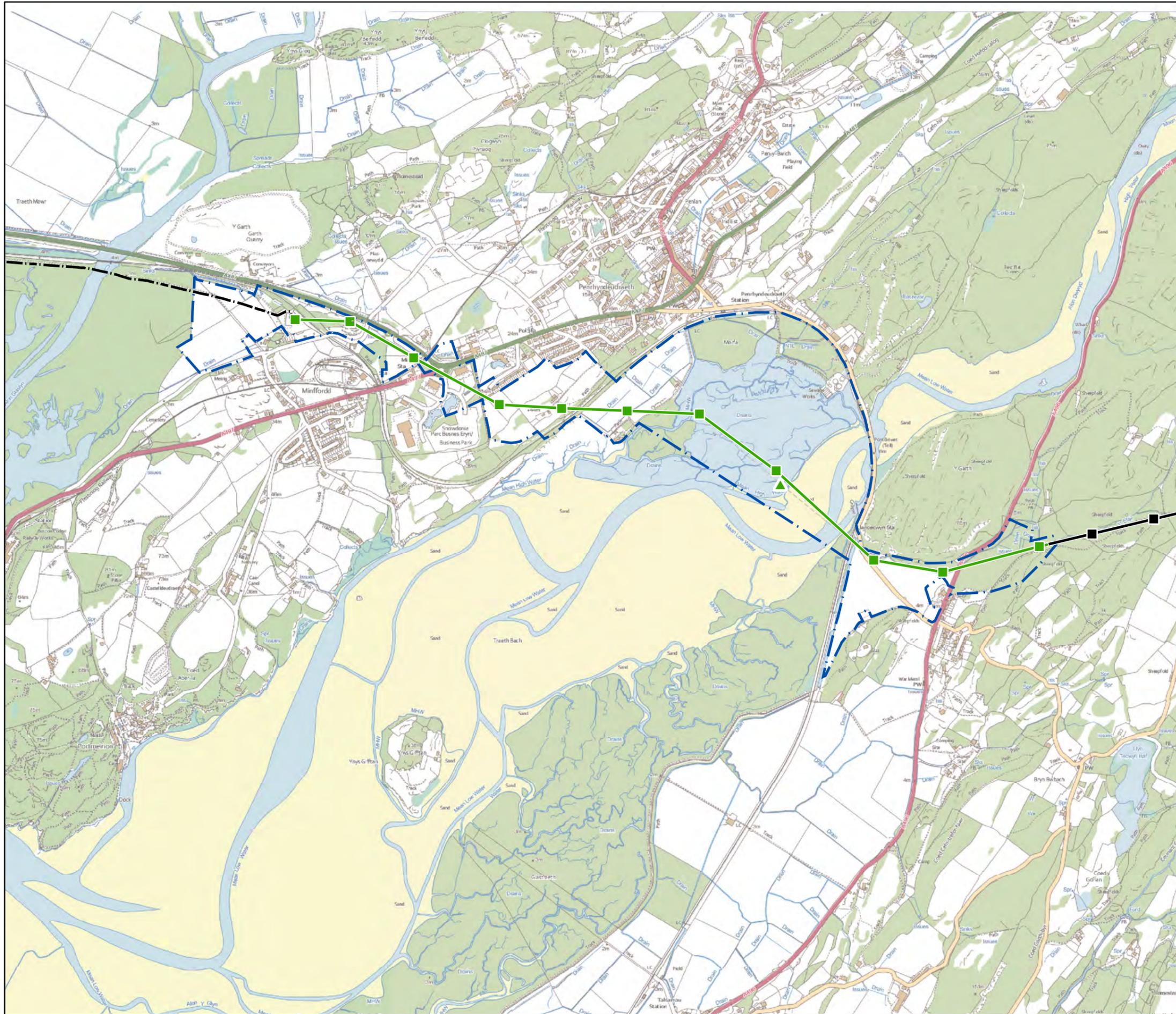
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## 5 FIGURES

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- Figure 1 – Ecology Survey Area
- Figure 2 – Badger Survey Results (confidential, not contained within this report)
- Figure 3a – Bat Activity Transect 1 Route and Monitoring Point.
- Figure 3b – Bat Activity Transect 2 Route and Monitoring Point.
- Figure 4a – Bat Activity Transect 1 – May
- Figure 4b – Bat Activity Transect 1 – July
- Figure 4c – Bat Activity Transect 1 – August
- Figure 4d – Bat Activity Transect 1 - September
- Figure 5a – Bat Activity Transect 2 – May
- Figure 5b – Bat Activity Transect 2 – July
- Figure 5c – Bat Activity Transect 2 – August
- Figure 5d – Bat Activity Transect 2 – September
- Figure 6 – Bat Tree Assessment
- Figure 7a – April 2018 Breeding Bird Results
- Figure 7b – May 2018 Breeding Bird Results
- Figure 7c – June 2018 Breeding Bird Results
- Figure 7d – Suitable Habitat for Breeding Birds
- Figure 8 – Reptile Survey Areas
- Figure 9 – Otter and Water Vole Survey Results
- Figure 10a – November 2017 Winter Bird Results
- Figure 10b – December 2017 Winter Bird Results
- Figure 10c – January 2018 Winter Bird Results
- Figure 10d – February 2018 Winter Bird Results
- Figure 10e – March 2018 Winter Bird Results



- Legend**
- Ecological Survey Area
  - Existing National Grid Underground Cable
  - Overhead Line to be Removed
  - Existing National Grid Overhead Line
  - ▲ Foundation of Former Pylon 4ZC030 to be Removed
  - Existing National Grid Pylon to be Removed
  - Existing National Grid Pylon to be Retained

Source:  
Ecology: RSK, 2016.  
Study Area: AECOM, 2015, edited Mott MacDonald March 2016.

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Rev	Description	Cre'd	Chk'd	App'd	Date
01	scheme and terminology	NH	WH	WH	29/03/2019
00	First Draft	NH	WH	WH	05/11/2019



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Scheme Name:  
**Visual Impact Provision (VIP) Snowdonia Project**

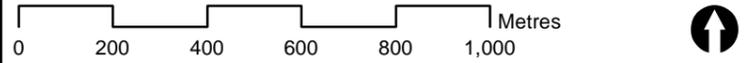
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National Grid Document Number:  
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**Legend**

- Ecological Survey Area
- Static monitoring points
- Bat Survey Transect

Source: RSK 2018

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Rev	Description	Cre'd	Chk'd	App'd	Date



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Scheme Name:  
**Visual Impact Provision (VIP) Snowdonia Project**

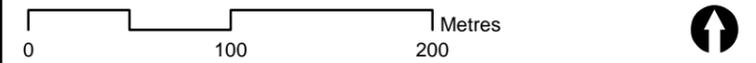
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Bat Activity Route and Monitoring Point  
Transect 1**

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Development Eng:	Document Type:	Scale: 1:3,500	Format: A3	Sheet(s): 1 of 1	Rev: 00

National Grid Document Number:  
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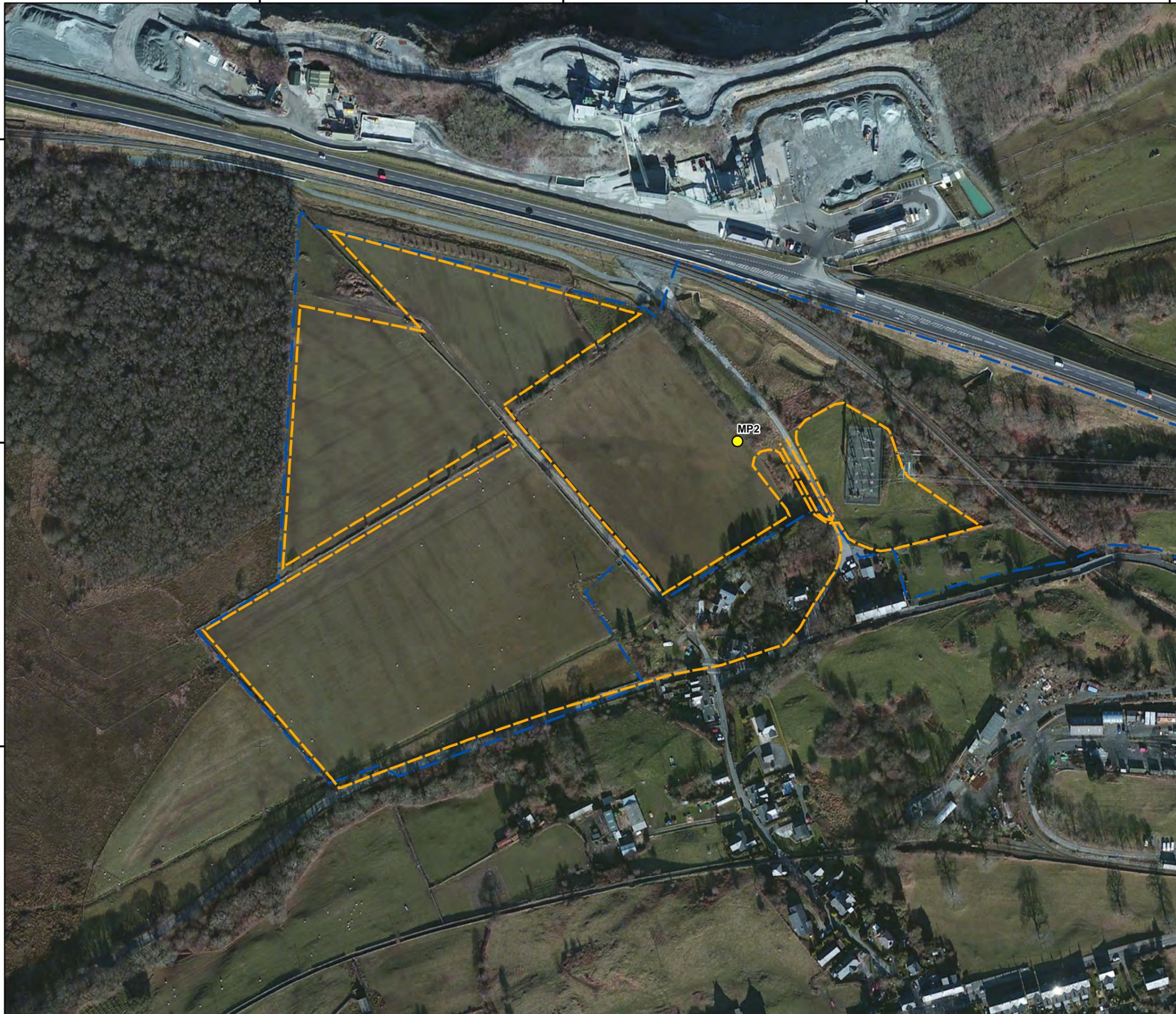
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Overview



Legend

-  Ecological Survey Area
-  Static monitoring points
-  Bat Survey Transect

Source: RSK 2018

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Scheme Name:  
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Document Title:  
**Figure 3b:  
Bat Activity Route and Monitoring Point  
Transect 2**

