

Appendix 8.1 Protected Terrestrial Mammals

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Introduction

This Technical Appendix has been prepared to accompany Chapter 8 in Volume 1 of the Knockcronal Wind Farm (hereafter the Proposed Development) EIA Report.

It presents detailed methodologies and results of desk studies and field surveys completed to establish baseline conditions with regards to protected and notable terrestrial mammals (excluding bats), in order to inform the design and assessment of the Proposed Development.

It should be read with reference to the following specific figures, presented in Volume 2 of the EIA Report:

- Figure 8.1: Non-ornithological Statutory Designated Sites.
- Figure 8.2: Terrestrial Mammal Survey Results.
- Confidential Figure 8.3: Confidential Terrestrial Mammal – Desk Study.
- Confidential Figure 8.4: Confidential Terrestrial Mammal – Survey Results.

The detailed methodologies and results of desk studies and field surveys completed to establish baseline conditions with regards to bat species, is considered separately in Technical Appendix 8.5 in Volume 4 of the EIA Report.

Information pertaining to the locations of sensitive terrestrial mammal records and which are considered confidential is provided in Confidential Figures 8.3 and 8.4 in Volume 5 of the EIA Report. Such information will not be made publicly available, but will be provided to NatureScot and South Ayrshire Council.

Site Overview

Land within the Proposed Development is shown in Figures 8.1 and 8.2 in Volume 2 of the EIA Report. The site is located approximately 4.8 km south of Straiton, 11.3 km south-west of Dalmellington and 17.4 km east of Girvan (distances to the nearest proposed wind turbine), in South Ayrshire. There are no designated sites with terrestrial mammal interest within 2 km of the site, with the nearest such site greater than 9 km from the site (Merrick Kells Special Area of Conservation SAC and Special Site of Scientific Interest SSSI, which is designated for otter *Lutra lutra*).

The habitats within the site comprise a mosaic of rough pasture, including acid and marshy grassland, with areas of blanket mire and wet modified bog. Commercial conifer plantations border the site to the west, south and east. There is also a small, isolated stand of mature conifers located on-site.

The lower lying northern extent of the site consists of gently sloping, to flat, farmland with improved and semi-improved grasslands. The southern extent of the site, on higher elevation, rise to an undulating plateau with prominent small hills, and which supports a more complex association of upland plant communities.

Habitat along the two proposed access routes is principally commercial conifer plantation, both routes including sections of an existing forestry track but only one route will be progressed and utilised.

Full habitat descriptions are provided in Technical Appendix 8.4 in Volume 4 of the EIA Report.

Methodology

Desk Study and Consultation

A desk study and consultation with specialist recording groups was undertaken to identify the proximity of the Proposed Development to any statutory or non-statutory designated sites for nature conservation with terrestrial mammal qualifying interests and to identify any existing records of protected and/or notable terrestrial mammals within or in close proximity to the Proposed Development. This was in order to identify any such species likely sensitivity to the Proposed Development and to inform the requirements for targeted field surveys.

Key desk study sources, search areas and information obtained is summarised in Table 8.1.

Table 8.1 - Desk Study Sources

Key Source	Information Sought	Search Area
Sitelink	Statutory designated sites for nature conservation with qualifying terrestrial mammal interests.	Within 10 km of the site boundary.
South West Scotland Environmental Information Centre (SWSEIC)	Existing records of protected and notable terrestrial mammals, and non-statutory designated sites with terrestrial mammal interest.	2 km from the site boundary, extended to 10 km for bat roosts.
Linfairn Wind Farm Environmental Statement (ES) Chapter 8	Existing records of protected and notable terrestrial mammals from baseline surveys.	Study Area is shown on Figure A7.1 of the ES.
Saving Scotland's Red Squirrels website	Red squirrel <i>Sciurus vulgaris</i> records.	Within, and adjacent to, the site boundary.

