

TECHNICAL APPENDIX 9.2

Protected Mammal Survey Results

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Clashindarroch II Wind Farm EIA Report
Chapter 9 Technical Appendix:
9.2 Protected Mammal Survey Results

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1. INTRODUCTION

1.1 Purpose of this Document

- 1.1.1 This is a technical appendix to Chapter 9 (Ecology) of the Clashindarroch II wind farm (the 'proposed development') EIA Report. It provides further background information on the results of various protected surveys completed by MBEC between June 2015 and October 2019.
- 1.1.2 This is not a 'standalone' document as it refers to text and figures associated with Chapter 9 of the EIA Report. The results of the surveys reported here have been fully considered within the assessment, and proposed mitigation measures, as detailed within Chapter 9 and other relevant technical appendices.
- 1.1.3 Sensitive information from the desk study and baseline surveys relating to badgers, bats, otter and wildcat is included in a separate Confidential Annex to Chapter 9.

1.2 Background

- 1.2.1 MBEC was appointed by Vattenfall in May 2015 to carry out baseline surveys for key protected species at the site of the proposed development, which is located entirely within Clashindarroch Forest (a commercial conifer plantation) on the border of Moray and Aberdeenshire, approximately 10km southwest of the town of Huntly. The following surveys were completed between September 2015 and October 2019:
- Protected species surveys: badger (*Meles meles*), bats (*Chiroptera*), otter (*Lutra lutra*), pine marten (*Martes martes*), red squirrel (*Sciurus vulgaris*), water vole (*Arvicola amphibius*), wildcat (*Felis sylvestris*) (September 2015, August 2016 and October 2016);
 - Bat activity surveys, including driven transects, roost activity surveys and automated detectors (June to October 2015 and May to August 2016); See Technical Appendix 9.3: Bat Activity Survey Results for details of the dusk/dawn driven transects and automated detector surveys;
 - Protected species survey updates (September 2017 and August 2018);
 - Additional protected species survey focussing on wildcat and pine marten (August 2018) including an assessment of wildcat foraging habitat quality and evidence of prey abundance;
 - Paired camera trap survey (August to September 2018);
 - Ad hoc camera trap survey at ruined buildings (September to October 2018);
 - Camera trap survey (baited October 2018 to April 2019, without bait April 2019 to July 2019);
 - Dusk driven transects for protected species (November 2018 to July 2019 (including for bats May to July 2019);
 - Bat activity surveys update (May 2019 to October 2019); and
 - Additional protected species surveys for the proposed road improvements along the existing main access track (August 2019).
- 1.2.2 A map showing an indicative wind turbine layout was provided by Vattenfall in 2015 and this was used to define the extents of the 2015 and 2016 survey areas. Following

changes to the proposed wind farm layout during 2017 (largely within the extents of the original survey area) the survey area was refined to ensure that there was sufficient baseline data coverage for the currently proposed development including all permanent and temporary works. Surveys were also updated, as required, to ensure that current information was available to inform the detailed wind farm design process, the impact assessment and any proposed mitigation (see Figure 9.1a and b).

1.3 Site Description

- 1.3.1 The Clashindarroch II wind farm proposed development area is located on the border of Moray and Aberdeenshire, approximately 10km southwest of the town of Huntly. It is located almost entirely within an extensive area of predominantly upland conifer plantation known as Clashindarroch Forest, managed by Forestry and Land Scotland (FLS). Clashindarroch Forest extends to 59 km² in total and is dominated by non-native conifers such as Sitka spruce (*Picea sitchensis*), hybrid larch (*Larix x eurolepis*) and Japanese larch (*L. kaempferi*) of various age classes and planted at typical commercial stocking densities. The proposed wind farm lies to the north and east of the existing Clashindarroch Wind Farm (18 wind turbines) and would be located on ridges and spurs, occupying an area (based on a 500 m wide buffer around the proposed wind turbines) of approximately 546 hectares.
- 1.3.2 The forest is managed under commercial felling and re-stocking rotations. At the time of the surveys, during 2016 and 2019 in particular, a number of mature coupes within the survey area were harvested, and there were extensive areas of clearfell as well as high forest, pole, re-stock and thicket, with some areas of regeneration and areas of broad-leaved planting (refer to Figures 9.3 a and b, and 9.6 a and b).
- 1.3.3 The proposed development site is intersected by a number of minor watercourses with banksides vegetated with damp neutral grassland communities. There is some unplanted moorland within the survey area, the most significant of which is located at the western edge of the survey area, which includes the south-east slopes of Grumack Hill and the adjacent hill to the south-west.

1.4 Summary of Relevant Legislation

- 1.4.1 Table 9.2.1 provides a summary of the legislation protecting the various species considered in this report. Further detail is provided in Technical Appendix 9.4. (Outline Species Protection Plans).
- 1.4.2 The information provided here is primarily derived from the SNH website [www.nature.scot]. The original legislation should be referred to for definitive guidance. Copies of the original, i.e. as enacted, and revised versions of all UK and Scottish Government legislation are available online [www.legislation.gov.uk].

Table 9.2.1: Summary of Species Legal Protection Relevant to this Study

Species / Taxon	Key Domestic Legislation	Summary of Relevant Protections
Badger	Protection of Badgers Act (1992) ⁱ	Badgers and their setts are fully protected.
Bats (all native species)	Habitats Regulations 1994, Schedule 2 (as amended) ⁱⁱ	All wild native bat species are European Protected Species (EPS). Bats and their roosts are fully protected.

Species / Taxon	Key Domestic Legislation	Summary of Relevant Protections
Otter	Habitats Regulations 1994, Schedule 2 (as amended) ⁱⁱ	Otter is an EPS. Otters, their breeding sites and resting places are fully protected.
Pine marten	Wildlife and Countryside Act 1981, as amended (Schedule 5) ⁱⁱⁱ	Pine martens, their dens and other places of shelter are fully protected.
Red squirrel	Wildlife and Countryside Act 1981, as amended (Schedule 5) ⁱⁱⁱ	Red squirrels, their dreys and other places of shelter are fully protected.
Wildcat	Habitats Regulations 1994, Schedule 2 (as amended) ⁱⁱ	Wildcats are EPS. Wildcats, their breeding sites and resting places are fully protected.
Water vole	Wildlife and Countryside Act 1981, as amended (Schedule 5) ⁱⁱⁱ	The water vole's burrows and other places of shelter are protected but not the animal itself. Full protection is proposed.

- i. *The Protection of Badgers Act 1992 protects badgers from taking, injuring, killing, cruel treatment, selling, possessing, marking and having their setts interfered with, subject to certain exceptions.*
- ii. *The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). Schedule 2 - European protected species (EPS) of animals. It is an offence to capture, injure, kill an EPS, harass or disturb an EPS while occupying a structure or place used for shelter or protection, disturb while it is rearing or otherwise caring for its young, obstruct access to a breeding site or resting place, or otherwise deny and EPS or group of EPS use of a breeding site or resting place.*
- iii. *The Wildlife & Countryside Act 1981 (as amended in Scotland). Specially protected bird species listed on Schedule 1, non-avian fauna on Schedules 5 and 6 and flora on Schedule 8.*

1.5 International & National Conservation Status

- 1.5.1 Table 9.2.2 provides a summary of the conservation designations and the national population status applicable to each protected species considered in this document. Further information and discussion on local status and the potential effects of the proposed development are provided in Chapter 9.

Table 9.2.2: Summary of the Conservation Status of Protected Species relevant to the Proposed Development Area

Species / Taxon	International Conservation Designations & Conventions	National Conservation Status & Designations
Badger	<ul style="list-style-type: none"> IUCN Red List criteria 'Least Concern' ⁱ Bern Convention Appendix 3 ⁱⁱⁱ 	<ul style="list-style-type: none"> Conservation Status, Scotland: Not assessed ⁱⁱ Not currently of conservation concern but remain subject to human persecution and cruelty.
Bats (all native species)	<ul style="list-style-type: none"> Species present in study area - IUCN Red List criteria 'Least Concern', Scotland ⁱ Bern Convention Appendices 2 & 3 ⁱⁱⁱ Convention on Migratory Species Appendix 2 & EUROBATS Annex I ^{vi} 	<ul style="list-style-type: none"> Current UK assessment – 'Favourable' (applies to all established species in Scotland with the exception of Nathusius' pipistrelle which is 'Unknown') ⁱⁱ UK BAP Priority Species ^{iv} Scottish Biodiversity List ^v
Otter	<ul style="list-style-type: none"> IUCN Red List criteria 'Least Concern', Scotland ⁱ Bern Convention Appendix 2 ⁱⁱⁱ 	<ul style="list-style-type: none"> Conservation Status, Scotland: 'Favourable' ⁱⁱ UK BAP Priority Species ^{iv} Scottish Biodiversity List ^v Following major declines between the 1950s and the 1970s and the species has recovered across Scotland.

Species / Taxon	International Conservation Designations & Conventions	National Conservation Status & Designations
Pine marten	<ul style="list-style-type: none"> IUCN Red List criteria 'Least Concern', Scotland ⁱ Bern Convention Appendix 3 ⁱⁱⁱ 	<ul style="list-style-type: none"> Conservation Status, Scotland: 'Favourable' ⁱⁱ UK BAP Priority Species ^{iv} Scottish Biodiversity List ^v Was once found throughout Britain, suffered dramatic declines during 19th century. Since legal protection came into force in the 1980s the population has made a significant recovery with an expansion south and eastwards from the core areas in the northwest Highlands.
Red squirrel	<ul style="list-style-type: none"> IUCN Red List criteria 'Near Threatened', Scotland ⁱ Bern Convention Appendix 3 ⁱⁱⁱ 	<ul style="list-style-type: none"> UK BAP Priority Species ^{iv} Scottish Biodiversity List ^v Long-term decline in population size and range in the UK, strongholds are in the Highlands and southern Scotland.
Wildcat	<ul style="list-style-type: none"> IUCN Red List criteria 'Critically Endangered', Scotland ⁱ Bern Convention Appendix 2 ⁱⁱⁱ 	<ul style="list-style-type: none"> Conservation Status, Scotland: 'Bad' ⁱⁱ UK BAP Priority Species ^{iv} Scottish Biodiversity List ^v Extinct in England and Wales and has a greatly reduced distribution and population size in Scotland from 'historical' levels, remaining population is critically endangered.

- International Union for Conservation of Nature (2001). IUCN Red List Categories and Criteria: Version 3.1. IUCN, Gland and Cambridge: IUCN Species Survival Commission.*
- UK Conservation Status is derived from the 3rd UK Habitats Directive Report (JNCC, 2013). This report considered the conservation status of all terrestrial and marine species listed under Annexes II, IV and V of the EC Habitats Directive present within the UK.*
- The Bern Convention on the Conservation of European Wildlife and Natural Habitats (or Bern Convention), is a binding international legal instrument in Europe. The Convention came into force on 1 June 1982.*
- The UK List of Priority Species and Habitats was published in 2007 after adoption by the Governments of all four UK administrations as part of the UK contribution to the Convention on Biological Diversity (1992). The 'UK Post-2010 Biodiversity Framework' succeeded the UK BAP in 2012 and set out the strategy for England, Wales, Scotland and Northern Ireland, and the UK as a whole, to meet internationally agreed biodiversity targets. However the 2007 UK BAP priority species and habitats remain relevant in the nature conservation / biodiversity policies.*
- The Scottish Biodiversity List is a list of flora, fauna and habitats considered by the Scottish Ministers to be of principal importance for biodiversity conservation. The publication of the Scottish Biodiversity List satisfies the requirements of Section 2(4) of The Nature Conservation (Scotland) Act 2004.*
- The Convention on the Conservation of Migratory Species of Wild Animals, also known as the Convention on Migratory Species (CMS) or the Bonn Convention, is an international agreement that aims to conserve migratory species within their migratory ranges. The Agreement was signed in 1979 in Bonn, Germany. The Agreement on the Conservation of Populations of European Bats (EUROBATS) was established under the CMS and came into force in 1994.*

2. METHODS

2.1 Desk Study & Consultation

- 2.1.1 Forest Enterprise (now FLS) were initially consulted on the proposed development area and their knowledge and records of protected species. The proposed development is entirely located within Clashindarroch Forest. This area is dominated by commercial conifer plantation at various stages within the rotation (i.e. clearfell, restock, pre-thicket, thicket and pole stage and high forest) and is subject to periodic harvesting and thinning operations. Consequently the general area is monitored by FLS Rangers to ensure that forestry operations proceed lawfully and avoid / minimise impacts on protected species.

- 2.1.2 As part of the desk study, relevant ecological data from published Environmental Statements from previous studies (for example, for the operational Clashindarroch Wind Farm) were also considered.
- 2.1.3 Consultation with SNH was undertaken at various stages during the survey and assessment phases for the proposed wind farm. This included the required EIA Scoping process but also various meetings with SNH to discuss the approach to the EIA, including baseline survey methods and existing sources of data for the study area, to update on progress with surveys and wind farm design changes.
- 2.1.4 The potential for the proposals to affect wildcat and the approach to baseline survey and assessment for this species was also discussed in detail. SNH and Scottish Wildcat Action (SWA) were consulted in terms of requests for existing information on wildcat for the study area and in relation to the co-ordination of camera trap surveys. Camera trapping surveys were completed within the proposed development area during winter 2018-19 in co-ordination with similar wildcat monitoring undertaken by SWA in the wider Clashindarroch Forest. SWA and their partners provided data, from camera trapping and satellite tracking of wildcat, which has been invaluable in helping to characterise the current use of the proposed wind farm area by this species.
- 2.1.5 Further consultation with SNH and FLS was undertaken during 2019 focusing on the assessment and mitigation of potential impacts on wildcat from the proposed wind farm, including potential long-term operational effects on habitat use. This consultation also included discussion of the appropriate approaches to minimise the risk of disturbance to resting sites during felling and construction works.

2.2 Survey Areas

- 2.2.1 The boundaries of the initial survey areas for protected species walkover surveys (2015 and 2016) were defined by 500 m wide buffers around the indicative wind turbine layout provided by Vattenfall in 2015. The survey area was adjusted in 2018, to reflect changes in the proposed wind farm layout in 2017, in terms of both the scale of the development (the 2017 layout was located entirely within part of the 2015 potential development area) and the individual proposed wind turbine and borrow pit locations.
- 2.2.2 The current baseline survey data encompasses all of the currently proposed wind turbines, borrow pits, access tracks and associated temporary and permanent works and appropriate buffer zones. Unless stated otherwise the protected species surveys cover suitable habitats for the focal species within at least 250 m of the proposed development as shown on Figures 9.1a and b.

2.3 Scope of Protected Species Surveys

- 2.3.1 Surveys for key protected fauna considered likely to occur within the survey area, based on current distribution in Scotland and the presence of suitable habitat, were carried out in 2015 and 2016, with updates completed in 2017 and 2018, and an additional survey in 2019 for proposed road improvement areas.
- 2.3.2 Surveys were completed for badger, bats, otter, pine marten, red squirrel, water vole and wildcat. Specific surveys were not carried out for reptiles and amphibians, although any observations were recorded. Surveys for aquatic fauna within the survey area were not carried out as part of this assessment.

- 2.3.3 Surveys for great crested newt (*Triturus cristatus*) were not undertaken as there were no suitable breeding sites (i.e. waterbodies) identified within the survey area during the desk study or during the field surveys. The site is also located outside of the current known distribution of the species in Scotland.
- 2.3.4 The presence of any wood ant nests were also recorded during the protected species walkover surveys. Of the mound-making wood ant species present in Scotland, the narrow-headed wood ant (*Formica exsecta*) is a UK Red List category 1 (endangered) species, a UK Priority Species covered by a Species Action Plan (BAP), and is on the Scottish Biodiversity List (SBL) as a species of principal importance for conservation. However, the site is believed to be outside the current known range of this species in Scotland. The hairy wood ant (*F. lugubris*) and the Scottish wood ant (*F. aquilonia*) are also included on the SBL. However, only the hairy wood ant is likely to occur within Clashindarroch Forest.
- 2.3.5 Handheld Global Positioning Systems (GPSs) were used to record the locations of important features, such as animal shelters, field signs or sightings. The accuracy of the GPS recordings were approximately +/-6 m, although this would be compromised under a closed plantation canopy.
- 2.3.6 The survey methodology for each species or taxonomic group is summarised below.