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**Legend**

- Ecological Survey Area
- Bat Survey Transect

**Bat Survey Results:**

- Brown long-eared bat
- Common Pipistrelle
- Lesser horseshoe bat
- Myotis sp.
- Nyctalus sp.
- Soprano Pipistrelle

Source: RSK 2018

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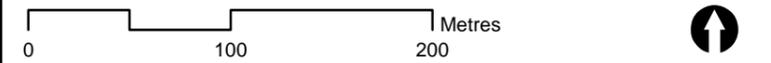
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Bat Survey Results - Transect 1  
May**

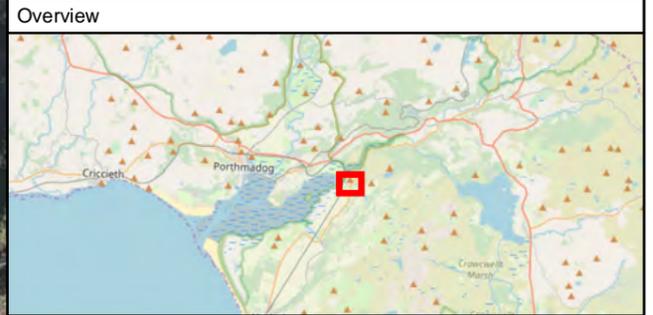
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**Legend**

- Ecological Survey Area
- Bat Survey Transect

**Bat Survey Results:**

- Brown long-eared bat
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- Lesser horseshoe bat
- Myotis sp.
- Nyctalus sp.
- Soprano Pipistrelle

Source: RSK 2018

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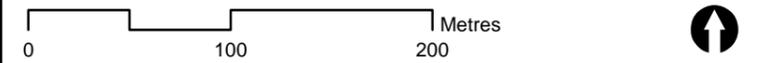
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Bat Survey Results - Transect 1  
July**

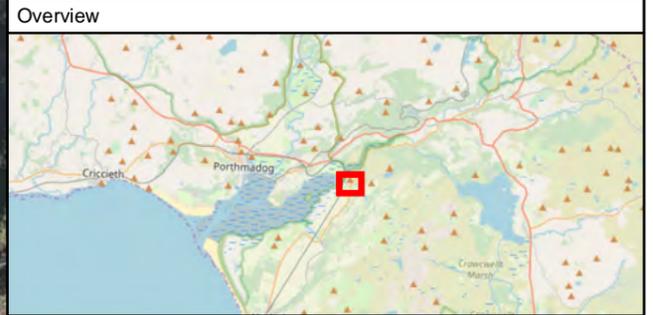
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**Legend**

- Ecological Survey Area
- Bat Survey Transect

**Bat Survey Results:**

- Brown long-eared bat
- Common Pipistrelle
- Lesser horseshoe bat
- Myotis sp.
- Nyctalus sp.
- Soprano Pipistrelle

Source: RSK 2018

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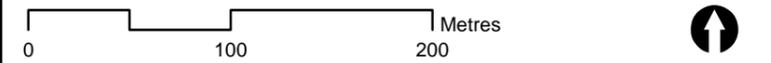
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Bat Survey Results - Transect 1  
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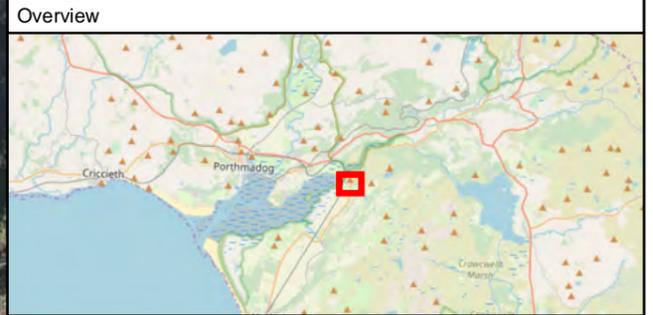
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**Legend**

- Ecological Survey Area
- Bat Survey Transect

**Bat Survey Results:**

- Brown long-eared bat
- Common Pipistrelle
- Lesser horseshoe bat
- Myotis sp.
- Nyctalus sp.
- Soprano Pipistrelle

Source: RSK 2018

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Document Title:  
**Figure 4d:  
Bat Survey Results - Transect 1  
September**

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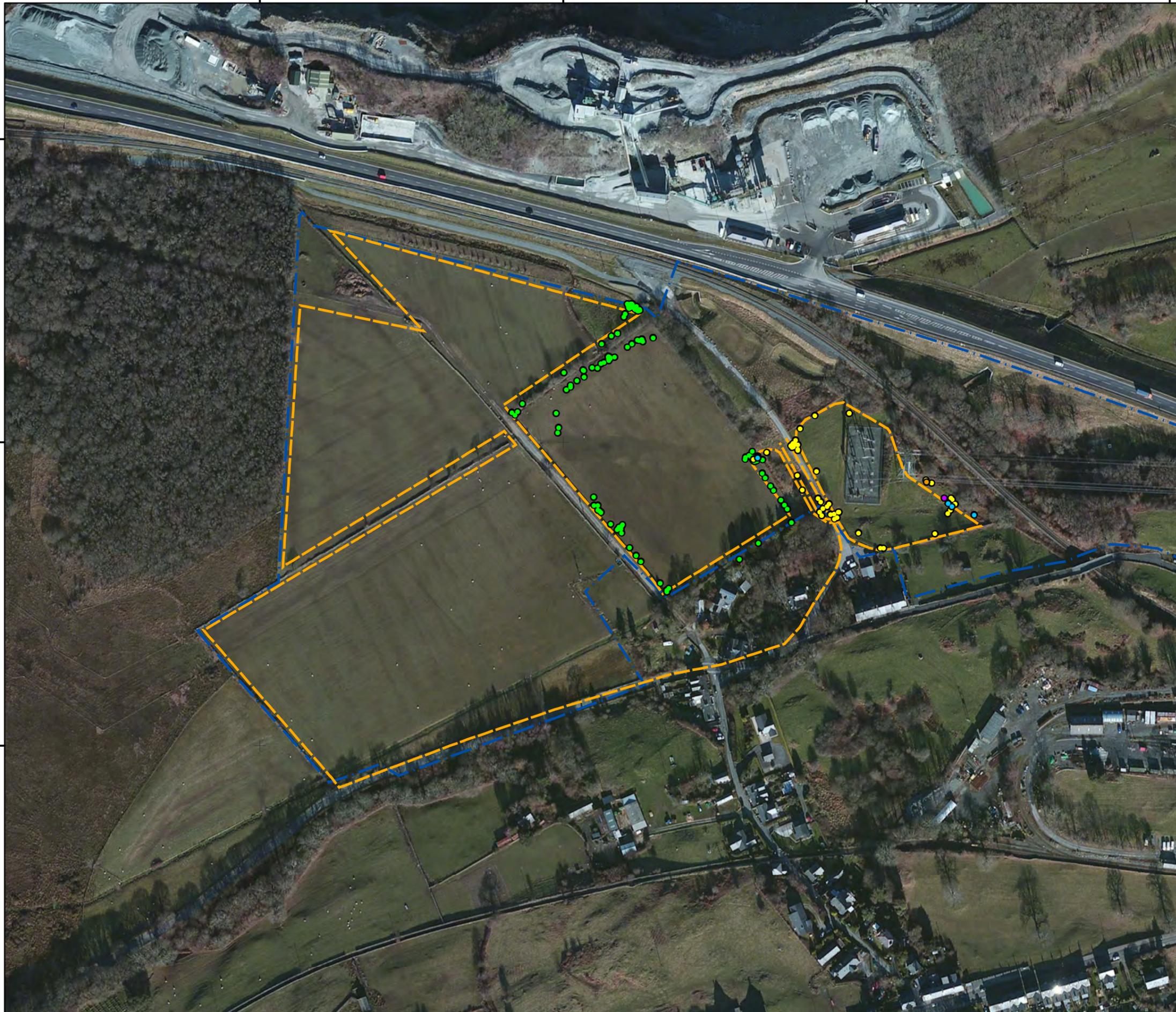
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Overview



Legend

Ecological Survey Area

Bat Survey Transect

Bat Survey Results:

- Brown long-eared bat
- Common Pipistrelle
- Lesser horseshoe bat
- Myotis sp.
- Nyctalus sp.
- Soprano Pipistrelle

Source: RSK

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Scheme Name:  
Visual Impact Provision (VIP) Snowdonia Project

Document Title:  
**Figure 5a:  
Bat Survey Results - Transect 2  
May**

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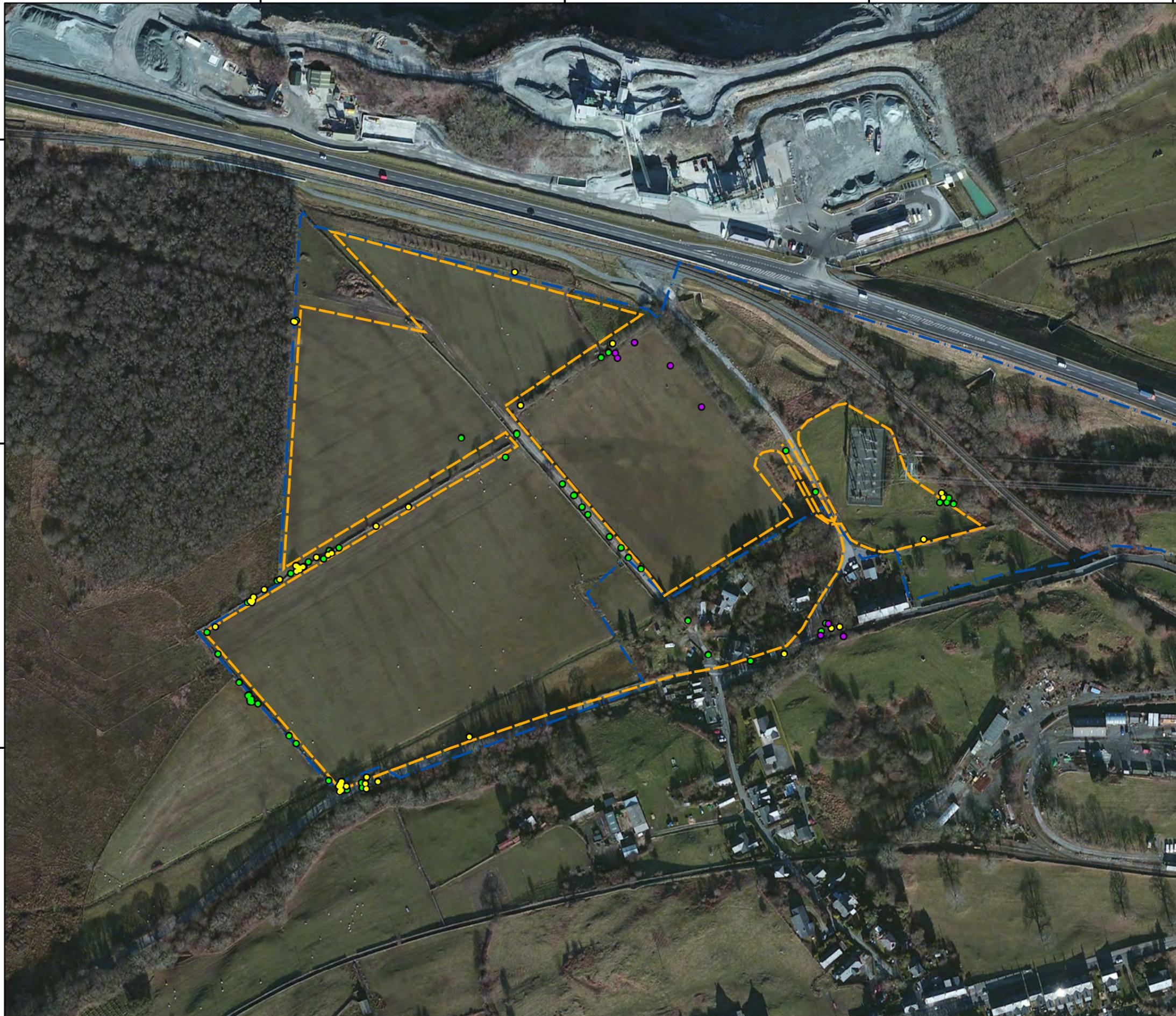
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Overview