Field Surveys

Field survey effort and methodologies were agreed with NatureScot prior to commencement (Chapter 8 in Volume 1 of the EIA Report, Table 8.1).

Detailed knowledge of the presence or likely presence of protected and notable terrestrial mammal species within proximity to the Proposed Development has been derived through field survey for the following species:

- badger (*Meles meles*);
- red squirrel;
- pine marten (*Martes martes*);
- otter; and
- water vole (*Arvicola amphibius*).

Field Survey Methodology

The field survey has comprised a walkover survey of the Study Area to assess habitat suitability followed by a systematic search of habitat features, to record the location and distribution of field signs identifying the presence and/or potential presence of protected terrestrial mammal species within the Study Area as summarised in Table 8.2. The survey methodology followed industry standard guidance: Chanin (2003), Cresswell *et al.* (2012), Dean *et al.* (2016), Harris *et al.* (1989) and SNH (2018).

The survey was undertaken over five staggered visits in July and September 2020:

- 21 – 23 July 2020;
- 15 September 2020; and
- 22 September 2020.

All surveys were undertaken in conditions conducive to the survey of terrestrial mammals, including normal flow conditions of onsite watercourses and not undertaken after periods of heavy rain.

On 5 May 2021 the proposed access roads were surveyed and any evidence of protected terrestrial mammals was recorded.

Table 8.2 - Terrestrial Mammal Field Survey Methodology Summary

Species	Survey Methodology Summary
Badger	Walkover search of suitable habitat for signs of badgers, such as footprints, hair, snuffle holes, latrines and sett entrances.
Red squirrel	Walkover search of suitable habitats for feeding remains and potential dreys.
Pine marten	Walkover search of suitable habitats for scats and potential den sites.
Otter	Walkover search of suitable habitat for spraints, paw prints, paths, slides, food remains, holts and places used for breeding and/or shelter.
Water vole	Walkover search of suitable habitats for potential burrows, runs, footprints, feeding stations and feeding remains, droppings and latrines.

Study Area

The Study Areas as shown in Figure 8.2 in Volume 2 of the EIA Report has comprised all areas within the site, extended to include areas of suitable habitats accessible by public rights of way (PRoW), out to the following distances in accordance with NatureScot species specific guidance (NatureScot, 2020a-e):

- 50 m of the site for water vole;
- 100 m of the site for badger;
- 200 m of the site for otter; and
- 250 m of the site for pine marten.

The Study Area also included the two proposed permanent access roads (and a 20 m buffer on either side of each route).

Personnel

Field surveys have been undertaken by Mr G. Nicolson, Mr T. Bowman and/or Mr M. Wood, who are all highly experienced field ecologists with considerable experience in the survey and identification of field signs of protected mammal species in Scotland.

Limitations

Habitats off-site were surveyed from PRoWs. Access to off-site habitats for recording evidence of terrestrial mammals was appropriate and the results obtained are considered robust.

Results

Desk Study

This section provides details of existing terrestrial mammal information and existing records of protected and notable mammal species identified within and in proximity to the Proposed Development from desk study sources listed in Table 8.1.

Statutory Designated Sites

This section should be read with reference to Figure 8.1 in Volume 2 of the EIA Report.

A review of Sitelink identifies that the Proposed Development does not form part of any statutory designated site for nature conservation with qualifying terrestrial mammal interests.

Table 8.3 summarises statutory designated sites with terrestrial mammal features of interest located within 10 km of the Proposed Development.

Distances specified within Table 8.3 are taken from the site boundary to the designation boundary at its nearest point.

Table 8.3 - Designated Sites for Nature Conservation

SAC – Special Area of Conservation; SSSI – Site of Special Scientific Interest

Designated Site	Distance / Orientation	Qualifying Terrestrial Mammal Interests
Merrick Kells SAC and SSSI	9.4 km, south-east of site boundary.	<ul style="list-style-type: none"> ▪ Otter.