2.4 Badger

- 2.4.1 All suitable habitats for badger, where accessible, within the survey area were searched for evidence of the presence of this species. Optimal habitat includes a mixture of mature deciduous or mixed woodland or scrub near to pasture or arable fields with the presence of well-drained easily dug soil for sett excavation.
- 2.4.2 Field signs of badger are described in Harris *et al.* (1989), Neal & Cheeseman (1996) and Bang & Dahlstrøm (2001). Field signs include hair caught on barbed wire fences, conspicuous trails, footprints, small excavated pits or latrines in which droppings are deposited, scratch marks on trees and snuffle holes (small scrapes where badgers have searched for insects and plant tubers), bedding and setts. All field signs encountered were carefully mapped and described. On the basis of the evidence, a description and assessment of the current use of the area by badgers was made and, if possible the type of setts found were provisionally categorised using standardised criteria.
- 2.4.3 Setts were assessed for the current level of use and the number of entrance holes recorded, as well as the number of active holes. Where possible, each sett was provisionally classified into one of four types: main, annex, subsidiary and outlier, following the general definitions outlined below:
- **Main:** These are large, well-established setts, normally in continuous use, multiple entrances often linked by clear paths (NB in parts of Scotland main setts can have single holes). Each social group will use only one main sett and this will form the most likely location for the raising of cubs;
 - **Annex:** These setts are usually found in close association with a main sett (i.e. within 50 m), have several entrances, occupied for most / all of the year, also used for breeding often connected to the main sett by a well-worn path;
 - **Subsidiary:** Subsidiary setts will usually have no more than five holes, although not all of these will be in continuous use, may be used for breeding, and are located

further from the main sett than an annex and paths between the subsidiary and main sett may be less distinct; and

- **Outlier:** These setts are used on an occasional basis by a single badger as a temporary refuge, and will usually consist of a single hole.

2.4.4 Factors such as the distance between adjacent setts, any connectivity between setts such as obvious pathways, the number of holes in adjacent setts and also the levels of activity were all considered and used to classify the setts, following the guidelines set out by Andrews (2013). However, it is important to recognise that there are limitations to sett classification based on walkover survey results alone. In some cases, it may be necessary to carry out more detailed surveys in order to more reliably establish the current status of any particular sett.

2.5 Bats

2.5.1 All potentially suitable trees and structures within the survey area, where safely accessible, were assessed for their potential to support roosting bats, broadly following methodologies and rating systems described in Hundt (2012), Collins (2016) and the JNCC Bat Workers Manual (Mitchell-Jones & McLeish 2004).

2.5.2 It was not feasible, or considered necessary, to make an assessment of bat roost potential for all trees within the survey area. The majority of the conifer plantation, which comprises about 90% of the survey area, provides very poor roosting opportunities for bats. This is due to the high planting density and relatively young age of the trees. Trees in commercial conifer plantations are typically felled well before they are old enough to develop features that can provide suitable roost spaces for bats (e.g. cracks and splits, crevices, rot holes, knot holes, woodpecker holes, flaking bark, dense ivy cover). The roost resource assessment was instead targeted at parts of the forest where remnant mature broadleaved trees were present or the small areas of the plantation with conifer species that can provide roosting opportunities for bats prior to normal felling age (e.g. some pine species with double leaders can form features that provide suitable roost voids for bats).

2.5.3 Individual trees with features that were considered to provide opportunities for roosting bats were systematically graded for their suitability, following the qualitative ratings set out in Table 9.2.3. The grading of trees was undertaken conservatively, noting any constraints to the survey which may prevent full inspection or assessment of the tree, such as the presence of dense foliage obscuring visibility to high branches and upper sections of the trunk. This cautious approach minimises the risk of potentially suitable trees being dismissed as having low suitability or no potential for bats.

Table 9.2.3: Stage 1 Bat Roost Assessment Categories for Trees

Category	Description
Confirmed or suspected roost	Tree supporting or suspected of supporting a bat roost. Identified through sighting / hearing bats, presence of fresh droppings / staining, scratch marks, bat fly pupae.
High	Trees with multiple, highly suitable features capable of supporting larger roosts.
Moderate	Trees with definite bat potential, supporting fewer features than High category trees or with potential for use by low numbers of bats.

Category	Description
Low	Tree with no obvious potential, although the tree size is of age that elevated surveys may result in cracks and crevices being found; or the tree supports some features which may have limited potential to support single bats.
No potential	Tree with no potential to support bats.

2.5.4 Structures were assessed for their potential to support roosting bats using a set of qualitative criteria informed by professional judgement and experience. This is based on whether there are potentially suitable features for roosting (e.g. crevices >12 mm wide and >50 mm deep between masonry blocks or bricks, around drainage pipes, weep holes, expansion joints) and the general quality of the surrounding habitats for bats. In broad terms, structures with suitable deep voids located over or close to water and with connectivity to extensive good quality habitat for bats in the wider landscape have a much greater potential to be used as roost sites than similar structures not located near to water in industrial / urban environments with poor habitat connectivity. The criteria outlined in Table 9.2.4 should be treated as illustrative only.

Table 9.2.4: Bat Roost Potential Assessment Categories for Structures

Category	Example descriptions
Confirmed or suspected roost	Structure supporting or suspected of supporting a bat roost. Identified through the desk study and/or sighting / hearing of bats, presence of fresh droppings / staining, scratch marks etc.
Very High	Structures with potentially suitable and accessible features for roosting bats located in high quality habitat (e.g. bridges / structures over watercourses near or within woodland with excellent connectivity for commuting bats).
High	Structures with potentially suitable and accessible features for roosting bats located in good quality habitat (e.g. bridges / structures near to waterbodies with good connectivity for commuting bats).
Moderate	Structures with potentially suitable and accessible features for roosting bats located in good-poor quality habitat (e.g. not over or near to waterbodies, with some suitable commuting and foraging habitat present in the surrounding area).
Low	Structures with potentially suitable and accessible features for roosting bats located in poor quality habitat (e.g. not over or near to waterbodies, with little or no suitable commuting and foraging habitat present in the surrounding area, e.g. highly urbanised / industrialised areas).
Negligible	Structures with no apparent current potential to support roosting bats.

2.5.5 As with the tree assessments, surveyors graded the structures conservatively, recording any constraints to the survey that may prevent a full inspection of the structure, such as parts of structures being obscured by vegetation, in order to minimise the risk of structures being dismissed as having negligible or low suitability for bats.

2.5.6 Any structures or trees that were considered to have a moderate or greater roost potential were inspected in detail for any evidence of use by bats. This includes the presence of droppings, staining and scratch marks at roost entrances. Bats may also be heard within occupied roosts, particularly during warm summer days. Depending on the outcome of the inspection then follow-up surveys to confirm the presence of

bats (or their likely absence) and if present to characterise the roost site in terms of the species present, number, location of access points and type of roost (e.g. transitional roost, maternity roost, night roost). Such surveys followed the methods detailed in Hundt (2012) and Collins (2016) and involve monitoring the tree or structure at dusk and pre-dawn periods, at the appropriate time of year, to record bats exiting or entering.

- 2.5.7 The survey methods employed for the general bat activity surveys (driven transect and automated detector surveys) are provided in Technical Appendix 9.3: Bat Activity Survey Results.

2.6 Otter

- 2.6.1 All watercourses accessible within the survey area, were searched for evidence of the presence of otter. Signs indicating presence of otter are described in Bang and Dahlstrøm (2001) and Sargent & Morris (2003). Otter field signs include spraints, footprints, feeding remains, holts and couches. Spraints tend to be found secreted on rocks, protruding above the water level, within a river. Footprints are generally found on the bank, in soft mud/sand. Holts tend to be in the bank (or on islands) hidden by dense cover or underground, these can sometimes be identified by the presence of spraints, trails and slides towards the water. As they are often located in dense cover or inaccessible locations and not occupied year-round, underground holts can be difficult to locate. Otter couches are generally more frequently encountered within an occupied otter territory than underground holt sites, although they may be more transitory.
- 2.6.2 The survey methodology used involved walking banksides (where safe to do so) both up and down stream (on both sides) within the site boundary, recording any signs of otter encountered, taking a GPS reading, photographs and marking the location of any signs on a map. Any locations which had the potential to be used as a resting site (e.g. couch or holt) were carefully inspected and recorded and any evidence of use recorded.

2.7 Pine Marten

- 2.7.1 A general assessment of habitat quality of the survey area was completed, along with a search for evidence of the presence of pine marten and potentially suitable den sites.
- 2.7.2 Useful field signs for pine marten are prints and scats. The number of scats recorded is not a reliable indicator of the number of pine martens present in the area but does give an indication of relative levels of activity. Certain feeding remains may also be a good indicator of pine marten presence. Good quality prints can be identified as pine marten, although partial or indistinct prints cannot be relied upon. As scats are very variable in colour, size and shape it can be difficult to accurately assign them to species without taking samples and carrying out DNA analysis (i.e. there is potential for confusion with scats from other similarly-sized mammalian carnivores). However, in this case due to the large number of scats found, combined with a relatively high number of observations of pine marten within the survey area, it was assumed that scats that exhibited 'typical' pine marten characteristics were from this species.
- 2.7.3 It is also important to recognise that depending on a number of factors (e.g. time of year, density of the population) pine marten may not leave scats in obvious locations as territorial markers. Consequently, the absence of such evidence, in areas with

suitable habitat and within the distributional range of the species, should not be ruled out as being used by pine marten on that basis alone.

- 2.7.4 The assessment of habitat quality followed the method described in Cresswell *et al.* (2012), a summary of the factors considered in this assessment and the scoring system followed is provided in Table 9.2.5 below.

Table 9.2.5: Scoring of Factors in the Assessment of Habitat Quality for Pine Marten (source: Cresswell *et al.* 2012)

Category	Feature	Subjective score based upon presence/abundance of features
Foraging resource	<ul style="list-style-type: none"> Abundance of fruit-bearing trees and shrubs Extent of rough grassland/pre-thicket plantations (vole populations) Extent of mature conifers with well-developed field layer Area of broadleaved woodland and scrub Extent of tree-lined stream valleys and wetlands Rabbit abundance 	1 to 3, where 1 = poor and 3 = rich foraging resource.
Habitat extent and connectivity	<ul style="list-style-type: none"> Extent of 3-dimensional habitat (e.g. woodland) in survey area and surrounding area Habitat connectivity by hedges or tree lines beyond woodland edge 	1 to 3, where 1 = poor and 3 = good habitat extent and connectivity.
Den availability	<ul style="list-style-type: none"> Abundance of potential elevated den sites (e.g. over-mature trees with cavities, windthrow, squirrel dreys, raptor or corvid nests, owl boxes, rock outcrops) 	1 to 3, where 1 = poor and 3 = good den availability.
Mortality risk factors	<ul style="list-style-type: none"> Evidence of predator control (e.g. tunnel traps around pheasant pens) Fox abundance Density of main roads in survey area and surrounding area 	-1 to -3, where -1 = low and -3 = high mortality risk.
Total	Sum scores for each site. Possible scores for each site will range between 0 and 8, where score 0-2 = low, 3-5 = medium, and 6-8 = high habitat suitability.	

2.8 Red Squirrel

- 2.8.1 The survey methodology for red squirrel followed that outlined by Gurnell *et al.* (2009). Areas of woodland were classified according to the tree species, composition, age class and aspect. All signs of red squirrel presence, such as animal sightings, feeding remains and drey sites were searched for and recorded (Bang & Dahlstrøm 2001). Signs of the presence of red squirrel include dreys in trees, particularly conifers, as well as feeding remains (e.g. stripped conifer tree cones) under trees.
- 2.8.2 Suitable habitat for red squirrel includes mature woodland with pine (*Pinus* sp.) and spruce (*Picea* sp.) trees as well as deciduous species such as alder (*Alnus glutinosa*), ash (*Fraxinus excelsior*), birch (*Betula* sp.), rowan (*Sorbus aucuparia*) and willow (*Salix* sp.) which have small seeds that provide a suitable food supply for red squirrel.
- 2.8.3 Signs of squirrel presence were searched for along all tracks the main forest rides within the survey area. The density of the majority of the plantation (predominantly comprising thicket and pole stage Sitka spruce) prevented any inspection of the

interior of coupes. A hand-held GPS was used to note the location of all signs recorded.

- 2.8.4 It is not possible to reliably distinguish between field signs of the native red squirrel and invasive non-native grey squirrel (*Sciurus carolinensis*). In this location, based on what is currently known about the distribution of the two species it was considered unlikely that grey squirrel would be present in the area. Therefore any dreys or feeding remains were assumed to be evidence of the presence of red squirrels and were recorded as such.
- 2.8.5 A general assessment of habitat quality was made using the Forestry Commission's Forest Inventory Sub-compartment Database (dated July 2019) and the stock maps data on plantation sub-compartment age-class. The same classification method that was used in the assessment of the Clashindarroch wind farm (Vattenfall 2009) was followed to enable comparison to previous assessments. Table 9.2.6 provides further detail on the red squirrel habitat quality classifications.

Table 9.2.6: Red Squirrel Habitat Quality Classification

Category	Description
Optimal	Main stage of cone production for conifer species of highest food value, assuming thinning (e.g. NS >50 years; JL, HL or EL >40 years)
Good	Main stage of cone production for conifer species of better value assuming thinning (e.g. NS 30-50 years; SS/SP >60 years, JL, HL or EL 15-40 years; SP >60 years, SS/JL >40 years)
Moderate	Main stage of cone production for conifer species of lower food value, seasonal production from large-seeded broadleaves, assuming thinning (e.g. SS or DF >30 years; MB or OK 15+ years; SS/LP >30 years; SS/SP 30-60 years; LP >30 years; SP 15-60 years; SS/MB >30 years).
Poor	Thicket stage of tree growth, cone production irregular and often absent, cones from species of low food value (e.g. 15-30 years)
Little or No Value	Recently planted areas, trees <15 years of age, small amounts of seasonal food possible from shrubby species such as dog rose (<15 years).
No Value	Trees generally absent, usually unplanted open ground.

DF=Douglas Fir; EL=European larch; HL=Hybrid larch; JL=Japanese larch; LP=Lodgepole pine; MB=Mixed broadleaf; NS=Norway spruce; OK=Oak; SP=Scots pine; SS=Sitka spruce

2.9 Water vole

- 2.9.1 A water vole survey was carried out following the method detailed in Strachan *et al.* (2011). This involved a thorough inspection of all watercourses and other suitable habitats, such as rush-dominated flushes and areas of wet grassland, for water vole field signs such as burrows, feeding areas, latrines, prints and runways through the vegetation.
- 2.9.2 All signs of water vole presence were recorded. These included:
- Faeces: typically 8-12 cm long, cylindrical in cross-section, colour may vary from green to brown, soft when fresh, hard with concentric rings when dry;
 - Latrines: piles of faeces at discrete locations, established and maintained from February to November;

- Feeding stations: food is consumed at favoured locations along runs on bank edge, food remains are left as neat pile of vegetation in sections approx. 10 cm long;
- Burrows: typically located in bank sides, entrance approx. 4-8 cm wide;
- Lawns: grazed areas located round burrow entrances, often created by nursing females;
- Nests: cylindrical nest woven into the base or rushes or sedges, can be as large as a rugby ball;
- Footprints: four toes in star arrangement with outer toes splayed, hind foot between 26-34 mm; and
- Runways: found within 2 m of water edge, pathway 5-9 cm wide, leading to water's edge, burrow or feeding area.

2.9.3 A hand-held GPS was used to accurately record the location of each water vole feature or the limits of field evidence where there were extensive signs.

2.10 Wildcat

Background

- 2.10.1 The proposed wind farm is located within Strathbogie Wildcat Priority Area (see Figure 9.2) and, as part of the wider Clashindarroch Forest, has been subject to various wildcat surveys over recent years.
- 2.10.2 Wildcat Priority Areas have been established as part of the Scottish Wildcat Conservation Action Plan (SNH 2013). Initially, nine study areas were considered based on recent evidence of the presence of wildcat and the presence of extensive suitable habitat. Following field surveys and the assessment of their suitability as a focus of wildcat conservation in Scotland six of these areas were recommended as WPAs (Littlewood *et al.* 2014).
- 2.10.3 SWA and University of Oxford Wildlife Conservation Unit (WildCRU) undertook and coordinated surveys to determine the presence, status and spatial ecology of wildcat within the proposed priority areas (Littlewood *et al.* 2014). The initial surveys, to inform the decision to establish the Strathbogie WPA, were completed during winter 2013-14. Further surveys (including camera trapping and satellite tagging of wildcats) were completed in the subsequent four winters (i.e. 2014-15, 2015-16, 2017-18 and 2018-19).
- 2.10.4 These surveys have confirmed the presence of wildcats and wildcat hybrids within Clashindarroch Forest including the proposed wind farm survey area. In terms of the number of pure wildcat and hybrids with a high wildcat genetic component recorded, Strathbogie WPA came second only to the Angus Glens. SWA advised in 2018 that based on the evidence from the monitoring work completed in the WPA the proposed development study area overlaps with the territories of several wildcats / wildcat hybrids, possibly up to 5 individuals.
- 2.10.5 The approach to the baseline surveys for the proposed wind farm was informed by the existing data confirming the current presence of wildcat / hybrids within Clashindarroch Forest and that cats were active within the proposed wind farm area. Additionally, in discussion and agreement with SWA and WildCRU, it was agreed that a co-ordinated approach would be appropriate, to follow the same methods and to avoid duplicating camera trapping effort by SWA/WildCRU and where possible to share data as it became available during the survey period.