Legend

Ecological Survey Area

Bat Survey Transect

Bat Survey Results:

- Brown long-eared bat
- Common Pipistrelle
- Lesser horseshoe bat
- Myotis sp.
- Nyctalus sp.
- Soprano Pipistrelle

Source: RSK

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Scheme Name:  
Visual Impact Provision (VIP) Snowdonia Project

Document Title:  
**Figure 5b:  
Bat Survey Results - Transect 2  
July**

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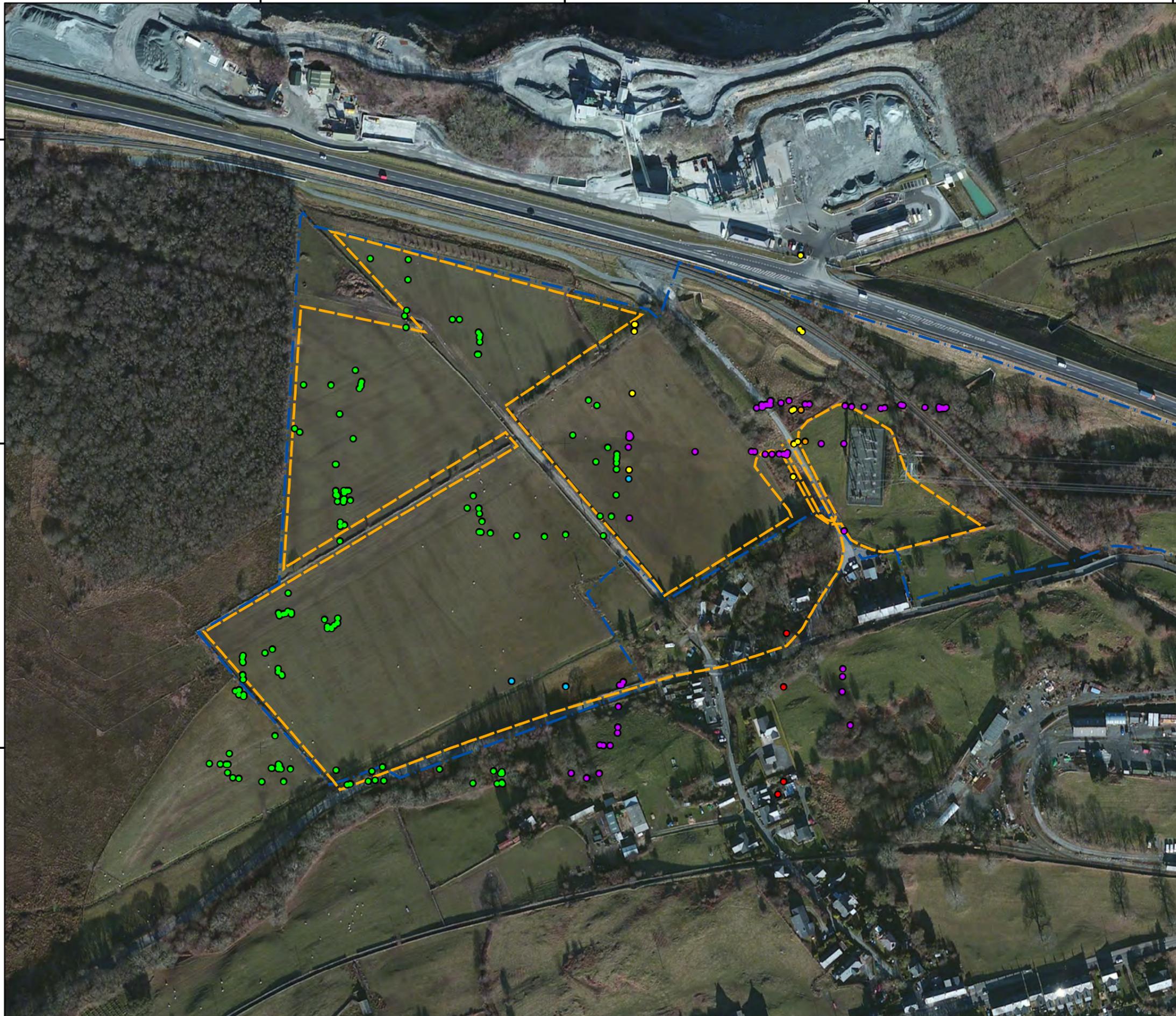
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Overview



Legend

Ecological Survey Area

Bat Survey Transect

Bat Survey Results:

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- Nyctalus sp.
- Soprano Pipistrelle

Source: RSK

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Rev	Description	Cre'd	Chk'd	App'd	Date



Master Scheme No:	Sub-Scheme No:	Site:
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Scheme Name:  
Visual Impact Provision (VIP) Snowdonia Project

Document Title:  
**Figure 5c:  
Bat Survey Results - Transect 2  
August**

Created by: D.Lewis	Date: 05/04/2019	Checked by: A.Penney	Date: 05/04/2019	Approved by: W.Holden	Date: 05/04/2019
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National Grid Document Number:  
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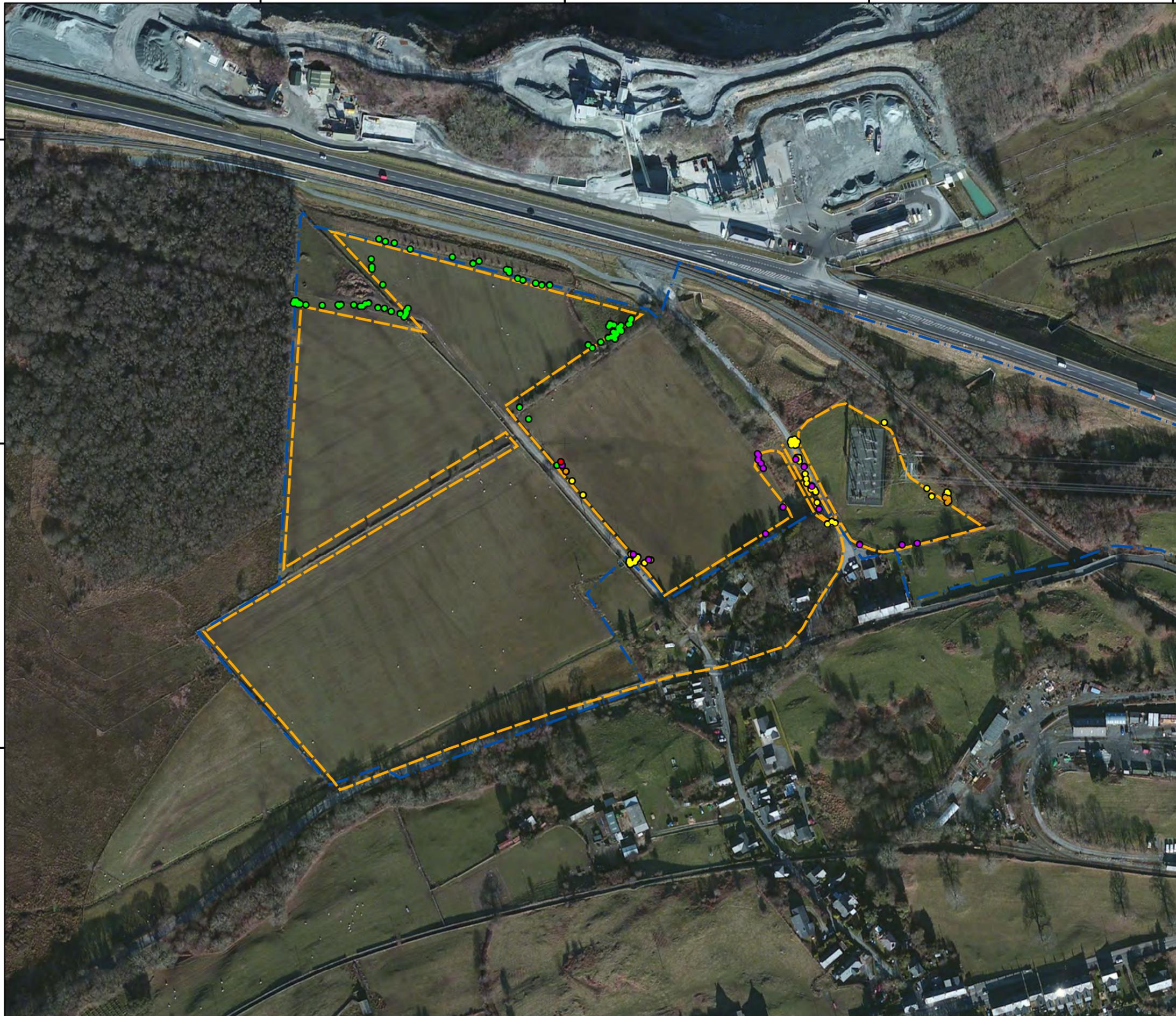
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Overview



Legend

Ecological Survey Area

Bat Survey Transect

Bat Survey Results:

- Brown long-eared bat
- Common Pipistrelle
- Lesser horseshoe bat
- Myotis sp.
- Nyctalus sp.
- Soprano Pipistrelle

Source: RSK

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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

Document Title:

**Figure 5d:  
Bat Survey Results - Transect 2  
September**

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
D.Lewis	05/04/2019	A.Penney	05/04/2019	W.Holden	05/04/2019
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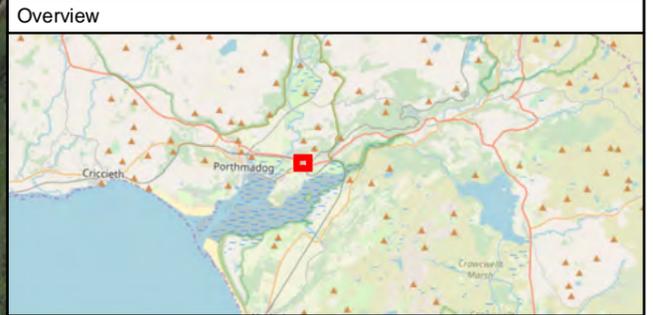
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**Legend**

- Ecological Survey Area
- Moderate Tree

Source: RSK

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Rev	Description	Cre'd	Chk'd	App'd	Date
02	Add Eco Area & Legend Amends	AW	AP	WH	05/04/2019
01	Additional Tree Locations	DL	AP	WH	06/03/2019
00	First draft	DL	AP	WH	18/12/2018



Master Scheme No:	Sub-Scheme No:	Site:
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Scheme Name:  
**Visual Impact Provision (VIP) Snowdonia Project**

Document Title:

**Figure 6:  
Bat Tree Assessment  
Map 1 of 2**

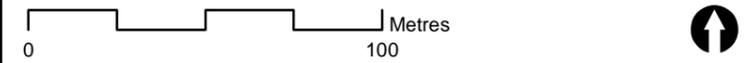
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D.Lewis	05/04/2019	A.Penney	05/04/2019	W.Holden	05/04/2019
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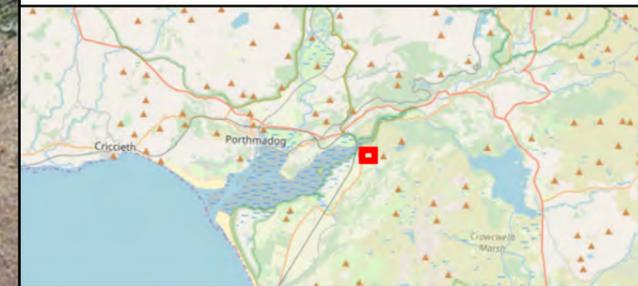
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 Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA  
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Overview



Legend

Ecological Survey Area

Low Tree

Moderate Tree

Source: RSK

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Rev	Description	Cre'd	Chk'd	App'd	Date
02	Add Eco Area & Legend Amends	AW	AP	WH	05/04/2019
01	Additional Tree Locations	DL	AP	WH	06/03/2019
00	First draft	DL	AP	WH	18/12/2018



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**Figure 6:  
Bat Tree Assessment  
Map 2 of 2**

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
D.Lewis	05/04/2019	A.Penney	05/04/2019	W.Holden	05/04/2019
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Overview



Ecological Survey Area

Bird Activity Codes

- 2B. Number of birds
- B.pr Pair of birds
- GSdrum Woodpecker drumming
- B.\* Bird nest
- B.fam Family of birds
- (B.) Bird singing
- B.-> Bird in flight

Bird Species Codes

- B. Blackbird
- BC Blackcap
- BT Blue Tit
- C. Carrion Crow
- CC Chiffchaff
- CH Chaffinch
- CD Collared Dove
- CT Coal Tit
- CU Curlew
- D. Dunnock
- ET Little Egret
- GS Great Spotted Woodpecker
- GT Great Tit
- HG Herring Gull
- HS House Sparrow
- JD Jackdaw
- LI Linnet
- M. Mistle Thrush
- MA Mallard
- MG Magpie
- MH Moorhen
- MP Meadow Pipit
- PE Peregrine
- R. Robin
- RN Raven
- SC Stonechat
- ST Song Thrush
- WP Woodpigeon
- WR Wren
- WW Willow Warbler

Source: Ecology: RSK, 2018.

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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

Document Title: Figure 7a: Breeding Bird Survey - April 2018 Map 1 of 3

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
D.Lewis	05/04/2019	W.Holden	05/04/2019	S.Rotherham	05/04/2019
Development Eng:	Document Type:	Scale:	Format:	Sheet(s):	Rev:
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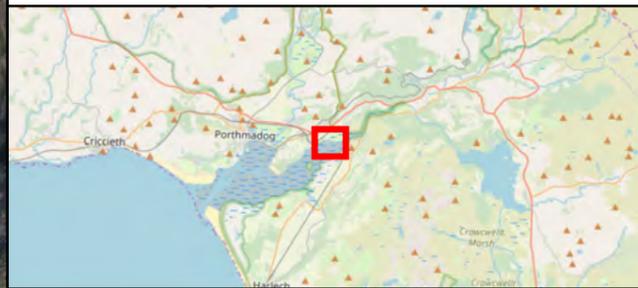


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Overview



Ecological Survey Area

Bird Activity Codes

- 2B. Number of birds
- B.pr Pair of birds
- GSdrum Woodpecker drumming
- B.\* Bird nest
- B.fam Family of birds
- (B.) Bird singing
- B.-> Bird in flight

Bird Species Codes

- |    |                          |    |                |
|----|--------------------------|----|----------------|
| B. | Blackbird                | LI | Linnet         |
| BC | Blackcap                 | M. | Mistle Thrush  |
| BT | Blue Tit                 | MA | Mallard        |
| C. | Carrion Crow             | MG | Magpie         |
| CC | Chiffchaff               | MH | Moorhen        |
| CH | Chaffinch                | MP | Meadow Pipit   |
| CD | Collared Dove            | PE | Peregrine      |
| CT | Coal Tit                 | R. | Robin          |
| CU | Curlew                   | RN | Raven          |
| D. | Duncock                  | SC | Stonechat      |
| ET | Little Egret             | ST | Song Thrush    |
| GS | Great Spotted Woodpecker | WP | Woodpigeon     |
| GT | Great Tit                | WR | Wren           |
| HG | Herring Gull             | WW | Willow Warbler |
| HS | House Sparrow            |    |                |
| JD | Jackdaw                  |    |                |

Source: Ecology: RSK, 2018.

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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

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## Figure 7a: Breeding Bird Survey - April 2018 Map 2 of 3

Created by: D.Lewis	Date: 05/04/2019	Checked by: W.Holden	Date: 05/04/2019	Approved by: S.Rotherham	Date: 05/04/2019
Development Eng: C. Carr	Document Type: .mxd	Scale: 1:5,000	Format: A3	Sheet(s): 2 of 3	Rev: 00

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Overview



Ecological Survey Area

Bird Activity Codes

- 2B. Number of birds
- B.pr Pair of birds
- GSdrum Woodpecker drumming
- B.\* Bird nest
- B.fam Family of birds
- (B.) Bird singing
- B.-> Bird in flight

Bird Species Codes

- B. Blackbird
- BC Blackcap
- BT Blue Tit
- C. Carrion Crow
- CC Chiffchaff
- CH Chaffinch
- CD Collared Dove
- CT Coal Tit
- CU Curlew
- D. Dunnock
- ET Little Egret
- GS Great Spotted Woodpecker
- GT Great Tit
- HG Herring Gull
- HS House Sparrow
- JD Jackdaw
- LI Linnet
- MA Mistle Thrush
- MA Mallard
- MG Magpie
- MH Moorhen
- MP Meadow Pipit
- PE Peregrine
- R. Robin
- RN Raven
- SC Stonechat
- ST Song Thrush
- WP Woodpigeon
- WR Wren
- WW Willow Warbler

Source: Ecology: RSK, 2018.

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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

Document Title:

## Figure 7a: Breeding Bird Survey - April 2018 Map 3 of 3

Created by: D.Lewis	Date: 05/04/2019	Checked by: W.Holden	Date: 05/04/2019	Approved by: S.Rotherham	Date: 05/04/2019
Development Eng: C. Carr	Document Type: .mxd	Scale: 1:5,000	Format: A3	Sheet(s): 3 of 3	Rev: 00

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Overview



Ecological Survey

Bird Activity Codes

- 2B. Number of birds
- B.m Male bird
- B.f Female bird
- B.pr Pair of birds
- B.\* Bird nest
- (B) Bird singing
- B-> Bird in flight

Bird Species Codes

- B. Blackbird
- BC Blackcap
- BT Blue Tit
- C. Carrion Crow
- CC Chiffchaff
- CD Collared Dove
- CG Canada Goose
- CH Chaffinch
- CM Common Gull
- D. Dunnock
- GO Goldfinch
- GS Great Spotted Woodpecker
- GT Great Tit
- HG Herring Gull
- HM House Martin
- HS House Sparrow
- J. Jay
- JD Jackdaw
- LB Lesser Back-backed Gull
- MA Mallard
- MH Moorhen
- PE Peregrine
- PH Pheasant
- PW Pied Wagtail
- R. Robin
- RN Raven
- SC Stonechat
- SL Swallow
- ST Song Thrush
- WR Wren
- WW Willow Warbler

Source: Ecology: RSK, 2018.

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Document Title:  
**Figure 7b:  
 Breeding Bird Survey - May 2018  
 Map 1 of 3**

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Development Eng: C. Carr	Document Type: .mxd	Scale: 1:5,000	Format: A3	Sheet(s): 1 of 3	Rev: 00

National Grid Document Number: -

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Overview



Ecological Survey

Bird Activity Codes

- 2B. Number of birds
- B.m Male bird
- B.f Female bird
- B.pr Pair of birds
- B.\* Bird nest
- (B.) Bird singing
- B.-> Bird in flight

Bird Species Codes

- |    |                          |    |                         |
|----|--------------------------|----|-------------------------|
| B. | Blackbird                | J. | Jay                     |
| BC | Blackcap                 | JD | Jackdaw                 |
| BT | Blue Tit                 | LB | Lesser Back-backed Gull |
| C. | Carrion Crow             | MA | Mallard                 |
| CC | Chiffchaff               | MH | Moorhen                 |
| CD | Collared Dove            | PE | Peregrine               |
| CG | Canada Goose             | PH | Pheasant                |
| CH | Chaffinch                | PW | Pied Wagtail            |
| CM | Common Gull              | R. | Robin                   |
| D. | Duncock                  | RN | Raven                   |
| GO | Goldfinch                | SC | Stonechat               |
| GS | Great Spotted Woodpecker | SL | Swallow                 |
| GT | Great Tit                | ST | Song Thrush             |
| HG | Herring Gull             | WR | Wren                    |
| HM | House Martin             | WW | Willow Warbler          |
| HS | House Sparrow            |    |                         |

Source: Ecology: RSK, 2018.