- 2.10.6 Data emerging from the WPA survey work, kindly provided by SWA, was used to inform the approach to the baseline surveys. This data was critically important due to the general lack of detailed studies of wildcat breeding ecology in Scotland, and specifically in the context of non-native conifer plantations. For example, evidence from satellite tracking and camera trapping elsewhere within the WPA confirmed that brash piles within clear-felled areas can be used as den sites, including by breeding females. Satellite tracking data also confirmed that windthrow areas are used by wildcats for shelter, that grassland riparian zones can be important foraging habitats and that forest tracks are also used for accessing different parts of the wildcats territory.
- 2.10.7 In summary, studies in the WPA indicate that preferred habitats for wildcat, in the context of Clashindarroch Forest, include: forest / farmland edge habitats; riparian zones and other areas of rough grassland within the forest; areas of dense scrub cover (particularly south-facing gorse scrub); windthrow areas; clearfell and restock; and brash piles may be used as den sites.

Survey Scope and Methods

- 2.10.8 Walkover surveys for wildcat are of limited value on their own due to the behaviour and ecology of the species. Wildcats often occupy large territories and range widely often leaving very little evidence of their presence. Wildcat dens, particularly natal den sites, are also extremely difficult to locate using standard walkover survey methods. Consequently several methods used to determine the presence of wildcat/wildcat hybrids and their use / potential use of the survey area, summarised as follows:
- Walkover survey to record suitable habitat features (i.e. potential den sites and above ground shelter) and to search for any field signs (including scats, claw marks on branches, paw prints and feeding remains);
 - Camera trapping (baited and un-baited) to monitor use of the study area by wildcat with a particular focus on potentially suitable habitats (including potential den features¹ under a survey licence) near to the proposed wind farm infrastructure locations and borrow pits;
 - Dusk transects and ad hoc vantage point watches to remotely monitor for any presence of wildcat/hybrid in or near suitable habitat around dusk with the aid of binoculars and thermal image scopes;
 - Assessment of prey habitat suitability (i.e. small mammals) within the forest blocks (or near-by similar blocks in tree species density and age-class) where wind farm felling is proposed; and
 - Review of concurrent data (from camera trapping, live trapping, satellite tag tracking) provided by FLS, SWA, WildCRU, relevant to the study area and wider Clashindarroch Forest.

Initial and Update Walkover Survey

- 2.10.9 Initial walkover surveys completed in 2015 concentrated on identifying and recording potentially suitable habitat and den features for wildcat within the survey area. In August 2016, further targeted surveys were carried out, based on information

¹ Suitable dens, way from human disturbance, can include hollow trees, rock crevices, boulder piles, brash piles, rabbit burrows, badger setts or old fox earths.

provided by SWA from satellite tracking which highlighted areas that had been used by a male wildcat in Clashindarroch Forest during 2015. Based on this data, and other information on habitat use from studies in the WPA, the location of features with the potential to provide above-ground cover for wildcat were also recorded within the survey area (e.g. sections of windthrow and brash piles in clear-felled areas).

- 2.10.10 A thorough search for potential wildcat resting sites (e.g. brash and undisturbed log piles, windthrow, scrub cover, fox dens, tree hollows, boulder piles etc.) and other evidence was completed within 200 m of the proposed access tracks and turbine felling zones once the final wind farm layout and felling design was confirmed in August 2018.

Camera Trap Surveys Focusing on Wildcat

- 2.10.11 Camera trap surveys for protected species, with particular focus on wildcat and hybrid wildcat, were undertaken between August 2018 and July 2019 broadly following the method detailed in Kilshaw *et al.* (2015). See Figure 9.10 for the camera trap locations.
- 2.10.12 The aim was to locate cameras within 200 m of proposed turbines at suitable locations that might be used by wildcat which include:
- Edges between open habitat (e.g. clearfell) and cover habitat (e.g. forestry);
 - Linear features that cats may walk along such as tracks, fences, walls, watercourses, woodland belts, well-worn mammal trails, or habitat edges; and
 - Bottlenecks and habitat bridges such as a narrow strip of cover between two separate woodland patches and holes in otherwise animal-proof fencing.
- 2.10.13 Further advice on locating camera traps for wildcat was provided by SWA, include the following:
- Cats tend to avoid wet ground and open moorland with little cover (especially where there is deep heather), and areas disturbed by frequent human activity.
 - They are unlikely to be found in the centre of dense forestry blocks but may use the edges, especially next to good prey habitat.
 - Clearfell is good prey habitat, and windthrow provides good shelter.
 - Ruins, rocky cairns, or woodland patches are good targets in an otherwise open landscape.
- 2.10.14 For all surveys, the cameras were set to take photos (rather than video) with 0 – 5 second delay between shots, and where possible, the camera was set to take a burst of three images per trigger. The cameras were faced away from the sun, where possible, with minimal vegetation in the foreground. Cameras were checked fortnightly when conditions allowed, or as soon as practicable after that to try to avoid missed survey nights due to full SD cards or battery failure.
- 2.10.15 Findings were recorded as “visits” to the camera location rather than number of pictures of a particular species, thus avoiding a false impression of abundance. For example, if a badger was detected at a camera location foraging for a few minutes, it was recorded as one visit rather than multiple records (photos).

- 2.10.16 Images of potential wildcats were scored, where possible, following the method detailed in (Kitchener *et al.* 2005). This is a standardised system of pelage scoring used to categorise animals as wildcats, hybrids or feral/domestic cats. When assessing any images a pelage score of 14 was used as a precautionary threshold for cats that require to be protected (this covers all wildcats and high quality hybrids). SWA were also be consulted to verify scoring, for consistency with other camera trapping work in Clashindarroch Forest and the wider WPA, and in case the animal could be identified as having been previously live-trapped and its genetic status determined.
- 2.10.17 The camera trapping survey effort throughout 2018 and 2019 involved three different surveys, which are detailed below.

Camera Trap Survey 1: August 2018 – September 2018.

- 2.10.18 Eight pairs of cameras (Spy Point IR6 and IR8) were situated in areas closest to proposed wind turbines (Layout 043) that were assessed as suitable (or where evidence / possible evidence has been found) such as clear-fell edges, forest / riparian zone edges. The aim was to have an even coverage of cameras across all suitable areas of the site. Cameras were placed in pairs across obvious animal trails, facing each other but slightly staggered, to ensure both sides of wildcats would be photographed for individual identification. The cameras were attached to suitable trees or fence posts c. 50 cm above ground level, to achieve the best angle for photographing pelage characteristics following the method detailed in Kilshaw *et al.* (2015).

Camera Trap Survey 2: September 2018 – October 2018.

- 2.10.19 Two cameras (Spy Point IR6) were set out to monitor two ruined buildings at Corrydown within the development area (one at a feature at the ruined cottage near proposed turbine 7; and the second, at the remains of a mill, between proposed turbine 8 and the proposed laydown area).

Camera Trap Survey 3: October 2018 – July 2019.

- 2.10.20 Camera trap surveys 1 and 2 served as a reconnoitre for Camera trap survey 3. For this more extensive survey, camera trapping followed the same methodology as the SWA co-ordinated baited camera trapping winter surveys of the previous years (Dr R. Campbell pers. comm. and SWA (no date) Guide to camera trapping Scottish wildcats).
- 2.10.21 Twenty cameras (model Browning BTC-8A) were set up at suitable habitat locations (e.g. habitat edges, well-worn mammal paths, places with wildcat signs) close to proposed turbine locations, away from main track and forestry works (see Table A2.3 for camera settings and Table A2.4 for camera locations). At each camera, a bait post and hair lure post were located within the field of view, 1.5 – 3 m from the camera. Half partridges (feathered) were used as bait and tied securely to the top of a post (at least 1 m from the ground), with the wing splayed to act as a visual lure. The hair lure post had dried valerian root in a hessian pouch tied above cat head height, and a strip of Velcro stapled below so that any cat reaching for the scent lure would rub against it. Any cat hairs collected on the Velcro can be sent for DNA analysis.
- 2.10.22 The cameras were baited through the winter, with checks every two weeks or when conditions allowed. From April onwards, when prey was more abundant, the bait was removed leaving the scent lure only. Camera locations were moved around the

proposed development area throughout the year, as the proposed infrastructure layout changed, so that 39 locations in total were surveyed for varying lengths of time (mostly >80 survey nights, although this was not always possible). Five locations within 250 m of the existing Clashindarroch wind turbines were included in the survey.

Dusk Transects

- 2.10.23 In addition to the camera trap monitoring, dusk transects were completed with the aid of a thermal imaging camera (Pulsar Helion XP50 Thermal Imager) to detect and record mammal activity with a particular focus on wildcat and pine marten. The transect routes varied slightly depending on weather conditions (e.g. ice on forest tracks) using forest tracks and the main wind farm access (see Table A3.1 for details). The surveyors used a vehicle as a hide. The vehicle was driven slowly to various suitable vantage points (e.g. overlooking areas of clearfell with brush piles and log stacks) the area was scanned for mammal activity using binoculars and the thermal imaging camera. The transect surveys generally lasted for 2 hours.

Small Mammal Habitat Assessment

- 2.10.24 During August 2018 an assessment of small mammal habitat quality was completed based on transect surveys within and adjacent to different types of forest coupes in the survey area (i.e. different age-classes and dominant tree species, including clear-fell areas and riparian zones).
- 2.10.25 Ground-flora overall percentage cover was estimated for each coupe with the proportion of the dominant plant species recorded. For each forest coupe surveyed, the following was recorded:
- Forest type (i.e. growth stage, planting age, species composition), determined from the forestry maps and verified on site; and
 - Qualitative habitat quality assessment for small mammals based on estimated ground flora cover and species composition, including: broad habitat type (e.g. grassland, heath); vegetation composition (percentage cover of grasses, forbs, mosses, bare ground, dead wood / brush).
- 2.10.26 Vole sign transects were completed to provide data for a comparative index of prey availability between representative coupe types, clear-fell and open ground (riparian grassland). The survey comprised 14 x 100 m transects (6 clear-fell / pre-thicket, 5 pole stage / high forest, 3 open grassland). Along each transect ten 1m x 1m quadrats were placed at 10 m intervals (leaving 5 m at either end). Within each quadrat the presence of runways (worn paths weaving through the grass stems with evidence of chewed grass stems), latrines (collections of green/dark green faeces) and feeding signs (clippings of bitten-off grass stems and leaves often left in a criss-cross pattern) were recorded.
- 2.10.27 The presence of any other potential prey sources (such as rabbit burrows / warrens, hares, rat field signs) encountered during the walkover surveys were also recorded.

3. RESULTS

3.1 Study Limitations

- 3.1.1 A small number of the areas of pole stage and high forest have areas of windthrow (i.e. pole stage and older plantation trees that have been blown over often creating

an impenetrable thicket of fallen and hanging trees that is unsafe to enter on foot). In some locations this is quite extensive. Access to these parts of the survey area was therefore limited, as some rides were blocked and other areas were considered unsafe to access.

- 3.1.2 Mechanical harvesting was being carried out in some parts of the survey area through the survey period. Disturbance from harvesting operations in the Oxter Burn area (north of proposed Turbine 8) and near Raven Hill (between proposed Turbines 3 and 13) may have affected use of these areas by some species, such as pine marten and wildcat, particularly during 2016 and 2018.
- 3.1.3 Clashindarroch wind farm was largely operational during the 2015 to 2019 baseline survey period. Construction works were fully completed in spring 2015. Much of the targeted survey effort on wildcat was completed during autumn 2018 to summer 2019, more than three years after the wind farm became operational.
- 3.1.4 The final driven transect to sample bat activity within the proposed development area in 2015 was completed in early October. This is outside of the optimal period for such surveys, and temperatures were well below suitable levels, however the survey was attempted due to bad weather affecting the previous survey visit in September. A full set of surveys was completed in summer 2016. One of the SM2 microphones failed to work on two occasions at the same sampling point in 2016. This is not considered to result in a significant data shortfall given that this location was covered in 2015, as were a number of other sampling points for the same broad habitat type in 2016.
- 3.1.5 In November 2018 one protected species camera was damaged during forestry thinning operations, and some cameras filled SD cards quickly due to low sun and or windy conditions meaning that the number of survey nights was reduced. In May 2019 the settings on the cameras were adjusted so that there was less chance of the SD cards filling up due to sunlight or vegetation movements throughout late spring and into the summer months. The changes are highlighted in Table A2.4 as Summer Settings. Despite these limitations, overall a good distribution of locations were monitored and a total of 5,137 camera trap nights were achieved across 39 locations combined.
- 3.1.6 The recording of camera trap data was occasionally subjective, for example, in a few cases a pine marten would make numerous "visits" to the camera to feed on or remove the bait over a period of 20 or 30 minutes. When it was obvious that it was the same animal this was recorded as one visit rather than many so as not to give a false impression of pine marten abundance.
- 3.1.7 The baseline data collated to inform the assessment are considered to accurately represent the key habitats and species using the site, and is sufficiently detailed and concurrent to allow a realistic assessment. There is considered to be sufficient information available about the proposed development on which to base the assessment; where there is uncertainty, realistic 'worst cases' have been assumed in order to avoid under-estimating the magnitude of potential effects.

3.2 Desk Study Records

- 3.2.1 Records of notable species within and up to 2 km from the site boundary were requested from various data providers. The original desk study for the site was carried out in 2017, with updates in 2019.

- 3.2.2 In this context, 'notable records' refers to any species that is considered to be rare or scarce (under various taxon-specific criteria), and/or has special legal protection and/or is listed on the Scottish Biodiversity List (SBL) as a priority species for conservation.
- 3.2.3 Sensitive information from the desk study relating to badgers, bats, otter and wildcat is included in a separate Confidential Annex.
- 3.2.4 Records were provided by the following organisations in 2017 and 2018:
- North East Scotland Biological Records Centre (NESBReC) – provided records of notable protected species within the study area;
 - Forestry & Land Scotland – provided notable plant and species records within the study area;
 - Scottish Badgers – provided five records of badger setts and activity within the study area; and
 - Scottish Wildcat Action – provided records of wildcats within the study area.
- 3.2.5 It is important not to assume that the absence of records of any notable species from a study area means that the species is not present. Many species of conservation concern are under-recorded and not systematically monitored across the country. If there is suitable habitat present and the site is within the geographic distribution of the species it should be assumed likely to be present unless sufficient survey effort has been expended to indicate otherwise.

Badger

- 3.2.6 Desk study data relating to badger is included in the Confidential Annex and have been fully considered within the assessment. Scottish Badgers provided five records for the study area, including three sightings and two unclassified setts. Forestry Commission Scotland provided 11 records of badger setts with an unknown status. Additionally, relevant records from the surveys completed for the Clashindarroch wind farm EIA were also taken into account.

Bats

- 3.2.7 NESBReC provided one record of a common pipistrelle towards the northern end of the study area, dated between 1980 and 1994.
- 3.2.8 The Clashindarroch wind farm ES (2009) concluded that the area provides sub-optimal habitat for roosting bats. However, structures with the potential to support roosting bats and mature broad-leaved trees, were identified within the proposed application area.

Otter

- 3.2.9 Three otter records were found relevant to the study area, all from 2013 and relating to the grid square NJ 42 31, which is towards the southwestern end of the study area.
- 3.2.10 The Clashindarroch wind farm ES (2009) reported that evidence of otter presence within the wind farm site boundary was limited to a single otter spraint recorded on the Craig Water during the 2004 survey. A survey completed in 2007 found no evidence of otter near to works areas for that development.

Pine marten

- 3.2.11 Nine records for pine marten within the study area were provided by NESBReC (see Table 9.2.7). Records were distributed across the site.
- 3.2.12 The Clashindarroch wind farm ES (2009) reported that pine marten scats and a den were recorded in the vicinity of Cloichedubh Hill during 2007 (this site is over 1 km from the nearest proposed wind turbine). During surveys in 2008 pine marten scats were recorded in two locations, one on a forestry track in the centre of the Clashindarroch wind farm site and one to the north-east of the site, just above the proposed northern access track. Although only limited evidence of pine marten activity was recorded within the survey area, habitat assessed as suitable to support pine marten was considered to be abundant.

Table 9.2.7: Mammal records provided by NESBReC

Species	Date	NGR
Red squirrel	17.01.2012	NJ 451 355
Red squirrel	2000	NJ 45 35
Red squirrel	17.05.2013	NJ 455 349
Red squirrel	18.01.2012	NJ 452 342
Red squirrel	18.01.2012	NJ 453 339
Red squirrel	2000	NJ 44 32
Red squirrel	2000	NJ 44 32
Red squirrel	05.07.2013	NJ 432 320
Red squirrel	31.01.2012	NJ 434 311
Pine marten	17.05.2013	NJ 449 345
Pine marten	17.05.2013	NJ 453 340
Pine marten	16.07.2014	NJ 432 339
Pine marten	23.07.2013	NJ 436 328
Pine marten	23.07.2013	NJ 439 328
Pine marten	05.07.2013	NJ 433 323
Pine marten	17.07.2013	NJ 429 323
Pine marten	23.05.2013	NJ 424 313
Pine marten	31.01.2012	NJ 435 312

Red squirrel records

- 3.2.13 Nine red squirrel records for the study area were provided by NESBReC, with records from across the study area (see Table 9.2.7).
- 3.2.14 The Clashindarroch wind farm ES (2009) reported red squirrels seen on a forestry road near Craigend Hill and within an area of mature Norway spruce adjacent to the location of the proposed access track to the south of the survey area. Further evidence of squirrel feeding was recorded to the north-west, centre, east and south of the Clashindarroch wind farm site.

Water vole

- 3.2.15 No records relating to water vole were found for the study area. There are colonies known to exist in the wider area. However habitat suitability within the proposed wind farm development area is relatively poor for this species.
- 3.2.16 The Clashindarroch wind farm ES (2009) reported that no evidence of water vole was recorded during any of the baseline surveys completed for that development. Some areas of potentially suitable habitat were identified.

Wildcat

- 3.2.17 Records of wildcats (and confirmed hybrids) for the study area were provided by FLS and SWA. All such records relating to wildcat are included in the Confidential Annex and have been fully considered within the assessment.
- 3.2.18 The Clashindarroch wind farm ES (2009) reported eleven wildcat sightings within the Clashindarroch Forest by FCS Staff between 1999 and 2003, with one of these being within the Clashindarroch wind farm site boundary, at Cloichedubh Hill. No definitive evidence of wildcat was recorded within the wind farm survey area, although habitat assessed as suitable to support wildcat is abundant, including coniferous plantation, heather moor and grassland.

3.3 Protected Species Survey Results

- 3.3.1 The following sections provide a summary of the key findings of the baseline surveys for each species. The tabulated results of the various surveys are provided in the following Appendices:
- Appendix 1: Target Notes from the Protected Species Surveys
 - Appendix 2: Camera Trap Survey Results
 - Appendix 3: Protected Species Dusk Transect Survey Results
 - Appendix 4: Habitat Quality Assessment for Small Mammals Results
- 3.3.2 Location records in relation to the sensitive species (i.e. species at risk of persecution or disturbance) are detailed in a separate Confidential Annex to Chapter 9 of the EIA Report.

3.4 Badger

- 3.4.1 Evidence of badger, including sett locations, was recorded in a small number of locations within the survey area. None of these locations is considered to be at risk from the proposed development but there is the potential for them to be disturbed during felling and construction works. Details of these findings are included in the Confidential Annex.

3.5 Bats

Roost Habitat

- 3.5.1 Roosting opportunities across the survey area were generally lacking, due to the dominance of the densely planted Sitka spruce plantation (c. 90% of the survey area), which due to the age of the trees do not typically provide suitable features for roosting bats. Semi-mature common beech (*Fagus sylvatica*) trees within the western central section of the survey area, along the Dryburn and associated with the AWI site, that had been initially considered as having some roost potential were inspected in detail

2016 and again in 2019. No potential roost features were recorded. A line of mature sycamore (*Acer pseudoplatanus*) trees that had been recorded as offering some potential suitability for bat roosting in 2015 were not inspected in detail due to their location, being c. 1.25 km from the nearest proposed wind turbine and well outside of the proposed felling area.

- 3.5.2 Several structures within the survey area appeared to provide features that could potentially support a bat roost. The only one with greater than 'low' potential was a derelict building at Corrydown, which had multiple access points into the roof space and cavities via doorways, windows and areas of collapse. Bat roost activity surveys of this building in 2017 and 2019 confirmed that the structure is used by small numbers of common pipistrelle as a summer roost (<5 bats), and the surrounding forest edges and nearby riparian corridor are used as a foraging area. This is assumed to be a non-breeding summer roost, likely occupied by male bats.

General Habitat Quality

- 3.5.3 The majority of survey area is comprised of densely stocked conifer plantation and of relatively low quality as bat foraging habitat. However, within the survey area there are better quality habitats associated with the plantation edges adjacent to watercourses and clearfell areas. Open moorland areas such as Cloichedubh Hill that have some connectivity through rides and across the existing wind farm site to other areas of upland moorland are considered to provide low-quality foraging habitat.
- 3.5.4 Habitat quality is further discussed with the results of the bat activity surveys (driven transects and automated detector surveys) provided in Technical Appendix 9.3: Bat Activity Survey Results.

3.6 Otter

- 3.6.1 A single otter resting site and two spraints were found during the 2015 surveys to the south of the study area, on Kirkney Water. Within the development area evidence of otter was recorded by the dam on Lag Burn, on the eastern edge of the site, where an old otter slide was recorded. There is also a potential otter resting site in cavities amongst large stone blocks surrounding the culvert where the main wind farm access crosses Black Burn at Corshalloch near the proposed substation; however, no otter evidence was found at that location or in the surrounding area.

3.7 Pine Marten

- 3.7.1 Overall habitat quality was rated as 'moderate' for pine martin within the survey area (overall score of 4 using the system given in Table 9.2.5²).
- 3.7.2 There were no confirmed pine marten dens recorded within the survey area during the protected species surveys. Although there is a lack of suitable aerial den sites there are a number of potentially suitable areas with boulder piles, rock outcrops, windthrow areas, brash piles and old log-stacks that could provide suitable denning opportunities (see Figures 9.9a and b).
- 3.7.3 There were several sightings of adult pine marten on the main site tracks, for example by the Badilauchter Burn on the western side of the survey area in June 2015, and on the main track close to the proposed substation in 2017. There were numerous

² Foraging resource = 2; Habitat extent and connectivity = 3, Den availability = 1, Mortality risk factors = -2

records of pine marten scats recorded widely across the survey area, usually on the edge of forestry, on forestry tracks.

- 3.7.4 The protected species camera trapping surveys of 2018-2019 also indicate a relatively high density of pine marten, as 32 of the 39 baited camera locations recorded pine marten. Pine marten (469 visits to the camera locations) and deer (545 visits) were by far the most recorded mammals on the camera traps. All other mammals were below 60 visits (see results Tables A2.1, A2.2, A2.4 and A2.5).
- 3.7.5 The protected species dusk surveys were not successful at detecting pine marten presence. As with the camera trap surveys, deer were frequently detected with the thermal imaging camera, but in contrast to the camera traps, no pine martens were positively identified on the dusk transects (see results Table A3.2).

3.8 Red Squirrel

- 3.8.1 Figures 9.8a and b show the results of the habitat suitability classification for the survey area. Of the 14 proposed wind turbine locations, 9 are located in habitats of 'Poor' habitat quality for red squirrel. Four are within 'Moderate' quality habitat and one is on the edge of 'Optimal' quality habitat. The evidence from the walkover surveys indicates that the habitat suitability assessment is fairly accurate in terms of where evidence of the presence of squirrels was recorded.
- 3.8.2 Within 500 m of the proposed development, the main red squirrel evidence was found in the pole stage plantation at Red Hill, close to proposed turbine 1 (feeding remains and red squirrel sighting), and in the mature plantation along Dry Burn, between proposed turbines 3 and 7 (feeding remains, red squirrel sighting and possible drey [Target Note 87]).
- 3.8.3 Concentrations of red squirrel feeding remains were found during 2019 in the Corshalloch area, along the main access south of the proposed substation within pole and high forest stage forestry. A possible drey [Target Note 305] was located in this area and will need to be considered during road improvement works as it is approximately 40 m to the east of the access track.
- 3.8.4 Other concentrations of red squirrel feeding remains were found within pole stage and high forest further south along the main access, at The Grains, Craigend Hill (proposed borrow pit area), Killin Burn and Little Black Hill.
- 3.8.5 The camera traps recorded 29 visits by red squirrel (and none by grey squirrel) in total to five of the 39 camera locations. The cameras that recorded red squirrels were: camera 1, in high forest, south of the proposed borrow pit area between Craigend Hill and Killin Burn; cameras 2, 3 and 31, all east of Red Hill close to proposed turbine 1; and camera 14, close to proposed turbine 4, in an area of pole stage plantation evidence of red squirrel had not previously been recorded, but is classed as 'Moderate' habitat quality for the species.

3.9 Water Vole

- 3.9.1 No evidence of the presence of water vole was found during any of the protected species surveys carried out between 2015 and 2019. There is limited potentially suitable habitat for this species within the site and most of it is of a relatively poor quality. None of the minor watercourses within the site were considered to be particularly suitable, lacking the preferred slow flowing relatively deep water sections,

suitable aquatic and riparian vegetation and soft banks for burrowing without dense tree cover.

3.10 Wildcat

Walkover Surveys

- 3.10.1 All areas / features that have the potential to provide cover or den sites for wildcat, based on existing knowledge of wildcat behaviour and from the findings of the camera trapping and radio tracking studies in this area and the wider Wildcat Priority Area, are mapped on Figure 9.
- 3.10.2 During the survey period there have been three *ad hoc* likely wildcat/hybrid wildcat sightings within the Clashindarroch forestry, two (both autumn 2018) close to the forestry access road south of Hill of Drumfergus (outside the site boundary), and one within 500 m of the proposed development at The Shank in 2016. Further details are provided in the Confidential Annex.
- 3.10.3 During July 2016 SWA provided some data from a Strathbogie Wildcat Priority Area camera survey (which included Clashindarroch forest) undertaken during winter 2015-16. The purpose of the survey was to gauge the distribution and proportions of wildcats, hybrids and feral cats present in the area to inform future practical conservation actions. This survey revealed the presence of at least 5 different cats (including animals classed as hybrids and wildcats) using the Clashindarroch II wind farm study area.
- 3.10.4 SWA also provided some data from a male hybrid wildcat that had been trapped and fitted with a GPS collar in 2015. The GPS data was of locations where the wildcat had been stationary for extended periods within the wind farm core study area. This data indicated the potential location of resting sites (i.e. dens or lying-up areas) used by this wildcat. These locations were carefully searched for and inspected (by ecologists with a wildcat survey license) during September 2016, no den sites were found but some of the areas did have features such as sections of windthrown trees which provide dense in cover which could be used by a wildcat to rest above ground. All areas of windthrow, brash and log piles, which may be potentially suitable for wildcat, were searched for and mapped within the study area (see Figures 9.8a and b).
- 3.10.5 The areas of thicket & pole stage plantation and much of the high forest may provide some cover for wildcat but prey availability in these areas would be expected to be relatively poor. Areas of clear-fell and pre-thicket may be more prey rich as they tend to support a relatively high density of small mammals (such as short-tailed field voles) for a number of years following tree felling. This is for a period of about 10 years before the next crop of trees becomes established and the canopy closes shading out the grasses, rushes and sedges that provide food for the small mammals. Additionally, the lower fringes of the plantation areas which are adjacent to farmland (outside of the proposed wind farm area) and likely to support good populations of rabbits, which are a key prey species for wildcat.
- 3.10.6 Several mammal holes and rock outcrops were recorded within the survey area as having some potential to provide shelter for wildcat. Throughout the survey area there were also numerous areas covered by brash or windthrow that were also likely to provide some suitable cover. Satellite-tracking and camera trapping in the WPA (outside of Clashindarroch Forest) located a brashpile within a clear-fell area that was used by a breeding female, with kittens, in June 2014. The adult female eventually

relocated the kittens to an area of windthrow approximately 200 m west at the edge of the clear felled area, possibly to provide more cover as they habituated to life outside the den. Other potential evidence from that study indicated that dens may also be very close to farm buildings.

Camera Trap Surveys

- 3.10.7 The camera trap surveys recorded five visits by likely wildcat/hybrid wildcats. Camera 19 located close to the existing wind farm access road, adjacent to Craig Water (250 m from an existing turbine) recorded a cat which was later confirmed by SWA to be a known hybrid wildcat in November 2018 (Dr R. Campbell, pers. comm.). Camera 4 between proposed turbine 8 and the proposed laydown area at Corrydown, recorded four visits by a wildcat/hybrid wildcat over two days in December 2018.

Dusk Transects

- 3.10.8 No wildcat/hybrid wildcat were observed within the survey area during the dusk transects. A large cat was noted on one survey evening but this was located well outside of the wind farm survey area.

Small Mammal Transects and Habitat Quality

- 3.10.9 Summaries of the small mammal transect and habitat quality assessment results are shown in Tables 8 and 9 below.

Table 8: Small mammal transect results

Habitat type	Total No. quadrats (No. of transects)	Quadrats – runways (%)	Quadrats - feeding signs (%)	Quadrats – latrines (%)	Quadrats – burrows (%)	Quadrats – sightings (%)
High forest	10 (1)	0	0	0	0	0
Pole stage	40 (4)	0	8	0	10	0
Pre-thicket	30 (3)	67	7	30	33	0
Clearfell	30 (3)	37	3	13	30	7
Open grassland	30 (3)	57	17	10	7	0
Totals	140 (14)	34	8	11	18	1

Table 9: Coupe Ground Cover Survey Results

Habitat type	No. coupes sampled	Mean values for ground cover (excluding standing trees)					
		% Grasses	% Forbs	% Mosses	% Bare ground	% Dead wood / brash	% Leaf litter
High forest	11	37.7	15.6	28.7	0.2	13.9	6.8
Pole stage	8	2.1	1.8	25.0	0.0	6.1	65.6
Thicket	21	9.3	6.6	26.5	1.4	2.3	57.3
Pre-thicket	6	40.0	35.8	15.0	3.3	6.7	0.0
Restock	3	31.7	16.7	7.0	30.0	15.0	0.0
Clearfell	2	35.0	10.0	15.0	10.0	30.0	0.0

Habitat type	No. coupes sampled	Mean values for ground cover (excluding standing trees)					
		% Grasses	% Forbs	% Mosses	% Bare ground	% Dead wood / brash	% Leaf litter
Open grassland	1	80.0	20.0	0.0	0.0	0.0	0.0
Totals	53	22.9	13.0	23.1	3.1	7.7	35.4

3.11 Other Species

Mammals

- 3.11.1 Both roe deer (*Capreolus capreolus*) and red deer (*Cervus elaphus*) are present within the study area. Both species were frequently seen during field surveys, including dusk transects, and were also regularly captured on camera traps.
- 3.11.2 Rabbit (*Oryctolagus cuniculus*) were seen occasionally within the study area and were also captured on the camera traps at a number of locations (see Table A2.5).

Reptiles

- 3.11.3 There was very limited habitat of suitability for adder within the survey area, although there are pockets of habitat suitable for common lizard, such as south-facing slopes covered by grasses, heather and/or scrub at the edge of wooded areas. A single common lizard was recorded entering the base of a tree stump in August 2018.

Wood Ant

- 3.11.4 Two wood ant nests were recorded during the protected species surveys, both in relatively open areas adjacent to tracks. The species of wood ant was not determined.

3.12 Conclusions

- 3.12.1 The majority of the survey area is comprised of thicket and pole stage planted conifers dominated by Sitka spruce. This type of plantation is generally a sub-optimal habitat for most of the species considered in this report. However, due to the relatively complex site topography, with several steeply sloping valley sides and intervening ridges, as well as the age-class diversity of the plantation, the forest as a whole provides a variety of suitable habitats for a number of protected species.
- 3.12.2 The results of the protected species surveys carried out at the Clashindarroch II wind farm study area indicate that the survey area is used extensively by pine marten and cat (wildcat and hybrids), and to a lesser extent badger and red squirrel. It is often very difficult to locate wildcat and pine marten dens, given that both species can be opportunistic in their choice of non-natal den sites, some of which may only be used temporarily. Additionally, some common and widespread features associated with the plantation edges and clearfell areas (e.g. brash piles and windthrow areas) could provide important cover and den sites for both species. Satellite-tracking studies in the Strathbogie WPA have confirmed the use of brash piles by breeding wildcat (Campbell 2015).
- 3.12.3 Within 500 m of the proposed wind turbine locations the main evidence of the presence of red squirrel was found east of Red Hill (Turbine 1 area) and along the north side of Dry Burn (area extending from Turbine 3 to Turbine 7). Some evidence also found to northwest of proposed turbine 4. There were a total of 61 'squirreled'

cones recorded, all assumed to be red squirrel signs as the site is outside of the current range of the grey squirrel. These records were either from within high forest or pole stage forestry coupes.