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## Figure 7b: Breeding Bird Survey - May 2018 Map 2 of 3

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D.Lewis	05/04/2019	W.Holden	05/04/2019	S.Rotherham	05/04/2019
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National Grid Document Number: -

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Overview



Ecological Survey

Bird Activity Codes

- 2B. Number of birds
- B.m Male bird
- B.f Female bird
- B.pr Pair of birds
- B.\* Bird nest
- (B.) Bird singing
- B.-> Bird in flight

Bird Species Codes

- B. Blackbird
- BC Blackcap
- BT Blue Tit
- C. Carrion Crow
- CC Chiffchaff
- CD Collared Dove
- CG Canada Goose
- CH Chaffinch
- CM Common Gull
- D. Dunnock
- GO Goldfinch
- GS Great Spotted Woodpecker
- GT Great Tit
- HG Herring Gull
- HM House Martin
- HS House Sparrow
- J. Jay
- JD Jackdaw
- LB Lesser Back-backed Gull
- MA Mallard
- MH Moorhen
- PE Peregrine
- PH Pheasant
- PW Pied Wagtail
- R. Robin
- RN Raven
- SC Stonechat
- SL Swallow
- ST Song Thrush
- WR Wren
- WW Willow Warbler

Source: Ecology: RSK, 2018.

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Document Title:  
**Figure 7b:  
 Breeding Bird Survey - May 2018  
 Map 3 of 3**

Created by: D.Lewis	Date: 05/04/2019	Checked by: W.Holden	Date: 05/04/2019	Approved by: S.Rotherham	Date: 05/04/2019
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Overview



Ecological Survey Area

Bird Activity Codes

- 2B. Number of birds
- B.m Male bird
- B.f Female bird
- B.pr Pair of birds
- B.\* Bird nest
- B.fam Family of birds
- B.juv Juvenile bird
- (B.) Bird singing
- B.▶ Bird in flight

Bird Species Codes

- |    |               |    |                |
|----|---------------|----|----------------|
| B. | Blackbird     | M. | Mistle Thrush  |
| BC | Blackcap      | MG | Magpie         |
| BT | Blue Tit      | MP | Meadow Pipit   |
| C. | Carrion Crow  | PW | Pied Wagtail   |
| CC | Chiffchaff    | R. | Robin          |
| CH | Chaffinch     | RN | Raven          |
| D. | Duncock       | S  | Skylark        |
| GO | Goldfinch     | SK | Siskin         |
| GR | Greenfinch    | SL | Swallow        |
| GT | Great Tit     | ST | Song Thrush    |
| H. | Grey Heron    | TO | Tawny Owl      |
| HG | Herring Gull  | WP | Woodpigeon     |
| HS | House Sparrow | WR | Wren           |
| JD | Jackdaw       | WW | Willow Warbler |
| LI | Linnet        |    |                |

Source: Ecology: RSK, 2018.

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## Figure 7c: Breeding Bird Survey - June 2018 Map 1 of 3

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Development Eng: C. Carr	Document Type: .mxd	Scale: 1:5,000	Format: A3	Sheet(s): 1 of 3	Rev: 00

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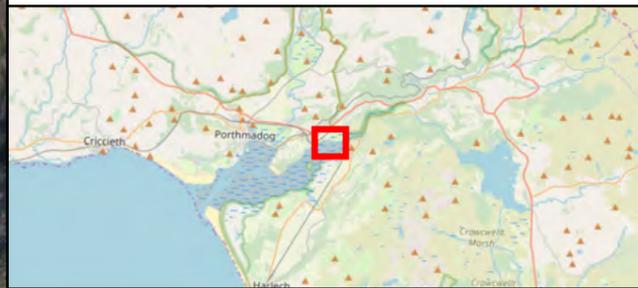


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Overview



Ecological Survey Area

Bird Activity Codes

- 2B. Number of birds
- B.m Male bird
- B.f Female bird
- B.pr Pair of birds
- B.\* Bird nest
- B.fam Family of birds
- B.juv Juvenile bird
- (B.) Bird singing
- B-> Bird in flight

Bird Species Codes

- B. Blackbird
- BC Blackcap
- BT Blue Tit
- C. Carrion Crow
- CC Chiffchaff
- CH Chaffinch
- D. Dunnock
- GO Goldfinch
- GR Greenfinch
- GT Great Tit
- H. Grey Heron
- HG Herring Gull
- HS House Sparrow
- JD Jackdaw
- LI Linnet
- M. Mistle Thrush
- MG Magpie
- MP Meadow Pipit
- PW Pied Wagtail
- R. Robin
- RN Raven
- S Skylark
- SK Siskin
- SL Swallow
- ST Song Thrush
- TO Tawny Owl
- WP Woodpigeon
- WR Wren
- WW Willow Warbler

Source: Ecology: RSK, 2018.

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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

Document Title: Figure 7c: Breeding Bird Survey - June 2018 Map 2 of 3

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Overview



Ecological Survey Area

Bird Activity Codes

- 2B. Number of birds
- B.m Male bird
- B.f Female bird
- B.pr Pair of birds
- B.\* Bird nest
- B.fam Family of birds
- B.juv Juvenile bird
- (B.) Bird singing
- B.▶ Bird in flight

Bird Species Codes

- B. Blackbird
- BC Blackcap
- BT Blue Tit
- C. Carrion Crow
- CC Chiffchaff
- CH Chaffinch
- D. Dunnock
- GO Goldfinch
- GR Greenfinch
- GT Great Tit
- H. Grey Heron
- HG Herring Gull
- HS House Sparrow
- JD Jackdaw
- LI Linnet
- M. Mistle Thrush
- MG Magpie
- MP Meadow Pipit
- PW Pied Wagtail
- R. Robin
- RN Raven
- S. Skylark
- SK Siskin
- SL Swallow
- ST Song Thrush
- TO Tawny Owl
- WP Woodpigeon
- WR Wren
- WW Willow Warbler

Source: Ecology: RSK, 2018.

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00	First Draft	DL	WH	SR	05/04/2019
Rev	Description	Cre'd	Chk'd	App'd	Date



Master Scheme No:	Sub-Scheme No:	Site:
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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

Document Title:

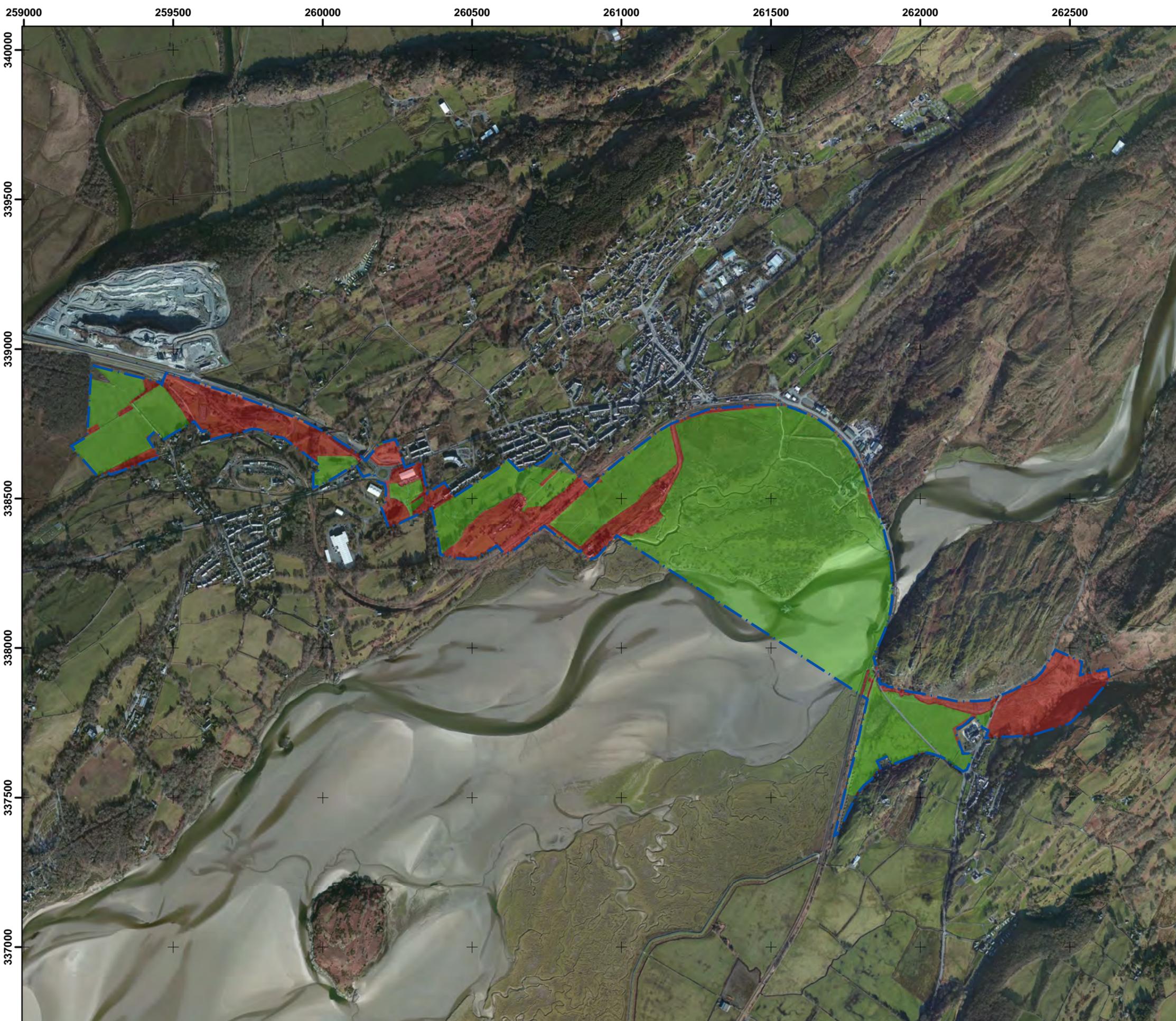
## Figure 7c: Breeding Bird Survey - June 2018 Map 3 of 3

Created by: D.Lewis	Date: 05/04/2019	Checked by: W.Holden	Date: 05/04/2019	Approved by: S.Rotherham	Date: 05/04/2019
Development Eng: C. Carr	Document Type: .mxd	Scale: 1:5,000	Format: A3	Sheet(s): 3 of 3	Rev: 00

National Grid Document Number: -

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- Ecological Survey Area
- High quality breeding bird habitat
- Breeding birds infrequent or absent

Source: RSK 2018

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00	Ecological Survey Area	DL	WH	SR	05/04/2019
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Master Scheme No:	Sub-Scheme No:	Site:
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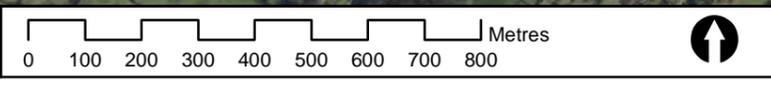
Scheme Name:  
**Visual Impact Provision (VIP) Snowdonia Project**

Document Title:  
**Figure 7d:  
Suitable Habitat for Breeding Birds**

Created by: D.Lewis	Date: 05/04/2019	Checked by: W.Holden	Date: 05/04/2019	Approved by: S.Rotherham	Date: 05/04/2019
Development Eng: C. Carr	Document Type: -	Scale: 1:12,500	Format: A3	Sheet(s): 1 of 1	Rev: 00

National Grid Document Number:  
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Overview