- 3.12.4 Badger setts and signs of badger activity were recorded in several locations within the survey area (see Confidential Annex for further details). Although the extensive areas of coniferous plantation provide poor quality foraging habitat for the species, the open grassland habitats have higher levels of suitability, both in terms of foraging and for sett establishment. Furthermore, as there are areas of farmland and open grassland outwith the forestry in the wider area, the presence of occupied setts within dense plantation areas within a few hundred metres of farmland cannot be ruled out.
- 3.12.5 One otter shelter was found outside of the main survey area. This site was located on Kirkney Water, which is the largest and most open watercourse in the survey area, and flows through the southern section of the survey area. The area is not considered likely to be well-used by otter, although the area of Lag Burn downstream of the dam (identified on the OS map) has not been investigated fully.
- 3.12.6 There were few artificial structures or natural features that might provide suitable opportunities for bat roosting. A small roost of <5 common pipistrelle bats was confirmed at Corrydown cottage. This is assumed to be a non-breeding summer roost, likely occupied by male bats.

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APPENDICES

APPENDIX 1: Target Notes from the Protected Species Surveys

This appendix provides the tabulated survey results of the protected species surveys undertaken at the Clashindarroch II Wind Farm site (see Figures 9.7a and b for non-confidential mapped results). The results presented here are from the following surveys:

- Protected species surveys (15-18th September 2015);
- Wildcat & pine marten potential den site surveys (18th August 2016 and 20th October 2016);
- Protected species survey updates (13th September 2017 and 21-23rd August 2018);
- Protected species survey for proposed road improvements (20-21st August 2019); and
- Ad hoc protected species records 2015 – 2019.

Information on badger sett locations and wildcat den sites and wildcat sightings are reported in a separate Confidential Protected Species Annex.

Protected Species Surveys 2015-19 – Target Notes

The initial surveys for protected species were completed in September 2015, with various updates carried out in 2017, 2018 and 2019 as the design of the proposed wind farm evolved and to ensure survey data was current. Further surveys for wildcat / pine marten potential den sites were also carried out between August and October 2016, and in August 2018. Table A1.1 below collates the protected species observations from these various surveys. The location of the non-confidential records are shown on Figure 9.7a and b.

Also included here are notable protected species records reported from other surveys (e.g. ornithological surveys between May 2015 and July 2016), and from site visits to check and reset camera traps in 2018-19.

Table A1.1: Protected Species Target Notes

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
12	343628	831512	16/09/15	Mammal	Scat		Possible wildcat scat. Fresh. Located on track
13	343914	831403	16/09/15	Mammal	Scat		Possible wildcat scat. Fresh. Located on track
14	344917	831004	16/09/15	Mammal	Scat		One possible wildcat scat.
15	344835	831129	16/09/15	Pine marten	Scat		Fresh pine marten scat. Located on track.
16	344495	831430	16/09/15	Pine marten	Scat		One fresh pine marten scat and eight old scats.
17	343856	831655	16/09/15	Pine marten	Scat		Pine marten scat.
18	343230	831930	16/09/15	Mammal	Scat		Possible wildcat scat.
19	343228	831931	16/09/15	Pine marten	Scat		Pine marten scat.
20	343393	832510	16/09/15	Mammal	Scat		Possible wildcat scat.
21	345424	832172	16/09/15	Pine marten	Scat		Pine marten scat.
22	345480	832446	16/09/15	Pine marten	Scat		Old pine marten scat.
23	345016	832334	16/09/15	Pine marten	Scat		Fresh pine marten scat.
24	344230	832155	16/09/15	Pine marten	Scat		Fresh pine marten scat.
25	343988	832348	16/09/15	Pine marten	Scat		Fresh pine marten scat.
26	343598	832687	16/09/15	Pine marten	Scat		Old pine marten scat.
27	343865	832646	16/09/15	Pine marten	Scat		Fresh and old pine marten scat.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
28	344765	833646	17/09/15	Wood ant	Nest		Active wood ant nest.
29	344921	833370	17/09/15	Mammal	Holes		Large hole in peat bank under overhanging heather. Approx. 2m from the culvert that goes under the track towards the Burn of Bedlaithen. No signs of scat. Hole large, approx. 40 x 40cm but no tunnel - would be a shelter only. No spoil in heather. Entrance clear indicating possible recent use. Rechecked 23/10/19 - no protected species evidence, entrance clear but no spoil, worn paths or scat.
30	344921	833368	17/09/15	Pine marten	Scat		Fresh pine marten scat.
31	345051	833200	17/09/15	Mammal	Scat		Mammal scat, possibly wildcat. Very fresh.
32	345147	832958	17/09/15	Badger	Print		Badger paw prints. On track. Fresh. By burn. Prints heading north.
33	345160	832939	17/09/15	Otter	Other		Otter slide into burn. No used recently.
34	345169	832883	17/09/15	Pine marten	Scat		Fresh pine marten scat on track.
35	344788	832899	17/09/15	Pine marten	Scat		Fresh pine marten scat on track.
36	344742	832882	17/09/15	Pine marten	Scat		Old pine marten scat on track.
37	344649	832937	17/09/15	Pine marten	Scat		Old pine marten scat on track.
38	345129	832768	17/09/15	Mammal	Scat		Fresh scat on track - possibly wildcat.
39	344756	832717	17/09/15	Pine marten	Scat		Fresh pine marten scat on track.
40	344761	832716	17/09/15	Mammal	Scat		Very fresh scat.
41	344645	832653	17/09/15	Pine marten	Scat		Fresh pine marten scat.
42	344550	832613	17/09/15	Pine marten	Scat		Fresh pine marten scat.
43	344414	832540	17/09/15	Wood ant	Nest		Wood ant nest.
44	344303	832491	17/09/15	Pine marten	Scat		Old pine marten scat.
45	344214	832460	17/09/15	Mammal	Scat		Mammal scat. Directly on top of pine marten scat.
46	344214	832460	17/09/15	Pine marten	Scat		Fresh pine marten scat.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
47	344215	832461	17/09/15	Pine marten	Scat		Fresh pine marten scat. Two piles on track.
48	344446	832412	17/09/15	Amphibian	Sighting		Common toad sighting.
49	345246	832628	17/09/15	Pine marten	Scat		Old pine marten scat on track.
50	345342	832644	17/09/15	Pine marten	Scat		Old pine marten scat on track.
51	345430	832642	17/09/15	Pine marten	Scat		Two old pine marten scats on track.
52	345477	832650	17/09/15	Pine marten	Scat		Fresh and old scat on track.
53	345483	832878	17/09/15	Mammal	Scat		Fresh mammal scat.
54	345487	832877	17/09/15	Pine marten	Scat		Fresh pine marten scat.
55	345508	832887	17/09/15	Pine marten	Scat		Fresh pine marten scat.
56	345630	832954	17/09/15	Pine marten	Scat		Fresh pine marten scat.
57	345679	832967	17/09/15	Pine marten	Scat		Fresh pine marten scat.
58	345790	833002	17/09/15	Pine marten	Scat		Old pine marten scat.
59	345829	833011	17/09/15	Pine marten	Scat		Old pine marten scat.
60	345837	833022	17/09/15	Pine marten	Scat		Fresh pine marten scat.
61	345845	833025	17/09/15	Pine marten	Scat		Fresh pine marten scat.
62	345429	833869	17/09/15	Pine marten	Scat		Fresh pine marten scat.
63	345871	833495	17/09/15	Pine marten	Scat		Old pine marten scat.
64	345969	833597	17/09/15	Fox	Other		Fox scat. Fresh. Located on track.
65	345696	833690	17/09/15	Pine marten	Scat		Fresh pine marten scat.
66	345554	833889	17/09/15	Pine marten	Scat		Fresh pine marten scat.
67	345557	833904	17/09/15	Pine marten	Scat		Fresh pine marten scat.
68	345669	833879	17/09/15	Pine marten	Scat		Fresh pine marten scat.
69	345869	833803	17/09/15	Pine marten	Scat		Fresh pine marten scat.
70	345891	833774	17/09/15	Pine marten	Scat		Fresh pine marten scat.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
71	346049	833732	17/09/15	Pine marten	Scat		Two fresh pine marten scats.
72	346072	833747	17/09/15	Pine marten	Scat		Fresh pine marten scat.
73	346087	833748	17/09/15	Pine marten	Scat		Fresh pine marten scat.
74	345529	834010	17/09/15	Pine marten	Scat		Fresh pine marten scat.
75	345404	833955	17/09/15	Mammal	Scat		Fresh large mammal scat, possibly wildcat.
76	345192	833665	17/09/15	Red squirrel	Feeding remains		Four squirreled cones on stump.
77	Confidential	Confidential	18/09/15	Badger	Sett - inactive		One-hole outlier, part covered in brash, entrance clear. No fresh activity in evidence.
80	342142	832368	15/09/15	Pine marten	Scat		Located on exposed tree root in plantation which is about 20 cm above ground and covered by mosses as well as needle litter. Dark with faint sweet smell.
81	343372	832676	15/09/15	Red squirrel	Sighting		Squirrel ran up tree in area of old spruce plantation located between track and Dry Burn on steep bank. It ate a cone then threw it to the ground. Canopy is too dense, at least 10 m high, and also obscured by fallen trees to see any drey. Only one squirreled cone under tree that had been thrown down whilst watching.
82	343415	832678	15/09/15	Red squirrel	Feeding remains		Single squirreled cone. Half eaten. Recent.
83	343461	832718	15/09/15	Red squirrel	Feeding remains		Single squirreled cone. Half eaten.
84	343463	832718	15/09/15	Red squirrel	Feeding remains		Single squirreled cone.
85	343481	832732	15/09/15	Red squirrel	Feeding remains		Three partially squirreled cones.
86	343484	832714	15/09/15	Red squirrel	Feeding remains		Five partially squirreled cones.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
87	343601	832818	15/09/15	Red squirrel	Possible drey		Possible squirrel drey in the canopy which is at least 10 m above the ground. This is dense Sitka spruce (DBH about 0.5 m). As there are only five squirrelled cones underneath the tree. Tree is located on a 2 m high steep slope near access track.
88	343638	832828	15/09/15	Red squirrel	Feeding remains		Seven recent squirrelled cones located below very mature Sitka spruce.
89	343640	832815	15/09/15	Red squirrel	Feeding remains		Three squirrelled cones.
90	343672	832811	15/09/15	Red squirrel	Feeding remains		Two squirrelled cones.
91	343752	832784	15/09/15	Red squirrel	Feeding remains		Two squirrelled cones.
92	343779	832776	15/09/15	Red squirrel	Feeding remains		Thirteen squirrelled cones in early high forest / late pole plantation.
93	343783	832776	15/09/15	Red squirrel	Feeding remains		Three squirrelled cones.
94	343844	832756	15/09/15	Red squirrel	Feeding remains		One squirrelled cone.
95	343824	832824	15/09/15	Red squirrel	Feeding remains		Two squirrelled cones.
96	343886	832842	15/09/15	Red squirrel	Feeding remains		One squirrelled cone.
97	344032	832874	15/09/15	Bat	Potential roost (trees)	Low	A line of mature beech (planted) on the south side of Dry Burn, with their branches overhanging the stream. On north side of the burn, a second line of beech trees is set back about 5 m from the burn, the other side of a disused track, and on a topographical ridge, possibly to stabilise the soil adjacent to the track. Trees re-checked 07/04/16 and 04/10/19 – no PRFs noted.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
98	345705	834659	15/09/15	Badger	Print		Badger footprints (one animal) heading across forest access track, heading in a westerly direction into the spruce high forest. Agricultural fields are just a few hundred metres to the east.
99	344105	833099	16/09/15	Bat	Potential roost (building)	High	Old abandoned stone building close to main track - traditional, small single storey cottage. Many cracks and crevices in stonework. Boarded up doors and windows with gaps around boarding. Slate roof in poor condition with some slates misplaced. Skylight windows open. Many crevices in chimney stacks. No external evidence of bats (droppings, staining etc). Mature mixed trees surrounding building and Oxter Burn / Lag Burn within c. 50m, good quality foraging habitat.
100	344100	833097	16/09/15	Badger	Snuffle holes		Possible badger snuffle holes in grassy track outside ruined building.
101	344096	833104	16/09/15	Mammal	Holes		Disused mammal hole under mature spruce by building. Spoil heap vegetated over. Entrance c. 20 cm x 20 cm, clear but no evidence of use.
102	344039	833722	16/09/15	Mammal	Digging		Hole, with entrance c. 15 cm high and 10 cm wide, under mossy stump. Small spoil heap. Looks reasonably fresh. Too small for badger. No other evidence - no hairs, prints, scat etc.
103	343988	833729	16/09/15	Red squirrel	Feeding remains		Squirrelled cone on tree stump in pole stage forestry. No sign of drey.
104	343926	833745	16/09/15	Red squirrel	Feeding remains		Squirrelled cone and mouse-eaten cone on same stump in pole stage forestry. No sign of drey.
105	343929	833739	16/09/15	Red squirrel	Feeding remains		Squirrelled cone on tree stump in pole stage forestry. No sign of drey.
106	343459	834034	16/09/15	Fox	Other		Fox scat on a grassy / mossy clump in the centre of track.
107	345140	834396	18/09/15	Pine marten	Scat		Pine marten scat.
108	345036	834470	18/09/15	Pine marten	Scat		Pine marten scat.
109	344829	834584	18/09/15	Pine marten	Scat		Pine marten scat. Not very fresh.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
110	343270	832600	11/06/15	Pine marten	Sighting		Single pine marten seen, it crossed the main access track to wind farm from west to east and disappeared from view into dense plantation.
111	345974	833958	18/09/15	Bat	Potential roost (tree)	Low / Moderate	Line of sycamore trees around edge of field. No obvious PRFs but there could be features at height.
112	344495	834167	09/12/15	Pine marten	Scat		Fresh pine marten scat on tree stump.
113	342618	832536	13/01/16	Pine marten	Scat		Pine marten scat.
114	344790	832596	06/04/16	Pine marten	Scat		Fresh, on track.
115	344540	832433	06/04/16	Pine marten	Scat		Fresh, on track.
116	345582	833786	07/04/16	Red squirrel	Sighting		Crossed track approx. 10 m from this location.
117	344610	830230	16/05/16	Pine marten	Scat		Fresh pine marten scat on track.
118	344410	829850	16/05/16	Red squirrel	Feeding remains		Two fresh squirreled cones on fallen Scots pine.
119	345160	832920	17/05/16	Pine marten	Scat		Fresh pine marten scat on track.
120	343710	832870	17/05/16	Pine marten	Scat		Fresh pine marten scat on track.
121	344970	832140	17/05/16	Pine marten	Scat		Fresh pine marten scat on track.
122	342850	832090	17/05/16	Pine marten	Scat		Fresh pine marten scat on track.
123	343150	832070	17/05/16	Mammal	Scat		Possible wildcat scat on track, fresh (recent few weeks).
124	343985	831303	17/05/16	Red squirrel	Feeding remains		One squirreled cone found on fallen branch.
125	343985	831284	20/10/16	Mammal	Potential resting site		Old log stack. Potential wildcat or pine marten den.
126	343895	831315	20/10/16	Mammal	Potential resting site		Old log stack. Potential wildcat or pine marten den.
127	343163	832475	20/10/16	Mammal	Potential resting site		Old log stack x 2. Potential wildcat or pine marten den.
128	344273	833217	20/10/16	Mammal	Potential resting site		Old log stack x 2. Potential wildcat or pine marten den.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
129	342414	832019	20/10/16	Mammal	Potential resting site		Old log stack. Potential wildcat or pine marten den.
130	342461	832043	20/10/16	Mammal	Potential resting site		Old log stack. Potential wildcat or pine marten den.
131	342521	832075	20/10/16	Mammal	Potential resting site		Old log stack. Potential wildcat or pine marten den.
132	343074	832456	20/10/16	Mammal	Potential resting site		Old log stack. Potential wildcat or pine marten den.
133	343133	832494	20/10/16	Mammal	Potential resting site		Old log stack. Potential wildcat or pine marten den.
134	344434	832366	20/10/16	Mammal	Potential resting site		Old log stack. Potential wildcat or pine marten den.
135	344258	832988	20/10/16	Mammal	Potential resting site		Old log stack. Potential wildcat or pine marten den.
136	345149	834305	20/10/16	Mammal	Potential resting site		Old log stack. Potential wildcat or pine marten den.
137	344244	833260	20/10/16	Mammal	Potential resting site		Old log stack. Potential wildcat or pine marten den.
138	343219	832573	20/10/16	Mammal	Potential resting site		Old log stack x 3. Potential wildcat or pine marten den. Rechecked 23/10/19 - no protected species evidence.
139	343436	830420	20/10/16	Mammal	Potential resting site		Boulder pile. Potential wildcat or pine marten den.
140	343410	830411	20/10/16	Mammal	Potential resting site		Boulder pile. Potential wildcat or pine marten den.
141	343395	830404	20/10/16	Mammal	Potential resting site		Boulder pile. Potential wildcat or pine marten den.
142	343749	832432	08/07/16	Mammal	Potential resting site		Old log stack. Potential wildcat or pine marten den. Rechecked 23/10/19 - no protected species evidence.
143	344427	832364	08/07/16	Mammal	Potential resting site		Old log stack. Potential wildcat or pine marten den.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
144	343107	830361	20/10/16	Mammal	Potential resting site		Small rock outcrop. Potential wildcat or pine marten den.
145	343410	830403	20/10/16	Mammal	Potential resting site		Three groups of boulder outcrops on south-facing heath slope, adjacent to small spruce and pine copse. Boulders have various voids with potential to be used by pine marten or wildcat. No evidence of use.
146	343062	830345	20/10/16	Mammal	Potential resting site		Smaller and larger rock outcrops, numerous potentially suitable voids that could be used as den sites by pine marten and wildcat. No evidence of use.
147	342736	832336	14/04/16	Wildcat	Sighting		Wildcat / hybrid cat seen on track on early morning bird survey.
148	345585	834748	13/09/2017	Red squirrel	Feeding remains		Squirrel-eaten cones on stump. Five others not eaten.
149	345503	835930	13/09/2017	Pine marten	Sighting		Pine marten crossed track and headed south.
150	344758	833633	21/08/2018	Wood ant	Nest		On edge of track.
151	344772	833625	21/08/2018	Wood ant	Nest		On edge of track.
152	344773	833618	21/08/2018	Wood ant	Nest		On edge of track.
153	345088	832961	21/08/2018	Pine marten	Scat		On track.
154	344305	833155	21/08/2018	Mammal	Scat		Mammal scat on track.
155	344611	833344	21/08/2018	Mammal	Potential Den		Possible den site under log - mammal trail leading to this area. No other evidence
156	344755	833178	21/08/2018	Mammal	Potential Den		Pile of logs next to old track. No evidence of use.
157	344888	833248	21/08/2018	Mammal	Potential Den		Old logs partly covered in moss. No evidence of use.
158	344380	833025	21/08/2018	Mammal	Scat		Mammal scat on track.
159	344073	832889	21/08/2018	Bat	Potential roost (tree)	Low	Mature conifer with lifted section of bark forming a PRF. No evidence of use by bats.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
160	343976	832884	21/08/2018	Red squirrel	Feeding remains		On track.
161	343924	832856	21/08/2018	Red squirrel	Feeding remains		On track.
162	343917	832850	21/08/2018	Pine marten	Scat		On track.
163	343917	832850	21/08/2018	Red squirrel	Feeding remains		Single cone.
164	343875	832832	21/08/2018	Red squirrel	Feeding remains		Three cones.
165	343836	832821	21/08/2018	Red squirrel	Feeding remains		Four cones.
166	343792	832797	21/08/2018	Red squirrel	Squirreled cones		Six cones at base of tree.
167	343651	832791	21/08/2018	Wildcat	Habitat		Windthrow area on slope creating possible suitable habitat (did not access this area).
168	343955	832800	21/08/2018	Red squirrel	Feeding remains		Seven cones within one metre area.
169	343974	832897	21/08/2018	Red squirrel	Feeding remains		Eight cones within one metre area.
170	343729	832481	22/08/2018	Wildcat	Habitat		Cut stumps with numerous gaps, in line along edge of pre-thicket area.
171	343851	832498	22/08/2018	Bat	Potential roost (tree)	Moderate	Standing deadwood with woodpecker holes. No external evidence of bats.
172	343813	832520	22/08/2018	Bat	Potential roost (tree)	Moderate	Three standing dead trees with various splits and cracks. No external evidence of bats.
173	343982	832699	22/08/2018	Mammal	Scat		On track.
174	344048	832737	22/08/2018	Pine marten	Scat		Old, on track.
175	344097	832754	22/08/2018	Pine marten	Scat		On track.
176	344120	832763	22/08/2018	Pine marten	Scat		Numerous, on track.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
177	344189	832786	22/08/2018	Mammal	Scat		Old, on track.
178	344197	832787	22/08/2018	Pine marten	Scat		Numerous, on track.
179	344251	832794	22/08/2018	Red squirrel	Feeding remains		Near edge of trees.
180	344541	832900	22/08/2018	Wildcat	Habitat		Band of windthrow along edge of plantation.
181	344547	832916	22/08/2018	Pine marten	Scat		Numerous old scat on track.
182	344575	832933	22/08/2018	Pine marten	Scat		Numerous old scat on track.
183	344722	832892	22/08/2018	Pine marten	Scat		Numerous old scat on track.
184	344767	832860	22/08/2018	Pine marten	Scat		Old scat on track.
185	344668	832670	22/08/2018	Wildcat	Habitat		Pile of brash on edge of plantation.
186	344525	832616	22/08/2018	Wood ant	Nest		Wood ant nest.
187	346927	833680	15/11/2018	Wildcat	Sighting		Wildcat / hybrid seen, Hill of Drumfergus at 17:44. Caught in headlights on track then cat headed through high forest area downslope of access road.
188	344541	832342	22/08/2018	Pine marten	Scat		Old scat on track.
189	344225	832477	22/08/2018	Pine marten	Scat		Several on track.
190	344178	832412	22/08/2018	Pine marten	Scat		Single scat on track.
191	344432	831975	22/08/2018	Mammal	Track		Trail leading into pile of brash.
192	344077	831849	22/08/2018	Wildcat	Habitat		Fallen tree and brash pile with gaps.
193	343571	832619	23/08/2018	Wildcat	Habitat		Pile of unearthed stumps in clearfell area.
194	343590	832545	23/08/2018	Wildcat	Habitat		Pile of unearthed stumps in clearfell area.
195	343498	832419	23/08/2018	Wildcat	Habitat		Small area of windthrow on edge of clearfell.
196	343947	831959	23/08/2018	Wildcat	Habitat		Area of windthrown larches.
197	343868	831902	23/08/2018	Wildcat	Habitat		Small area of windthrown larches and new tree growth.
198	343917	831943	23/08/2018	Mammal	Fox den		Fox den. With clear entrance, hairs in entrance and a strong smell.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
199	344678	831979	23/08/2018	Common lizard	Sighting		Seen going into base of fallen tree.
200	343648	831875	23/08/2018	Wood ant	Nest		Very new nest side beside old track.
201	343721	831780	23/08/2018	Bat	Potential roost (tree)	Moderate	Standing deadwood with woodpecker holes. No external evidence of bats. Fairly exposed location but south-facing, watercourse near-by, good foraging habitat.
202	347978	837279	20/08/2018	Mammal	Fox den		Fox den with clear entrance, spoil heap. Reddish colour hair in spoil.
203	348464	837575	20/08/2018	Mammal	Scat		Black scat prominent on knoll by animal trail.
204	343904	833351	21/08/2018	Pine marten	Den - Potential		Well-worn narrow mammal track over dyke between thicket and pole forestry. Cannot see where track leads to/from within the thicket. Potential den sites in the thicket side of the dyke. Obvious black pine marten spraint / latrine site on dyke next to track. Two more pine marten scats 2 m from dyke in thicket, old scats 4 m and 5 m away from the dyke.
205	343900	833360	21/08/2018	Pine marten	Den - Potential		Potential pine marten den.
206	343905	833351	21/08/2018	Pine marten	Den - Potential		Potential pine marten den.
207	343915	833354	21/08/2018	Pine marten	Den - Potential		Larger hole than previous potential pine marten den records. No scat close by. Under moss covered old tree roots. No obvious trail leading to or from.
208	343925	833747	21/08/2018	Red squirrel	Squirreled cones		Three squirreled cones on tree stump. Two more squirreled cones 2 m away. No drey seen.
209	343949	833716	21/08/2018	Red squirrel	Sighting		Heard squirrel running in top branches - not seen.
210	343984	833671	21/08/2018	Red squirrel	Feeding remains		Squirreled cone on tree stump.
211	344071	833809	21/08/2018	Mammal	Potential Den		Potential mammal den - deep cavity with a large entrance under stump. No evidence of use.
212	344199	833789	21/08/2018	Pine marten	Scat		Pine marten scat on mossy clump by dried-up stream.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
213	Confidential	Confidential	21/08/2018	Badger	Latrine		Badger latrine in mound of leaf litter. Edge of dense thicket - couldn't see evidence of sett.
214	Confidential	Confidential	21/08/2018	Badger	Latrine		Dung pit and snuffle holes.
215	344157	833402	21/08/2018	Mammal	Potential Den		Log stack and fallen tree could provide a potential shelter / den for wildcat.
217	343454	833148	22/08/2018	Pine marten	Scat		Pine marten scat on grassy ride.
218	343436	832948	22/08/2018	Mammal	Track		Mammal track into thicket - probably deer.
219	342751	832824	22/08/2018	Wildcat	Habitat		Very old brash piles along edge of what was a forest ride but is now in clearfell. Potential wildcat shelter. (Start)
220	342510	832632	22/08/2018	Wildcat	Habitat		Very old brash piles along edge of what was a forest ride but is now in clearfell. Potential wildcat shelter. (End)
221	342938	832822	22/08/2018	Pine marten	Scat		Old mammal scat, possibly fox, with fresh pine marten scat on top. On track but beside mammal track into spruce thicket. Potential mammal shelters under brash within thicket at this point.
222	343032	832762	22/08/2018	Mammal	Scat		Mammal scat on raised mossy mound, too large for pine marten, possibly fox.
223	343038	832758	22/08/2018	Mammal	Scat		Smallish scat on mossy mound - likely fox.
224	343208	832606	22/08/2018	Mammal	Scat		Grey fox scat on grassy tussock.
225	343209	832602	22/08/2018	Mammal	Scat		Scat - black tarry, fresh.
226	342660	832270	22/08/2018	Wildcat	Habitat		Brash and windthrow along the edge of forestry on the north side of the track.
227	343702	833030	22/08/2018	Reptile/Amphibian	Suitable habitat		Ruins of building in clearing - piles of stones, and remains of gable end walls - not suitable for bats.
228	Confidential	Confidential	22/08/2018	Badger	Latrine		Five dung pits on edge of thicket (fresh). Too dense to see if sett is inside. Badger path leading into thicket.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
229	Confidential	Confidential	22/08/2018	Badger	Sett - unknown		One entrance and path on edge of thicket, there may be further entrance deeper in the thicket. Difficult to tell if in use - no spoil heap but loose bedding pile just outside entrance and very small bit in entrance (moss and leaf litter). Entrance otherwise clear. Not on same path as the nearby fresh latrine (previous record).
230	343616	832894	22/08/2018	Reptile/Amphibian	Suitable habitat		Remains of stone building - piles of stones and stone-lined pit close to old rowan tree. Not suitable for bats.
231	343728	832883	22/08/2018	Pine marten	Scat		Pine marten scat on track.
232	343758	833140	22/08/2018	Wildcat	Habitat		Dead wood and brash on both sides of the track at this point - potential shelter for wildcat and pine marten.
233	343901	832935	22/08/2018	Mammal	Potential Den		Old log stacks on side of track. Not ideal but could provide wildcat shelter. Rechecked 23/10/19 - no protected species evidence.
234	343866	832908	22/08/2018	Mammal	Potential Den		Old log stacks on side of track. Not ideal but could provide wildcat shelter. Rechecked 23/10/19 - no protected species evidence.
235	343850	832899	22/08/2018	Mammal	Potential Den		Old log stacks on side of track. Not ideal but could provide wildcat shelter. Rechecked 23/10/19 - no protected species evidence.
236	343071	832389	23/08/2018	Mammal	Potential Den		This whole coupe has numerous potential den sites under old root plates, stumps and fallen trees. Although it is thicket stage plantation, and much of it is inaccessible for survey, it has less dense areas within which at least 15 potentially suitable shelters were found.
237	343130	832413	23/08/2018	Pine marten	Scat		Pine marten scat and larger black scat next to it (possibly another pine marten scat).
238	343090	832002	23/08/2018	Mammal	Potential Den		Burrow under tree stump - likely rabbit as rabbit droppings in spoil. Some other potential mammal shelter under nearby stumps. Rechecked 23/10/19 - no protected species evidence.
239	343121	832008	23/08/2018	Wildcat	Habitat		Potential shelter under stumps.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
240	343180	831884	23/08/2018	Pine marten	Scat		Pine marten scat on track.
241	343179	831875	23/08/2018	Pine marten	Scat		Pine marten scat on track.
242	343095	831812	23/08/2018	Mammal	Scat		Mammal scat (probably fox but could be wildcat).
243	342865	831985	23/08/2018	Pine marten	Scat		Pine marten scat on track.
244	342895	831950	23/08/2018	Pine marten	Scat		Pine marten scat on track.
245	343010	831828	23/08/2018	Pine marten	Scat		Pine marten scat on track.
246	343032	831764	23/08/2018	Pine marten	Scat		Six different pine marten scats of different ages.
247	343104	831733	23/08/2018	Pine marten	Scat		Pine marten scats on track, three scats within 2 m.
248	343116	831729	23/08/2018	Pine marten	Scat		Pine marten scat on track.
249	343205	831686	23/08/2018	Wildcat	Habitat		Windthrow between this point and stream - good potential wildcat habitat.
250	343311	831573	23/08/2018	Pine marten	Scat		Fresh pine marten scat on track, another two old scats within 5 m.
251	343250	831718	23/08/2018	Pine marten	Scat		Fresh pine marten scat on track (contains seeds and berries).
252	Confidential	Confidential	12/09/2018	Badger	Sett - unknown		'Souterrain' feature close to Corrydown cottage ruin monitored by camera. 12/09/18 at 19:40 - Badger emerging. 14/09/18 at 03:28 - Badger entering feature. 27/09/18 at 03:23 - Badger emerging from feature.
253	345577	834122	17/10/2018	Mammal	Scat		Multiple mammal scats on track - full of berries.
254	344053	833598	17/10/2018	Mammal	Scat		Unidentified mammal scat
255	344061	833794	17/10/2018	Mammal	Scat		Unidentified mammal scat
256	343666	831613	17/10/2018	Mammal	Scat		Large black mammal scat.
257	343807	831668	17/10/2018	Mammal	Scat		Large black mammal scat on track.
258	343300	831579	01/11/2018	Mammal	Scat		Large black mammal scat on track.
259	343041	831828	01/11/2018	Mammal	Scat		Large black mammal scat on mossy mound.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
260	347300	833800	30/10/2018	Wildcat	Sighting		Vattenfall worker saw large cat with thick tail (possible wildcat or hybrid) crossing track in front of vehicle, early morning, still darkish and foggy.
261	Confidential	Confidential	03/07/2019	Badger	Snuffle holes		Many badger foraging signs in this area.
262	Confidential	Confidential	03/07/2019	Badger	Path		Badger path leading from foraging area to area underneath large spruce. Too dense to investigate further but could possibly be a sett under the tree.
263	Confidential	Confidential	03/07/2019	Badger	Latrine		Very fresh badger dung pit.
264	Confidential	Confidential	04/07/2019	Badger	Sett - inactive		Single hole entrance, tunnel divides into two. No evidence of recent use - thick tall vegetation surrounding hole. Recent badger foraging evidence in grassland around this area.
265	346868	836454	21/08/2019	Red squirrel	Feeding remains		Single cone on ground in spruce thicket.
266	345246	835514	21/08/2019	Red squirrel	Feeding remains		Single cone on stump.
267	345243	835492	21/08/2019	Red squirrel	Feeding remains		Single cone on stump.
268	345231	835514	21/08/2019	Red squirrel	Feeding remains		Six cones on top of stump and single cone on stump 2 m away.
269	345217	835525	21/08/2019	Red squirrel	Feeding remains		Two cones on stump.
270	345204	835540	21/08/2019	Red squirrel	Feeding remains		Two stumps with seven cones and several others on ground.
271	345180	835565	21/08/2019	Red squirrel	Feeding remains		Cones on ground.
272	345187	835571	21/08/2019	Red squirrel	Feeding remains		Cones on ground.
273	345112	835604	21/08/2019	Red squirrel	Feeding remains		Single cone on stump and one on ground.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
274	345111	835639	21/08/2019	Red squirrel	Feeding remains		Single cone on stump.
275	345120	835665	21/08/2019	Red squirrel	Feeding remains		Single cone on stump and others on ground.
276	345151	835678	21/08/2019	Red squirrel	Feeding remains		Two stumps 2 m apart with numerous cones.
277	345158	835699	21/08/2019	Red squirrel	Feeding remains		Stump with two cones.
278	345171	835697	21/08/2019	Red squirrel	Feeding remains		Single cone on stump.
279	345119	835731	21/08/2019	Red squirrel	Feeding remains		Single cone on stump.
280	345125	835756	21/08/2019	Red squirrel	Feeding remains		Single cone on stump.
281	345218	835842	21/08/2019	Red squirrel	Feeding remains		Single cone on stump.
282	345447	835077	21/08/2019	Red squirrel	Feeding remains		Three cones under large spruce.
283	345427	835097	21/08/2019	Red squirrel	Feeding remains		Single cone on ground.
284	345437	835112	21/08/2019	Red squirrel	Feeding remains		Single cone on ground.
285	345446	835117	21/08/2019	Red squirrel	Feeding remains		Single cone on ground.
286	345443	835127	21/08/2019	Red squirrel	Feeding remains		Stump with several cones.
287	345517	835211	21/08/2019	Pine marten	Scat		Recent scat on top of moss.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
288	343474	832580	20/08/19	Mammal	Potential Den		Very old log stack on edge of regrowth and thicket. Away from tracks and partially hidden - overgrown with thicket. Good denning potential but no evidence of use. Rechecked 23/10/19 - no protected species evidence.
289	343418	832578	20/08/19	Pine marten	Scat		Five old scats
290	343407	832577	20/08/19	Pine marten	Scat		Old scat.
291	343402	832544	20/08/19	Pine marten	Scat		Old scat.
292	344698	833676	20/08/19	Mammal	Potential Den		New log stack - could provide shelter but next to main track so low potential.
293	346733	836339	20/08/19	Wildcat	Habitat		Area of windthrow. No evidence of den sites found but impossible to access to survey thoroughly.
294	346688	836301	20/08/19	Mammal	Potential Den		Old log stack with space for protected mammals to shelter.
295	346941	836456	20/08/19	Mammal	Potential Den		Small old log pile and fallen tree next to main track. Low shelter potential.
296	345368	833828	21/08/19	Red squirrel	Feeding remains		Squirreled cone on tree stump.
297	345335	834014	21/08/19	Red squirrel	Feeding remains		Squirreled cone on tree stump.
298	345250	834231	21/08/19	Red squirrel	Feeding remains		Squirreled cone on tree stump.
299	345257	834269	21/08/19	Red squirrel	Feeding remains		Squirreled cone on tree stump.
300	345754	834646	21/08/19	Wildcat	Habitat		Windthrow and brash. Potential denning site but no evidence seen. Impossible to access to survey thoroughly.
301	345540	835069	21/08/19	Red squirrel	Feeding remains		Squirreled cone on steep ground in high forest area
302	345586	835229	21/08/19	Red squirrel	Feeding remains		Old squirreled cone on stump (moss growing around cone).