Legend

- Ecological Survey Area
- Existing National Grid Pylon to be Removed
- Existing National Grid Underground Cable
- Overhead Line to be Removed
- Existing National Grid Overhead Line
- Common Lizard
- Grass Snake & Slow Worm
- Slow Worm

Source: Study Area: P6 (with western extension) NG & RSK Existing Infrastructure - National Grid, Marine Environment - NRW, Species Records - Cofnod

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00	First draft	NH	WH	WH	25/09/2019



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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

Document Title:

**Figure 8:  
Reptile Location Map  
Map 1 of 3**

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
N.Hogben	25/09/2019	W.Holden	25/09/2019	W.Holden	25/09/2019
Development Eng:	Document Type:	Scale:	Format:	Sheet(s):	Rev:
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National Grid Document Number: -

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Overview



Legend

- Ecological Survey Area
- Foundation of Former Pylon 4ZC030 to be Removed
- Existing National Grid Pylon to be Removed
- Overhead Line to be Removed
- Existing National Grid Overhead Line
- Common Lizard
- Grass Snake

Source: Study Area: P6 (with western extension) NG & RSK Existing Infrastructure - National Grid, Marine Environment - NRW, Species Records - Cofnod

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Rev	Description	Cre'd	Chk'd	App'd	Date
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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

Document Title:

**Figure 8:  
Reptile Location Map  
Map 2 of 3**

Created by: N.Hogben	Date: 25/09/2019	Checked by: W.Holden	Date: 25/09/2019	Approved by: W.Holden	Date: 25/09/2019
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Overview



Legend

- Ecological Survey Area
- Existing National Grid Pylon to be Removed
- Existing National Grid Pylon to be Retained
- Overhead Line to be Removed
- Existing National Grid Overhead Line
- Common Lizard, Slow Worm, Grass Snake

Source: Study Area: P6 (with western extension) NG & RSK.Existing Infrastructure - National Grid, Marine Environment - NRW, Species Records - Cofnod

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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

Document Title:

Figure 8:  
Reptile Location Map  
Map 3 of 3

Created by: N.Hogben	Date: 25/09/2019	Checked by: W.Holden	Date: 25/09/2019	Approved by: W.Holden	Date: 25/09/2019
Development Eng:	Document Type:	Scale: 1:5,000	Format: A3	Sheet(s): 3 of 3	Rev: 00

National Grid Document Number:  
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Overview



Legend

- Ecological Survey
- Existing National Grid Pylon to be Removed
- Existing National Grid Underground Cable
- Overhead Line to be Removed
- Existing National Grid Overhead Line
- Evidence of Otter
- Water Vole Habitat**
- Suitable (Sub-optimal)
- Unsuitable
- Pond – Suitable (sub-optimal)

Source: Study Area: P6 (with western extension) NG & RSK Existing Infrastructure - National Grid, Marine Environment - NRW, Species Records - Cofnod

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01	Vole habitat status	NH	WH	WH	02/10/2019
00	First draft	NH	WH	WH	29/04/2019



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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

Document Title:

**Figure 9:  
Otter and Water Vole Survey Results  
Map 1 of 3**

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
N.Hogben	02/10/2019	W.Holden	02/10/2019	W.Holden	02/10/2019
Development Eng:	Document Type:	Scale:	Format:	Sheet(s):	Rev:
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**Legend**

- Ecological Survey
- Foundation of Former Pylon 4ZC030 to be Removed
- Existing National Grid Pylon to be Removed
- Overhead Line to be Removed
- Existing National Grid Overhead Line

**Water Vole Habitat**

- Suitable (Sub-optimal)
- Unsuitable

Source: Study Area: P6 (with western extension) NG & RSK Existing Infrastructure - National Grid, Marine Environment - NRW, Species Records - Cofnod

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Rev	Description	Cre'd	Chk'd	App'd	Date
01	Vole habitat status	NH	WH	WH	02/10/2019
00	First draft	NH	WH	WH	29/04/2019



Master Scheme No:	Sub-Scheme No:	Site:
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Scheme Name:  
Visual Impact Provision (VIP) Snowdonia Project

Document Title:  
**Figure 9:  
Otter and Water Vole Survey Results  
Map 2 of 3**

Created by: N.Hogben	Date: 02/10/2019	Checked by: W.Holden	Date: 02/10/2019	Approved by: W.Holden	Date: 02/10/2019
Development Eng:	Document Type:	Scale: 1:5,000	Format: A3	Sheet(s): 2 of 3	Rev: 01

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Overview



Legend

- Ecological Survey
- Existing National Grid Pylon to be Removed
- Existing National Grid Pylon to be Retained
- Overhead Line to be Removed
- Existing National Grid Overhead Line
- Evidence of Otter
- Water Vole Habitat**
- Suitable
- Suitable (Sub-optimal)

Source: Study Area: P6 (with western extension) NG & RSK Existing Infrastructure - National Grid, Marine Environment - NRW, Species Records - Cofnod

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Rev	Description	Cre'd	Chk'd	App'd	Date
01	Vole habitat status	NH	WH	WH	02/10/2019
00	First draft	NH	WH	WH	29/04/2019



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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

Document Title:

Figure 9:  
Otter and Water Vole Survey Results  
Map 3 of 3

Created by: N.Hogben	Date: 02/10/2019	Checked by: W.Holden	Date: 02/10/2019	Approved by: W.Holden	Date: 02/10/2019
Development Eng: -	Document Type: -	Scale: 1:5,000	Format: A3	Sheet(s): 3 of 3	Rev: 01

National Grid Document Number:  
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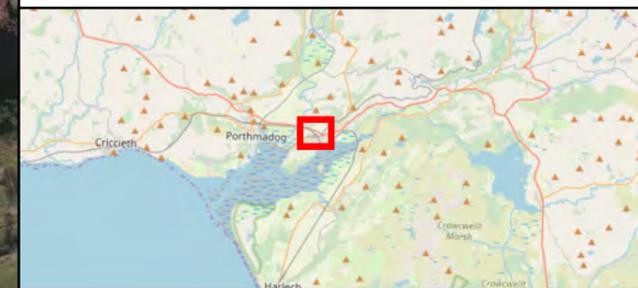


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Overview



Ecological Survey Area

Bird Activity Codes

- 2B. Number of birds
- B.pr Pair of birds
- B. -> Bird in flight

Bird Species Codes

- BH Black-headed Gull
- C. Carrion Crow
- CG Canada Goose
- CM Common Gull
- CU Curlew
- ET Little Egret
- H. Grey Heron
- HG Herring Gull
- K. Kestrel
- MA Mallard
- MG Magpie
- ML Merlin
- MP Meadow Pipit
- RK Redshank
- RN Raven
- SG Starling
- SH Sparrowhawk

Source: Ecology: RSK, 2018.

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00	First Draft	DL	WH	SR	05/04/2019
Rev	Description	Cre'd	Chk'd	App'd	Date



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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

Document Title:

## Figure 10a: Wintering Bird Survey - November 2017 Map 1 of 3

Created by: N.Hogben	Date: 02/10/2019	Checked by: W.Holden	Date: 02/10/2019	Approved by: S.Rotherham	Date: 02/10/2019
Development Eng: C. Carr	Document Type: .mxd	Scale: 1:5,000	Format: A3	Sheet(s): 1 of 3	Rev: 01

National Grid Document Number: -

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Overview



Ecological Survey Area

Bird Activity Codes

- 2B. Number of birds
- B.pr Pair of birds
- B. -> Bird in flight

Bird Species Codes

- BH Black-headed Gull
- C. Carrion Crow
- CG Canada Goose
- CM Common Gull
- CU Curlew
- ET Little Egret
- H. Grey Heron
- HG Herring Gull
- K. Kestrel
- MA Mallard
- MG Magpie
- ML Merlin
- MP Meadow Pipit
- RK Redshank
- RN Raven
- SG Starling
- SH Sparrowhawk

Source: Ecology: RSK, 2018.

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01	Title change	NH	WH	SR	02/10/2019
00	First Draft	DL	WH	SR	05/04/2019



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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

Document Title:

## Figure 10a: Wintering Bird Survey - November 2017 Map 2 of 3

Created by: N.Hogben	Date: 02/10/2019	Checked by: W.Holden	Date: 02/10/2019	Approved by: S.Rotherham	Date: 02/10/2019
Development Eng: C. Carr	Document Type: .mxd	Scale: 1:5,000	Format: A3	Sheet(s): 2 of 3	Rev: 01

National Grid Document Number: -

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**Ecological Survey Area**

**Bird Activity Codes**

- 2B. Number of birds
- B.pr Pair of birds
- B.▶ Bird in flight

**Bird Species Codes**

- BH Black-headed Gull
- C. Carrion Crow
- CG Canada Goose
- CM Common Gull
- CU Curlew
- ET Little Egret
- H. Grey Heron
- HG Herring Gull
- K. Kestrel
- MA Mallard
- MG Magpie
- ML Merlin
- MP Meadow Pipit
- RK Redshank
- RN Raven
- SG Starling
- SH Sparrowhawk

Source:  
Ecology: RSK, 2018.

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Scheme Name:  
**Visual Impact Provision (VIP) Snowdonia Project**

Document Title:  
**Figure 10a:  
Wintering Bird Survey - November 2017  
Map 3 of 3**

Created by: N.Hogben	Date: 02/10/2019	Checked by: W.Holden	Date: 02/10/2019	Approved by: S.Rotherham	Date: 02/10/2019
Development Eng: C. Carr	Document Type: .mxd	Scale: 1:5,000	Format: A3	Sheet(s): 3 of 3	Rev: 01

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Overview



Ecological Survey

Bird Activity Codes

- 2B. Number of birds
- B. Bird in flight
- B. Bird calling

Bird Species Codes

- B. Blackbird
- BH Black-headed Gull
- C. Carrion Crow
- CM Common Gull
- CU Curlew
- ET Little Egret
- FF Fieldfare
- HG Herring Gull
- J. Jay
- JD Jackdaw
- LB Lesser black-backed gull
- MA Mallard
- MG Magpie
- MP Meadow Pipit
- OC Oystercatcher
- PE Peregrine
- PW Pied Wagtail
- R. Robin
- RE Redwing
- RK Redshank
- RN Raven
- S. Skylark
- SK Siskin

Source: Ecology: RSK, 2018.

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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

Document Title:  
**Figure 10b:  
 Wintering Bird Survey - December 2017  
 Map 1 of 3**

Created by: N.Hogben	Date: 02/10/2019	Checked by: W.Holden	Date: 02/10/2019	Approved by: S.Rotherham	Date: 02/10/2019
Development Eng: C. Carr	Document Type: .mxd	Scale: 1:5,000	Format: A3	Sheet(s): 1 of 3	Rev: 01

National Grid Document Number: -

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Overview



Ecological Survey

Bird Activity Codes

- 2B. Number of birds
- B. Bird in flight
- B. Bird calling

Bird Species Codes

- B. Blackbird
- BH Black-headed Gull
- C. Carrion Crow
- CM Common Gull
- CU Curlew
- ET Little Egret
- FF Fieldfare
- HG Herring Gull
- J. Jay
- JD Jackdaw
- LB Lesser black-backed gull
- MA Mallard
- MG Magpie
- MP Meadow Pipit
- OC Oystercatcher
- PE Peregrine
- PW Pied Wagtail
- R. Robin
- RE Redwing
- RK Redshank
- RN Raven
- S. Skylark
- SK Siskin

Source: Ecology: RSK, 2018.