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
303	345623	835231	21/08/19	Pine marten	Scat		Pine marten scat on old ride.
304	345557	835219	21/08/19	Mammal	Holes		Disused mammal hole - cobwebs across entrance and wood sorrel growing in entrance. Located under pine roots close to obvious mammal path, entrance approx. 25 x 25 cm and narrows a bit. Tunnel extends further than 50 cm - can't see end. No mammal hairs or other evidence found.
305	345255	835671	21/08/19	Red squirrel	Potential drey		Large dense collection of twigs and sticks in forked main stem of spruce, approx. 10 m above ground level, approx. 1m x 1m across and 50 cm deep. No squirreled coned under the structure but plenty of mature cones available. Likely rating 2-3. Over 40 m from main access track.
306	345318	835872	21/08/19	Otter	Resting site - potential		Large cavities in rip-rap surrounding culvert outlet. Suitable for an otter resting site but close to main access track so low potential due to disturbance. No spraint or other evidence found.
307	346533	835991	21/08/19	Mammal	Holes		Small mammal hole (not badger) under fallen wood.
308	346534	835999	21/08/19	Mammal	Potential Den		Large old stack of logs approx. 10 m x 5 m, covered in moss and regrowth, partially surrounded by thicket. Close to main track but relatively hidden. Evidence of a mammal path at rear of stack. No scat or other evidence found.
309	345352	831803	18/08/16	Wildcat	Habitat		Potential wildcat resting site in conifer and riparian habitat - no wildcat evidence. Suitable resting place under spruce by fence next to where stream flows under fence.
310	345433	831805	18/08/16	Wildcat	Habitat		Potential wildcat resting site in conifer and heath habitat - No wildcat evidence.
311	345340	831999	18/08/16	Wildcat	Habitat		Potential wildcat resting site - in conifer, open mature pine - no wildcat evidence. Impenetrable windthrow and clearfell. Plenty of places for shelter.
312	343237	831703	18/08/16	Wildcat	Habitat		Potential wildcat resting site in windthrow. No wildcat evidence. Impenetrable windthrow and clearfell. Plenty of places for shelter.

Target Note	Easting	Northing	Date	Species / Taxa	Sign / Feature	Rating (where applicable)	Notes
313	344686	831469	18/08/16	Wildcat	Habitat		Potential wildcat resting site in conifer, young plantation - Impenetrable thicket habitat.
314	344597	831654	18/08/16	Wildcat	Habitat		Potential wildcat resting site in windthrow. No wildcat evidence.

APPENDIX 2: Camera Trap Survey Results

This appendix provides the tabulated results of the camera trap surveys undertaken at the Clashindarroch II Wind Farm site in 2018 and 2019. The results from the following surveys are presented here:

- Camera trap survey 1 (24 August 2018 – 11 September 2018) – Paired cameras.
- Camera trap survey 2 (12 September 2018 – 9 October 2018) – Focus on ruins as possible den sites.
- Camera trap survey 3 (17 October 2018 – 24 July 2019) – Baited camera trap survey focussing on wildcat.

Camera Trap Survey Results

Table A2.1: Camera Trap Survey 1 Results (24 August 2018 – 11 September 2018)

Location ID	Camera No.	Camera Type	Nearest Proposed Infrastructure (L046)	Easting	Northing	Protected species detected
1	26	Spy Point IR6	Turbine 9	344366	833289	Badger x 2
2	36	Spy Point IR6	Turbine 9	344361	833300	
3	15	Spy Point IR6	Turbine 1	344126	833383	Pine marten
4	32	Spy Point IR6	Turbine 1	344130	833387	Pine marten x 2
5	8	Spy Point IR6	Turbine 3	342948	832813	
6	29	Spy Point IR6	Turbine 3	342950	832814	Red squirrel x 2, Pine marten
7	11	Spy Point IR6	Turbine 13	343163	831973	
8	19	Spy Point IR6	Turbine 13	343162	831985	
9	16	Spy Point IR6	Turbine 3	343169	832460	
10	2	Spy Point IR6	Turbine 3	343159	832458	
11	24	Spy Point IR6	Turbine 4	344249	832561	Red squirrel carrying cone
12	6	Spy Point IR6	Turbine 4	344259	832544	Pine marten
13	42	Spy Point IR6	Turbine 11	343870	832478	

Location ID	Camera No.	Camera Type	Nearest Proposed Infrastructure (L046)	Easting	Northing	Protected species detected
14	13	Spy Point IR6	Turbine 11	343870	832478	Pine marten
15	18	Spy Point IR8	Turbine 14	344421	831966	
16	34	Spy Point IR6	Turbine 14	344416	831968	

Table A2.2: Camera Trap Survey 2 Results (12 September 2018 – 9 October 2018)

Location ID	Camera No.	Camera Type	Location (in relation to Layout 046)	Easting	Northing	Protected species detected
1	15	Spy Point IR6	Mill ruin near T8 and proposed laydown area.	343699	833036	Badger x 2, Pine marten x 4 (including two pine martens interacting)
2	42	Spy Point IR6	Corrydown cottage ruin near T7	344108	833145	Badger x 3

Table A2.3: Camera Specifications Summary for Camera Trap Survey 3 (Browning Spec Ops Advantage BTC-8A)

Settings (Camera Setup Mode)	Option Req'd.	Notes
Setup Date / Time		GMT (check all cameras are synchronised)
Operation Mode	Trail Cam	Options: Trail Cam, Video, Timelapse Plus.
Photo Quality	Ultra 20 MP – Winter High 12 MP - Summer	Options: Low (4 MP), Medium (8MP), High (12 MP) or Ultra (20 MP).
Photo Delay	1 second	'Timeout' between taking photos. (Options: 1, 2, 10, 20, 30 secs, or 1, 5, 10, 30, 60 minutes).
Multi Shot Mode	4-Shot Rapidfire (Winter) 4-Shot Standard (Summer)	Options: Single (one picture taken), Multi Shot (2-8 shots) – If you select 4-Shot Standard, your camera will take 4 pictures, spaced 3 seconds apart, Rapidfire (as above, but only 0.3 seconds between shots).

Settings (Camera Setup Mode)	Option Req'd.	Notes
Temp Unit	Celsius	Temperature units.
Camera Name		Give each camera a unique number (i.e. BS01, BS02.... BS10)
Image Data Strip	On	Options: On - Info. bar printed on bottom of each photo (temp, moonphase, date, time, camera ID). Off – no information printed on each photo.
Motion Test	On (for test), Off (when not)	Options: On - for testing the camera. Make sure it is set to Off, before leaving the camera in the field.
Motion Detection	60 ft	Options: 60 (more economical), 80 ft.
Battery Type	Lithium	Options: Lithium or alkaline (8 AA batteries reqd.). Check which battery type.
Trigger Speed	Fast (0.4 secs)	Options: Fast (0.4 secs), Normal (0.7 secs)
IR Flash Power	Economy (Winter) Long Range (Summer)	Options: Economy - (60 ft, most economical, woods), Long Range – (80 ft, open areas)
SD Card Management	Off	Use this setting, otherwise if On, files will be recorded over if the card fills up.

Table A2.4: Camera Trap Survey 3 results (17 October 2018 – 24 July 2019)

Loc.	Camera Model	Easting	Northing	Description	Nearest Infrastructure (L046)	Date camera put out	Date camera collected	Number of trap nights	Number of visits to camera				Comments
									Badger	Pine marten	Red squirrel	Wildcat / hybrid	
1	Browning BTC-8A	345630	834124	On large larch in high forest next to mammal track.	Proposed borrow pit	17/10/18	02/05/19	197		17	3		
2	Browning BTC-8A	344022	833626	Deer track on secluded ride.	T1	17/10/18	24/05/19	219	1	41	15		
3	Browning BTC-8A	344421	833663	In open mixed planting at forest edge, screened from track, close to Burn of Bedlaithen.	T9	17/10/18	23/06/19	229		33	6		

Loc.	Camera Model	Easting	Northing	Description	Nearest Infrastructure (L046)	Date camera put out	Date camera collected	Number of trap nights	Number of visits to camera				Comments
									Badger	Pine marten	Red squirrel	Wildcat / hybrid	
4	Browning BTC-8A	343702	833014	Close to ruined mill building, at entrance to open area, next to mammal track.	T8 and proposed laydown area	17/10/18	23/07/19	279	18	53		4	
5	Browning BTC-8A	343126	832007	Shank of Baditimmer, at forestry edge at top of old steep track.	T12 & T13	17/10/18	30/04/19	169		19			
6	Browning BTC-8A	343672	831623	At forest edge / open grassland edge.	T2	17/10/18	22/05/19	161		26			
7	Browning BTC-8A	344168	831648	On old track at edge of high forest and younger growth.	T5	17/10/18	22/05/19	217		12			
8	Browning BTC-8A	342784	832225	South of The Shank on forestry edge / grassland edge.	T12	17/10/18	03/07/19	205		7			
9	Browning BTC-8A	343191	832623	Forestry edge beside Badilaucher Burn.	T3	17/10/18	28/11/18	42					Camera damaged during forest thinning
10	Browning BTC-8A	343868	832479	Edge of thicket and open area, at end of track. Attached to stump.	T11	17/10/18	24/05/19	176		23			
11	Browning BTC-8A	344033	832177	Attached to larch on edge of high forest coupe.	T10	17/10/18	24/07/19	279		21			
12	Browning BTC-8A	344469	832344	Beside Haretnach Burn tributary, on mammal track.	T14	17/10/18	30/01/19	104		11			
13	Browning BTC-8A	344349	831978	Edge of high forest coupe.	T14	17/10/18	24/05/19	162		12			

Loc.	Camera Model	Easting	Northing	Description	Nearest Infrastructure (L046)	Date camera put out	Date camera collected	Number of trap nights	Number of visits to camera				Comments
									Badger	Pine marten	Red squirrel	Wildcat / hybrid	
14	Browning BTC-8A / BTC-8FHD-PX	344283	832596	Mammal track on secluded ride.	T4	17/10/18	24/05/19	218		15	4		
15	Browning BTC-8A	344839	833278	On open ride close to where open grassland starts.	T6	17/10/18	23/07/19	278	1	38			
16	Browning BTC-8A	343877	832796	On open area next to Dry Burn and high forest.	T7	17/10/18	13/03/19	146	1	4			
17	Browning BTC-8A	342459	831947	Blind Stripe at edge of open grassland next to track.	Existing wind farm	01/11/18	02/07/19	243		17			
18	Browning BTC-8A	342493	830991	Copse of trees by Craig Water ford looking downstream.	Existing wind farm	01/11/18	02/07/19	240		14			
19	Browning BTC-8A	342987	831095	Open clearfell by Craig Water looking at mammal "bridge" of fallen wood.	Existing wind farm	01/11/18	26/06/19	235		18		1	
20	Browning BTC-8A	343074	831781	Edge of brash by Bogrotten Burn	T13	01/11/18	13/03/19	132		7			
21	Spy Point IR6 / Browning BTC-8A	343207	832463	In small retained copse of larch	T3 and proposed met mast	06/12/18	04/06/19	146		14			
22	Browning BTC-8A	344566	832166	Mature coniferous plantation.	T14	13/03/19	24/07/19	133		19			
23	Browning BTC-8A	342274	831434	Clearfell on existing wind farm next to burn (west of Craigwater Hill)	Existing wind farm	13/03/19	02/07/19	82		4			

Loc.	Camera Model	Easting	Northing	Description	Nearest Infrastructure (L046)	Date camera put out	Date camera collected	Number of trap nights	Number of visits to camera				Comments
									Badger	Pine marten	Red squirrel	Wildcat / hybrid	
24	Browning BTC-8A	342040	830362	Existing wind farm on northeast corner of plantation block (forestry edge).	Existing wind farm	13/03/19	02/07/19	111		7			
25	Spy Point IR6 / Browning BTC-8FHD-PX	345678	834462	West of proposed borrow pit, forestry edge fenceline.	Proposed borrow pit	13/03/19	23/07/19	132		1			
26	Spy Point IR6	345675	834474	West of proposed borrow pit, forestry edge fenceline.	Proposed borrow pit	13/03/19	05/05/19	36					
27	Browning BTC-8FHD-PX	345742	834298	Southern proposed BP. Edge of windthrow between high forest and clearfell.	Proposed borrow pit	02/05/19	23/07/19	82		3			No bait used
28	Browning BTC-8A	343286	831849	On north side of track next to thicket. To southeast of proposed turbine 13.	T13	02/05/19	24/07/19	83		3			No bait used
29	Browning BTC-8A	343758	831735	Close to watercrossing north of track.	T2	22/05/19	17/06/19	7		1			No bait used
30	Browning BTC-8A	343209	831691	Windthrow, close to track.	T13	23/05/19	24/07/19	62		17			No bait used
31	Browning BTC-8A	343930	833406	Edge of forest next to track.	T1	24/05/19	23/07/19	60		3	1		No bait used
32	Browning BTC-8A	343434	832338	Eastern side of clearfell, beside windthrow.	T3 & T11	24/05/19	07/07/19	44					No bait used
33	Browning BTC-8A	343455	832638	Edge of clearfell and small forest block.	T3	24/05/19	23/07/19	60		2			No bait used

Loc.	Camera Model	Easting	Northing	Description	Nearest Infrastructure (L046)	Date camera put out	Date camera collected	Number of trap nights	Number of visits to camera				Comments
									Badger	Pine marten	Red squirrel	Wildcat / hybrid	
34	Browning BTC-8A	344089	833040	In small area of retained high forest to southwest of track, next to burn.	T7	24/05/19	23/07/19	60	36	5			No bait used
35	Browning BTC-8A	343865	832641	Old established log pile on corner of pole stage larch / open area	Example of forest / open area edge	12/06/19	24/07/19	42					No bait used
36	Browning BTC-8A	343627	831748	In overgrown ride north of proposed T2.	T2	02/07/19	24/07/19	22					No bait used
37	Browning BTC-8A	344409	833266	In ride south of proposed T9.	T9	03/07/19	23/07/19	20					No bait used
38	Browning BTC-8A	342691	832321	Large spruce on corner of pole / windthrow / watercourse.	T12	03/07/19	06/07/19	3		2			No bait used
39	Browning BTC-8A	343671	832347	Edge of spruce / larch.	T11	03/07/19	24/07/19	21		17	3		No bait used
Total								5137	57	469	29	5	

Table A2.5: Collated camera trapping results (mammal 'visits') for survey period October 2018 to July 2019

Camera Trap No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Species	Nights	197	219	229	279	169	161	217	205	42	176	279	104	162	218	278	146	243	240	235	132
Badger		1		18											1	1					
Deer		28	3	45	33	3	6	27	9	1	7	68	9	10	4	8	1	80	29	4	5
Fox			1	1	10		3	3	2	2		2		1	3		7		2		
Mouse				4	8	10	13								13	1			1		
Pine marten		17	41	33	53	19	26	12	7		23	21	12	11	15	38	4	17	14	18	7
Rabbit				8		3												5			
Red squirrel		3	15	6										4							
Wildcat (hybrid)					4															1	
Total		48	64	142	136	47	48	45	19	5	34	98	28	24	43	58	16	114	55	31	17

Camera Trap No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	Total	
Species	Nights	146	133	82	111	132	36	82	83	7	62	60	44	60	60	42	22	20	3	21	5137
Badger														36							57
Deer		18	12	11	5	1	3	37	2	1	30	13	7	14	1	5	4		1		545
Fox		2						1		1				1							42
Mouse										3											53
Pine marten		14	19	4	7	1		3	3	1	17	3		2	5				2		469
Rabbit				5	3						1	1	21					1			42
Red squirrel											1										29
Wildcat (hybrid)																					5
Total		18	40	17	23	17	1	6	43	3	27	38	14	33	57	2	5	5	2	1	1424

APPENDIX 3: Protected Species Dusk Transect Survey Results

This appendix provides the tabulated results of the protected species dusk transect surveys undertaken at the Clashindarroch II Wind Farm study area in 2018 and 2019.

Table A3.1: Protected Species Activity – Dusk Driven Transect Details 2019

Visit no.	Date	Surveyors	Sunset / sunrise time	Start time	End time	Transect Direction	Temp - start	Temp - end	Wind direction (speed)	Cloud cover (%) Start	Cloud cover (%) end	Rainfall	Equip. used
1	01/11/18	CR/SR	16:25	16:40	19:15	Forward	0°C	0°C	~			None	Thermal imaging camera & binoculars
	Notes: Start and end at proposed borrow pit (345760 834820). Keeping to forest tracks and main access road, drove transect clockwise via Slack Methland, Hill of Finglenny, Raven Hill, Shank of Baditimmer, Wind farm entrance, return via main wind farm access track with diversions to The Shank and Red Hill.												
2	14/11/18	CR/SR	15:57	16:10	18:50	Reverse	11°C	11°C	~			None	Thermal imaging camera & binoculars
	Notes: Start and end at proposed borrow pit. Keeping to main access road and forest tracks, drove transect in reverse (anti-clockwise). Main access south to wind farm entrance with diversions to Red Hill and The Shank. Returned via Shank of Baditimmer, Raven Hill, Hill of Finglenny, Slack Methland. Stopped at Oxter Burn clearfell, Raven Hill clearfell, and proposed borrow pit.												
3	05/12/18	CR/KM	15:29	15:40	18:20	Reverse	0°C	0°C	~			None	Thermal imaging camera & binoculars
	Notes: See notes for Visit 2												
4	12/03/19	PB/CR	18:07	18:07	20:30	Reverse	3°C	2°C	~ (4)	100	100	Light snow showers	Thermal imaging camera & binoculars
	Notes: Started at The Shank, ended at the proposed borrow pit. Keeping to main access road and forestry tracks, transect diverted to the top of Badilauchter Burn (near The Lumps), returned to the main access to the wind farm entrance, then via Shank of Baditimmer, Raven Hill, Hill of Finglenny, Slack Methland, Red Hill, to the proposed borrow pit area. Stopped at top of Badilauchter Burn, wind farm entrance, Raven Hill clearfell, before dam at Slack Methland and Oxter Burn clearfell.												

Visit no.	Date	Surveyors	Sunset / sunrise time	Start time	End time	Transect Direction	Temp - start	Temp - end	Wind direction (speed)	Cloud cover (%) Start	Cloud cover (%) end	Rainfall	Equip. used
5	04/04/19	CR/SR	19:57	20:05	21:30	N/A	4°C	4°C	N/A (0)	100	100	None	Thermal imaging camera & binoculars
	Notes: Started and finished at proposed borrow pit area. Transect route followed the main wind farm access road to the wind farm entrance and returned the same way as other tracks were inaccessible due to snow.												
6	02/05/19	PB/CR	20:58	21:00	22:47	N/A	5°C	5°C	NNW (3)	100	100	Light rain near end of survey	Thermal imaging camera & binoculars
	Notes: Start at top of existing wind farm at Cloighedubh Hill and end at proposed borrow pit. Transect route followed main access road and forestry tracks, via wind farm control building, the wind farm entrance, The Shank, Hill of Finglenny, Dam at Slack Methland, Three Sisters to join main access north of Corrydown, Red Hill to the proposed borrow pit area.												
7	23/05/19	CR/SR	21:39	21:35	23:30	Forward	10°C	9°C	~ (4-5)	100	100	None	Thermal imaging camera & binoculars
	Notes: Very windy. Started and finished at the proposed borrow pit area. Transect via main access road and forestry tracks to Slack Methland, Raven Hill, Hill of Finglenny, Wind farm entrance, return to proposed borrow pit area via main access road.												
8	03/07/19	PB/CR	22:11	22:00	00:00	Forward	12°C	10°C	~ (2)	100	100	None	Thermal imaging camera & binoculars
	Notes: Started and finished at the proposed borrow pit area. Transect via main access road and forestry tracks to Slack Methland, Three Sisters (near Corrydown), Main access track, The Shank, Wind farm entrance, main access back to start point. [Data north of proposed borrow pit area to Bailiesward gate recorded but not used].												

Table A3.2: Protected Species Activity – Dusk Driven Transect Results Summary 2019

Visit Number	Date	Protected mammals	Other mammals	Birds
1	01/11/2018		Deer, unknown mammal (probably deer) at the borrow pit area.	
2	14/11/2018		Deer, mouse, unknown mammal in The Shank area.	Woodcock (Little Black Hill), geese flying over Oxter Burn clearfell area.
Ad hoc	15/11/2018	Cat (probable wildcat / hybrid) south of forestry access track on Hill of Drumfergus.		
3	05/12/2018		Deer.	Bird of prey / owl hunting in Raven Hill clearfell area.
4	12/03/2019		Deer, rabbit (Raven Hill).	Tawny owl Shank of Baditimmer area.
5	04/04/2019		Deer, hare, unknown small mammal at Shank of Baditimmer area.	Unknown bird
6	02/05/2019		Deer.	
7	23/05/2019		Deer, unknown small mammal at Bogrotten Burn windthrow.	Woodcock (between Badillauchter Burn and Corrydown).
8	03/07/2019		Rabbit, unknown small mammal (could be pine marten) in The Shank area.	

APPENDIX 4: Habitat Quality Assessment for Small Mammals Survey Results

This appendix provides the tabulated results of the habitat quality assessment for small mammals undertaken at the Clashindarroch II Wind Farm site in 2018.

Table A4.1: Habitat Quality Assessment for Small Mammals

Date	Coupe Ref.	NGR (x)	NGR (y)	Growth Stage	Tree sp.	Planting Yrs	% Ground Cover						Notes
							Grass	Forbs	Moss	Bare Grnd	Dead wood / Brash	Leaf Litter	
20/08/2018	1	347976	837291	High Forest	SP, SS	1943 / 2000	85	5	1	1	8	0	Wood sorrel, heath bedstraw, ferns, foxgloves.
20/08/2018	2	348211	837239	Restock	Spruce	2018	35	20	1	25	20	0	Heather, bell heather, foxglove. Dry heath.
20/08/2018	3	348047	837006	Pre-thicket	SS	2010	40	45	5	5	5	0	Heather, ferns.
20/08/2018	4	348171	836842	Restock	SS	2018	5	20	0	60	15	0	Heather, bell heather with small Sitka spruce seedlings/regrowth.
21/08/2018	5	344118	833836	Thicket	SS	1997	10	0	50	0	5	35	
21/08/2018	6	344103	833818	Pole	SS	1974	0	0	0	0	5	95	Predominantly litter of needles and cones.
21/08/2018	7	344393	833715	Open grassland	n/a	n/a	80	20	0	0	0	0	Heather, bell heather, wood sorrel, heath bedstraw, foxglove, tormentil, creeping thistle, wood-rush, ferns.
21/08/2018	8	343986	833682	Pole	SS	1972	0	0	80	0	15	5	Some fungi.
21/08/2018	9	343610	833561	High forest	EL, SP	1931	40	10	40	0	10	0	Bilberry, wood sorrel, ferns. Many dead trees.
21/08/2018	10	344986	833539	Pole	SS	1972	10	<1	30	0	5	55	Bilberry, ferns. Forbs only seen in small glades (none beneath tree canopy).
21/08/2018	11	343620	833498	Clearfell	n/a	n/a	60	10	0	10	20	0	Heather, bell heather, foxglove, ferns, heath bedstraw, bilberry, groundsel, feverfew, rosebay willowherb, sheep sorrel, tormentil, fungi.
21/08/2018	12	344140	833490	Pole	SS	1972	0	1	70	0	9	20	Ferns and fungi.
22/08/2018	13	343420	833420	Clearfell	n/a	n/a	10	10	30	10	40	0	Heather, bilberry, wood sorrel, foxglove, cowberry, heath bedstraw, sheep sorrel, very small seedling spruce, very small birch, ferns, fungi.

Date	Coupe Ref.	NGR (x)	NGR (y)	Growth Stage	Tree sp.	Planting Yrs	% Ground Cover						Notes
							Grass	Forbs	Moss	Bare Grnd	Dead wood / Brush	Leaf Litter	
21/08/2018	14	344783	833362	Thicket	SS	1992	0	0	5	0	5	90	Predominantly litter of needles and cones. A small amount of fungi.
21/08/2018	15	343714	833311	Pole	SS	1972	0	0	10	0	10	80	Predominantly litter of needles and cones.
21/08/2018	16	344766	833285	Thicket	SS	1990	2	<1	30	0	5	65	Bilberry present.
21/08/2018	17	343813	833276	Pole	SS	1972	0	0	5	0	5	90	Predominantly litter of needles and cones.
21/08/2018	18	344255	833246	Thicket	SS	1990	0	0	10	0	0	90	Grasses only present at the edges – otherwise no vegetation.
22/08/2018	19	343180	833240	Thicket	SS	2000	10	70	20	0	0	0	Heather, bilberry, cowberry.
21/08/2018	20	344923	833184	Thicket	SS	1992	5	<1	20	0	5	70	Bilberry.
22/08/2018	21	343979	833075	Thicket	NS	2003	45	10	45	0	<1%	0	Wood sorrel, heath bedstraw, foxglove, occasional thistle, fungi. Very small % dead wood.
21/08/2018	22	344334	833068	Thicket	SS	1990	<1	<1	0	0	2	98	Wood sorrel at the edges.
21/08/2018	23	344950	833029	Thicket	SS	1993	3	<1	40	0	5	55	Heather on edges of coupe with wood sorrel and ferns within.
21/08/2018	24	343986	832936	Thicket	NS	2003	50	20	0	25	5	0	Wood sorrel. Very young trees – too dense to enter. Surveyed from the edges.
21/08/2018	25	343956	832876	High forest	NS	1937	5	30	50	0	5	10	Wood sorrel.
22/08/2018	26	342874	832748	Restock	SS	2015	55	10	20	5	10	0	Heather, heath bedstraw, foxglove, occasional fern, fungi.
22/08/2018	27	344951	832740	Thicket	SS	1987	<1	0	5	0	0	95	
22/08/2018	28	343943	832682	Pre-thicket	Spruce, BI	2014	40	50	0	10	5	0	Heather and rosebay willowherb.
22/08/2018	29	343952	832657	Thicket	SS	1987	0	0	10	0	0	90	Dense growth with branches to ground level.
22/08/2018	30	344458	832611	Pole	SS	1982	<1	10	0	0	0	90	
22/08/2018	31	343625	832578	Pre-thicket	SS	2014	70	20	5	0	5	0	Heather.
22/08/2018	32	344444	832508	Thicket	SS	1996	<1	0	5	0	0	95	Includes stumps from previous crop.
22/08/2018	33	344215	832460	Thicket	SS	1987	0	0	10	0	<1	90	

Date	Coupe Ref.	NGR (x)	NGR (y)	Growth Stage	Tree sp.	Planting Yrs	% Ground Cover						Notes
							Grass	Forbs	Moss	Bare Grnd	Dead wood / Brash	Leaf Litter	
23/08/2018	34	343194	832457	High Forest	JL	1956	20	50	25	0	5	0	Heather, heath bedstraw, fern, fungi. Sparse trees.
22/08/2018	35	343840	832450	High Forest and Pre-thicket	HL, spruce	1956 / 2010	40	15	10	0	1	35	Heather and heath bedstraw
23/08/2018	36	343163	832396	Thicket	SS	1997	2	0	95	0	3	0	Not too dense, daylight penetrates to forest floor.
23/08/2018	37	343542	832380	High forest	HL	1956	60	20	15	0	10	0	Bilberry, heath bedstraw and wood sorrel
22/08/2018	38	342855	832357	Pole	SS	1973	5	<1	5	0	0	90	Occasional bilberry. Mainly litter of needles and cones.
23/08/2018	39	342794	832174	Pre-thicket	SS	2010	10	30	50	0	10	0	Heather, bilberry.
22/08/2018	40	344209	832136	High forest	JL, LP, spruce	1956	5	5	30	0	40	20	Foxglove and wood sorrel.
22/08/2018	41	344508	832124	Thicket	SS	1996	3	0	20	0	2	85	
23/08/2018	42	343442	832055	Thicket	SS	2003	15	10	70	5	2	0	Heather, bilberry and heath bedstraw.
23/08/2018	43	343860	832053	High forest	HL	1956	70	5	15	0	15	0	Heather, wood sorrel, ferns, chickweed wintergreen
23/08/2018	44	343017	831994	Pre-thicket	SS	2010	25	40	25	0	10	0	Heather, heath bedstraw.
22/08/2018	45	343994	831974	High forest	Larch	1956	30	5	10	0	30	25	Heather and foxglove.
23/08/2018	46	343797	831918	High forest	Larch, spruce	1956	60	10	0	1	20	0	Heather and bilberry.
23/08/2018	47	343759	831735	Pre-thicket	SS	Recent	55	30	5	5	5	0	Heather and heath bedstraw.
23/08/2018	48	343581	831721	Thicket	SS, larch	2003	15	3	20	0	0	62	Heather.
23/08/2018	49	343808	831687	High forest	SS	1946	30	<1	50	0	0	20	Heather and spruce seedlings.
20/08/2018	50	348259	837637	Thicket	Spruce	1999	0	0	1	0	5	94	Most of ground covered in spruce needles.
22/08/2018	51	343400	832600	Thicket	SS	2002	5	0	90	0	0	5	Heather on trackside edge only. Some fallen trees on very edge.
22/08/2018	52	344330	832500	Thicket	SS	1996	2	0	10	0	0	85	Very difficult to access

Date	Coupe Ref.	NGR (x)	NGR (y)	Growth Stage	Tree sp.	Planting Yrs	% Ground Cover						Notes
							Grass	Forbs	Moss	Bare Grnd	Dead wood / Brash	Leaf Litter	
23/08/2018	53	343770	832400	High forest	SS, HL	1956	10	<1	80	0	10	0	Bilberry and fern

*BI=Birch; EL=European larch; HL=Hybrid larch; LP=Lodgepole pine; SP=Scots pine; SS=Sitka spruce

Table A4.2: Small Mammal Transect Survey

Transect Start Point		Forest age class	Notes	No. of Quadrats with:				
NGR (x)	NGR (y)			Runs	Feeding signs	Latrines	Burrows	Sightings
344293	833163	Open grassland	Dominated by tufted hair-grass.	9	4	3	1	
344801	833205	Pole stage	Virtually no ground vegetation and no suitable habitat for small mammals.	-	-	-	-	-
344278	832766	Pole stage	No vegetation with exception of small patches of moss. No suitable habitat for small mammals.	-	-	-	-	-
343310	832559	Clearfell / pre-thicket		7	-	1	-	2
343626	832576	Clearfell / pre-thicket		5	-	1	1	-
343494	832469	Clearfell / pre-thicket		8	2	3	3	-
343767	832333	Pole stage	No suitable habitat for small mammals.	-	-	-	-	-
343656	832931	Open grassland		5	1	-	1	-
343813	833276	Pole stage	Transect from dense to more open forestry.	-	3	-	2	-
343620	833498	Clearfell / pre-thicket		-	-	-	3	-
344393	833715	Open grassland	Grass too long and dense to see much evidence but appeared to be good vole habitat.	3	-	-	-	-

Transect Start Point		Forest age class	Notes	No. of Quadrats with:				
NGR (x)	NGR (y)			Runs	Feeding signs	Latrines	Burrows	Sightings
344140	833490	Pole stage	Some quadrats within a more open area in pole stage plantation. Vole burrows under old stumps.	-	-	-	2	-
343420	833420	Clearfell / pre-thicket	Vole burrows under old stumps and in bank, with runways under roots.	4	1	3	6	-
342794	832174	Clearfell / pre-thicket	Vegetation becomes more grassy through transect.	7	-	5	6	-