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00	First Draft	DL	WH	SR	05/04/2019
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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

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## Figure 10b: Wintering Bird Survey - December 2017 Map 2 of 3

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
N.Hogben	02/10/2019	W.Holden	02/10/2019	S.Rotherham	02/10/2019
Development Eng:	Document Type:	Scale:	Format:	Sheet(s):	Rev:
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National Grid Document Number: -

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Overview



Ecological Survey

Bird Activity Codes

- 2B. Number of birds
- B. Bird in flight
- B. Bird calling

Bird Species Codes

- B. Blackbird
- BH Black-headed Gull
- C. Carrion Crow
- CM Common Gull
- CU Curlew
- ET Little Egret
- FF Fieldfare
- HG Herring Gull
- J. Jay
- JD Jackdaw
- LB Lesser black-backed gull
- MA Mallard
- MG Magpie
- MP Meadow Pipit
- OC Oystercatcher
- PE Peregrine
- PW Pied Wagtail
- R. Robin
- RE Redwing
- RK Redshank
- RN Raven
- S. Skylark
- SK Siskin

Source: Ecology: RSK, 2018.

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Scheme Name: Visual Impact Provision (VIP) Snowdonia Project

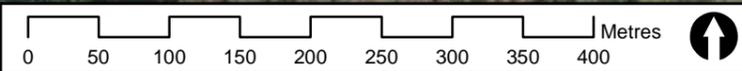
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## Figure 10b: Wintering Bird Survey - December 2017 Map 3 of 3

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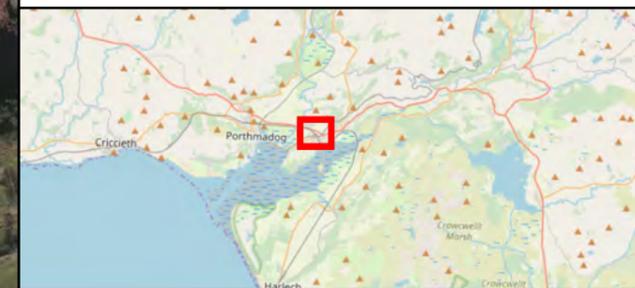


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Overview



Ecological Survey Area

Bird Activity Codes

- 2B. Number of birds
- B. Bird in flight

Bird Species Codes

- BH Black-headed Gull
- C. Carrion Crow
- CD Collared Dove
- CG Canada Goose
- CM Common Gull
- CU Curlew
- ET Little Egret
- GD Goosander
- HG Herring Gull
- HS House Sparrow
- MG Magpie
- MP Meadow Pipit
- RN Raven

Source: Ecology: RSK, 2018.

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**Figure 10c:  
Wintering Bird Survey - January 2018  
Map 1 of 3**

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Overview



Ecological Survey Area

Bird Activity Codes

- 2B. Number of birds
- B. Bird in flight

Bird Species Codes

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**Figure 10c:  
 Wintering Bird Survey - January 2018  
 Map 2 of 3**

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Overview



Ecological Survey Area

Bird Activity Codes

2B. Number of birds  
 -B. Bird in flight

Bird Species Codes

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Source:  
 Ecology: RSK, 2018.

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**Figure 10c:  
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 Map 3 of 3**

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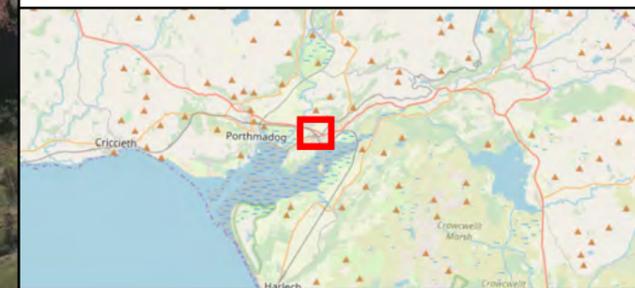


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Overview



Ecological Survey

Bird Activity Codes

2B. Number of birds  
- B. Bird in flight

Bird Species Codes

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Source:  
Ecology: RSK, 2018.

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**Figure 10d:  
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Map 1 of 3**

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Overview



Ecological Survey

Bird Activity Codes

- 2B. Number of birds
- B. Bird in flight

Bird Species Codes

- BH Black-headed Gull
- C. Carrion Crow
- CD Collared Dove
- CG Canada Goose
- CM Common Gull
- CU Curlew
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- HG Herring Gull
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- MG Magpie
- MP Meadow Pipit
- RN Raven

Source: Ecology: RSK, 2018.

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**Ecological Survey**

**Bird Activity Codes**

- 2B. Number of birds
- B. Bird in flight

**Bird Species Codes**

- BH Black-headed Gull
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- CD Collared Dove
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Source:  
Ecology: RSK, 2018.

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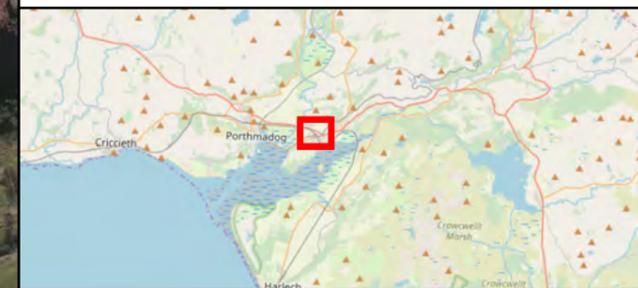
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Overview



Ecological Survey Area

Bird Activity Codes

- 2B. Number of birds
- B. Bird in flight

Bird Species Codes

- |                            |                       |
|----------------------------|-----------------------|
| B. Blackbird               | M. Mistle Thrush      |
| BH Black-headed Gull       | MA Mallard            |
| BT Blue Tit                | MG Magpie             |
| BZ Buzzard                 | MP Meadow Pipit       |
| C. Carrion Crow            | MU Mediterranean Gull |
| CA Cormorant               | OC Oystercatcher      |
| CG Canada Goose            | PH Pheasant           |
| CH Chaffinch               | PT Pintail            |
| CM Common Gull             | PW Pied Wagtail       |
| CU Curlew                  | R. Robin              |
| D. Dunnock                 | RN Raven              |
| ET Little Egret            | SC Stonechat          |
| GB Great Black-backed Gull | SG Starling           |
| GN Goldeneye               | SH Sparrowhawk        |
| GO Goldfinch               | SN Snipe              |
| GT Great Tit               | ST Song Thrush        |
| H. Grey Heron              | SU Shelduck           |
| HG Herring Gull            | T. Teal               |
| HS House Sparrow           | WP Woodpigeon         |
| JD Jackdaw                 | WR Wren               |

Source: Ecology: RSK, 2018.

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National Grid Document Number: -

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Overview



Ecological Survey Area

Bird Activity Codes

- 2B. Number of birds
- B. Bird in flight

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- |                            |                       |
|----------------------------|-----------------------|
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| CM Common Gull             | PW Pied Wagtail       |
| CU Curlew                  | R. Robin              |
| D. Dunnock                 | RN Raven              |
| ET Little Egret            | SC Stonechat          |
| GB Great Black-backed Gull | SG Starling           |
| GN Goldeneye               | SH Sparrowhawk        |
| GO Goldfinch               | SN Snipe              |
| GT Great Tit               | ST Song Thrush        |
| H. Grey Heron              | SU Shelduck           |
| HG Herring Gull            | T. Teal               |
| HS House Sparrow           | WP Woodpigeon         |
| JD Jackdaw                 | WR Wren               |

Source: Ecology: RSK, 2018.

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Overview



Ecological Survey Area

Bird Activity Codes

- 2B. Number of birds
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## Figure 10e: Wintering Bird Survey - March 2018 Map 3 of 3

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## APPENDIX A: LEGISLATION

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### General

This section briefly describes the legal protection afforded to the protected species referred to in this report. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation but summarises the salient points.

### Badgers

*Meles meles* (Badger) is protected in Britain under the Protection of Badgers Act 1992 and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended).

The legislation affords protection to Badgers and Badger setts, and makes it a criminal offence to:

- Wilfully kill, injure, take, possess or cruelly ill-treat a Badger, or to attempt to do so;
- interfere with a sett by damaging or destroying it;
- to obstruct access to, or any entrance of, a Badger sett; or
- to disturb a Badger when it is occupying a sett.

### Bats

All species of British bat are protected by The Wildlife and Countryside Act 1981 (as amended) extended by the Countryside and Rights of Way (CRoW) Act 2000. This legislation makes it an offence to:

- intentionally kill, injure or take a bat;
- possess or control a bat;
- intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
- intentionally or recklessly disturb a bat whilst it occupies a bat roost.

Bats are also European Protected Species listed on The Conservation of Habitats and Species Regulations 2017. This legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats, including in particular any disturbance which is likely (a) to impair their ability - (i) to survive, to breed or reproduce, or to rear or nurture their young; or (ii) hibernate or migrate, where relevant; or (b) to affect significantly the local distribution or abundance of the species to which they belong.
- damage or destroy a breeding site or resting place of a bat; and
- possess, control, transport, sell, exchange a bat, or offer a bat for sale or exchange.

All bat roosting sites receive legal protection even when bats are not present.

### Birds

All species of bird are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). The protection was extended by the CRoW Act.

The legislation makes it an offence to intentionally:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

Certain species of bird are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and receive protection under Sections 1(4) and 1(5) of the Act.

The protection was extended by the CRoW Act. The legislation confers special penalties where the above mentioned offences are committed for any such bird and also make it an offence to intentionally or recklessly:

- disturb any such bird, whilst building its nest or it is in or near a nest containing dependant young; or
- disturb the dependant young of such a bird.

### Common Reptiles

*Zootoca vivipara* (Common Lizard), *Natrix natrix* (Grass Snake), *Anguis fragilis* (Slow-worm) and *Vipera berus* (Adder) are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), in respect of Section 9(5) and part of Section 9(1). This protection was extended by the CRoW Act.

Under the above legislation it is an offence to:

- intentionally or deliberately kill or injure any individual of such a species; or
- sell or attempt to sell any part of the species alive or dead.

### Otter

*Lutra lutra* (Otter) is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and receives full protection under Section 9. This species is also listed as a European Protected Species on Schedule 2 of the Conservation of Habitats and Species Regulations 2017. Protection was extended by the CRoW Act making it an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.



The Otter is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP) and also as a species of principal importance for the conservation of biological diversity in England under Section 74 of the *CRoW Act*.

The Otter is also protected under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended). This protection relates specifically to trapping and direct pursuit of the species.

The European sub-species is also listed as globally threatened on the IUCN/WCMC RDL.

### **Water Vole**

Water Vole (*Arvicola amphibius*) is fully protected under Section 9 of Schedule 5 of The Wildlife and Countryside Act 1981 (as amended). Protection was extended by the *CRoW Act*.

Under this legislation, it is an offence to:

- intentionally kill, injure or take (capture) a Water Vole;
- possess or control a live or dead Water Vole, or any part of a Water Vole;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place which Water Voles use for shelter or protection, or to intentionally or recklessly disturb Water Voles while they are using such a place; or
- sell, offer for sale or advertise for live or dead Water Voles.

The Water Vole is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP).

## APPENDIX B: SUMMARY OF BIRD SPECIES

**Table B1: All Bird Species Recorded during the Breeding Bird Surveys and their Breeding Status**

English name	Scientific name	Conservation Status	Breeding Status
Blackbird	<i>Turdus merula</i>		Confirmed
Blackcap	<i>Sylvia atricapilla</i>		Probable
Blue Tit	<i>Cyanistes caeruleus</i>		Probable
Carrion Crow	<i>Corvus corone</i>		Probable
Canada Goose	<i>Branta canadensis</i>		Non breeder
Chaffinch	<i>Fringilla coelebs</i>		Probable
Chiffchaff	<i>Phylloscopus collybita</i>		Probable
Coal Tit	<i>Periparus ater</i>		Possible
Collared Dove	<i>Streptopelia decaocto</i>		Possible
Common Gull	<i>Larus canus</i>	BoCC Amber	Non breeder
Curlew	<i>Numenius arquata</i>	BoCC Red/UK BAP	Non breeder
Duncock	<i>Prunella modularis</i>	BoCC Amber/UK BAP	Confirmed
Goldfinch	<i>Carduelis carduelis</i>		Probable
Great Spotted Woodpecker	<i>Dendrocopus major</i>		Possible
Great Tit	<i>Parus major</i>		Probable
Greenfinch	<i>Carduelis chloris</i>		Possible
Grey Heron	<i>Ardea cinerea</i>		Non breeder
Herring Gull	<i>Larus argentatus</i>	BoCC Red/UK BAP	Non breeder
House Martin	<i>Delichon urbicum</i>	BoCC Amber	Possible
House Sparrow	<i>Passer domesticus</i>	BoCC Red/UK BAP	Confirmed
Jackdaw	<i>Corvus monedula</i>		Confirmed
Jay	<i>Garrulus glandarius</i>		Probable
Lesser Black-backed Gull	<i>Larus fuscus</i>		Non breeder
Linnet	<i>Carduelis cannabina</i>	BoCC Red/UK BAP	Confirmed
Little Egret	<i>Egretta garzetta</i>	Annex 1	Non Breeder
Magpie	<i>Pica pica</i>		Confirmed
Mallard	<i>Anas platyrhynchos</i>	BoCC Amber	Possible
Meadow Pipit	<i>Anthus pratensis</i>	BoCC Amber	Confirmed
Mistle Thrush	<i>Turdus viscivorus</i>	BoCC Red	Confirmed
Moorhen	<i>Gallinula chloropus</i>		Confirmed
Peregrine	<i>Falco peregrinus</i>	Schedule 1/Annex 1	Non breeder
Pheasant	<i>Phasianus colchicus</i>		Possible
Pied Wagtail	<i>Motacilla alba</i>		Probable
Raven	<i>Corvus corax</i>		Confirmed
Robin	<i>Erithacus rubecula</i>		Confirmed

English name	Scientific name	Conservation Status	Breeding Status
Siskin	<i>Carduelis spinus</i>		Possible
Skylark	<i>Alauda arvensis</i>	BoCC Red/UK BAP	Probable
Song Thrush	<i>Turdus philomelos</i>	BoCC Red/UK BAP	Confirmed
Stonechat	<i>Saxicola torquata</i>		Confirmed
Swallow	<i>Hirundo rustica</i>		Confirmed
Tawny Owl	<i>Strix aluco</i>	BoCC Amber	Possible
Willow Warbler	<i>Phylloscopus trochilus</i>	BoCC Amber	Confirmed
Woodpigeon	<i>Columba palumbus</i>		Confirmed
Wren	<i>Troglodytes troglodytes</i>		Confirmed

## **APPENDIX C: BREEDING CRITERIA**

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### **Possible Breeding**

1. Species observed in breeding season in possible nesting habitat.
2. Singing male(s) present (or breeding calls heard) in breeding season

### **Probable Breeding**

1. Pair observed in suitable nesting habitat in breeding season
2. Permanent territory presumed through registration of territorial behaviour (song, etc.) on at least two different days a week or more apart at the same place
3. Courtship and display
4. Visiting a probable nest site
5. Agitated behaviour or anxiety calls from adults
6. Brood patch on adult examined in the hand
7. Nest building or excavating nest-hole

### **Confirmed Breeding**

1. Distraction-display or injury feigning
2. Used nest or eggshells found (occupied or laid within period of survey)
3. Recently fledged young (nidicolous species) or downy young (nidifugous species)
4. Adults entering or leaving nest-site in circumstances indicating occupied nest (including high nest or nest-holes, the contents of which can not be seen) or adult seen incubating
5. Adult carrying faecal sac or food for young
6. Nest containing eggs
7. Nest with young seen or heard

## APPENDIX D: WINTERING BIRD SURVEY DATA

**Table D1: All Bird Species Recorded during Wintering Bird Survey in October**

Snowdonia Wintering Bird Survey 26/10/17		
Species	Code	Count
Canada Goose	CG	4
Grey Heron	H.	1
Little Egret	ET	3
Eurasian Oystercatcher	OC	4
Eurasian Curlew	CU	3
Common Redshank	RK	1
Black-headed Gull	BH	5
Mew Gull	CM	250
Herring Gull	HG	27
Eurasian Jay	J.	3
Eurasian Magpie	MG	2
Jackdaw	JD	2
Carrion Crow	C.	2
Northern Raven	RN	5
Common Blackbird	B.	1
Fieldfare	FF	10
Redwing	RE	55
Song Thrush	ST	1
Mistle Thrush	M.	1
European Robin	R.	3
House Sparrow	HS	1
White Wagtail	PW	1
Meadow Pipit	MP	3
Common Linnet	LI	1

**Table D2: All Bird Species Recorded during Wintering Bird Survey in November**

Snowdonia Wintering Bird Survey 30/11/17		
Species	Code	Count
Canada Goose	CG	454
Mallard	MA	2
Grey Heron	H.	1
Little Egret	ET	1
Eurasian Sparrowhawk	SH	1
Eurasian Curlew	CU	7
Common Redshank	RK	1
Black-headed Gull	BH	12
Mew Gull	CM	1
Herring Gull	HG	4
Common Kestrel	K.	1
Merlin	ML	1
Eurasian Magpie	MG	3
Carrion Crow	C.	2
Northern Raven	RN	4
Common Starling	SG	60
Meadow Pipit	MP	2

**Table D3: All Bird Species Recorded during Wintering Bird Survey in December**

Snowdonia Wintering Bird Survey 14/12/17		
Species	Code	Count
Mallard	MA	3
Little Egret	ET	2
Eurasian Oystercatcher	OC	2
Eurasian Curlew	CU	4
Common Redshank	RK	2
Black-headed Gull	BH	69
Mew Gull	CM	33
Herring Gull	HG	27
Lesser Black-backed Gull	LB	8
Peregrine Falcon	PE	1
Eurasian Jay	J.	1
Eurasian Magpie	MG	4
Jackdaw	JD	4
Carrion Crow	C.	4
Northern Raven	RN	2
Eurasian Skylark	S.	1
Common Blackbird	B.	2
Fieldfare	FF	40
Redwing	RE	40
European Robin	R.	2
White Wagtail	PW	1
Meadow Pipit	MP	9
Eurasian Siskin	SK	40



**Table D4: All Bird Species Recorded during Wintering Bird Survey in December**

Snowdonia Wintering Bird Survey 11/01/18		
Species	Code	Count
Canada Goose	CG	306
Common Merganser	GD	4
Little Egret	ET	2
Eurasian Curlew	CU	1
Black-headed Gull	BH	35
Mew Gull	CM	22
Herring Gull	HG	12
Eurasian Collared Dove	CD	1
Eurasian Magpie	MG	2
Carrion Crow	C.	1
Northern Raven	RN	3
House Sparrow	HS	1
Meadow Pipit	MP	6

**Table D4: All Bird Species Recorded during Wintering Bird Survey in February**

Snowdonia Wintering Bird Survey 23/02/18		
Species	Code	Count
Canada Goose	CG	217
Barnacle Goose	BY	2
Common Shelduck	SU	37
Mallard	MA	3
Common Merganser	GD	1
Grey Heron	H.	3
Little Egret	ET	1
Great Cormorant	CA	1
Common Buzzard	BZ	2
Eurasian Oystercatcher	OC	22
Eurasian Curlew	CU	2
Common Redshank	RK	1
Black-headed Gull	BH	94
Great Black-backed Gull	GB	3
Herring Gull	HG	25
Lesser Black-backed Gull	LB	11
Jackdaw	JD	2
Carrion Crow	C.	68
Northern Raven	RN	7
Eurasian Wren	WR	1
Common Starling	SG	13
Common Blackbird	B.	1
Mistle Thrush	M.	2
European Stonechat	SC	2
Meadow Pipit	MP	6

**Table D4: All Bird Species Recorded during Wintering Bird Survey in March**

Snowdonia Wintering Bird Survey 20/03/18		
Species	Code	Count
Canada Goose	CG	13
Common Shelduck	SU	15
Mallard	MA	23
Northern Pintail	PT	316
Eurasian Teal	T.	3
Common Goldeneye	GN	10
Common Pheasant	PH	5
Grey Heron	H.	3
Little Egret	ET	3
Great Cormorant	CA	2
Eurasian Sparrowhawk	SH	2
Common Buzzard	BZ	5
Eurasian Oystercatcher	OC	18
Eurasian Curlew	CU	5
Common Snipe	SN	1
Black-headed Gull	BH	224
Mediterranean Gull	MU	1
Mew Gull	CM	14
Great Black-backed Gull	GB	4
Herring Gull	HG	52
Common Wood Pigeon	WP	25
Eurasian Magpie	MG	6
Jackdaw	JD	17
Carrion Crow	C.	59
Northern Raven	RN	4
Eurasian Blue Tit	BT	6
Great Tit	GT	3
Eurasian Wren	WR	1
Common Starling	SG	33
Common Blackbird	B.	6
Song Thrush	ST	11
Mistle Thrush	M.	11



Snowdonia Wintering Bird Survey 20/03/18		
Species	Code	Count
European Robin	R.	15
European Stonechat	SC	2
House Sparrow	HS	1
Dunnock	D.	5
White Wagtail	PW	7
Meadow Pipit	MP	32
Common Chaffinch	CH	12
European Goldfinch	GO	2