Non-Statutory Designated Sites

In consultation with SWSEIC the Proposed Development does not form part of any non-statutory designated site for nature conservation and no such sites are located within 2 km of the Proposed Development.

Straiton Hills is a provisional Local Wildlife Site (pLWS) and this intersects the north-east of the site boundary. The River Stinchar (Milton to Black Hill) is a pLWS and this is located 625 m south of the site boundary. Both sites are principally important by virtue of their sensitive habitats and vegetation, together with ornithological interest.

The Galloway Red Squirrel Priority Woodland (RSPW) is adjacent to the site boundary.

The site boundary is also part of the Galloway and Southern Ayrshire Biosphere Reserve.

Existing Records of Protected Terrestrial Mammal Species - SWSEIC

A summary of existing records of protected terrestrial mammal species within 2 km of the Proposed Development, provided by the SWSEIC, is presented in Table 8.4. The data summarised in Table 8.4 is considered historic (>10 years old).

Table 8.4 - Existing Records of Protected Terrestrial Mammal Species – SWSEIC

Species	Conservation Status*	No. of Records (Incl. Date)	Summary
Otter	HabDir-A2, HabReg-Sch2, SBL, WACA-Sch5	3 (1978, 1984 and 1991 to 95)	For all records only a 4-digit grid reference is provided and no further information is given (although consultation with SWSEIC reveals that these records are likely to be spraint). The grid reference is within the north of the site.

*Key to Table 8.4

HabDir-A2 – listed as an Annex 2 – priority species;

HabReg-Sch2 – listed as a European Protected Species (EPS) of animal;

WACA-Sch5 – listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended); animals which are protected from their access to any structure or place which they use for shelter or protection being obstructed and/or cetacea/basking shark that are not allowed to be intentionally or recklessly disturbed; and

SBL – listed on the Scottish Biodiversity List and considered by the Scottish Ministers to be of principal importance for biodiversity conservation.

Existing Records of Red Squirrel - Saving Scotland's Red Squirrels

A review of red squirrel records, available on the Saving Scotland's Red Squirrels website, was undertaken in January 2021.

In review, there are seven red squirrel records within 2 km of the Proposed Development, with three records to the south-east within the Galloway RSPW, and the other four records close to the road network to the north and north-east of the Proposed Development. The range of these records is from 2012 to 2020.

Existing Records of Protected Terrestrial Mammal Species - Linfairn Wind Farm ES

A summary of the surveys undertaken to support the Linfairn Wind Farm ES Chapter are presented in Table 8.5. The locations of badger setts are provided in the separate Technical Appendix 8.2 in Volume 4 of the EIA Report and Confidential Figure 8.3 in Volume 2 of the EIA Report.

Table 8.5 - Survey Summary which Supported the Linfairn Wind Farm

Survey Type	Dates	Results
Badger Survey	June 2013	<ul style="list-style-type: none"> ▪ Setts and signs including trails, pits, scrapes and scuffle marks recorded near, and adjacent to, the northern site boundary.
Otter and Water Vole Survey	June 2013	<ul style="list-style-type: none"> ▪ Otter spraint recorded on Palmullan Burn and on Water of Girvan along the northern site boundary. ▪ No evidence of water vole.
Red Squirrel Survey	July 2013	<ul style="list-style-type: none"> ▪ No definitive evidence although squirrel feeding remains in adjacent woodland to the site recorded, but this could not be differentiated between red or grey squirrel.

Field Surveys

This section presents the results of baseline field surveys, including an overview of protected terrestrial mammals present within the Study Areas and their distribution.

Badger

Signs indicative of the presence of badgers were recorded during field surveys.

These included two badger setts, as well as associated evidence including latrine and prints (details are provided in the separate Technical Appendix 8.2 in Volume 4 of the EIA Report and Confidential Figure 8.4 in Volume 2 of the EIA Report).

Non-sensitive badger records recorded are listed in Table 8.6 and in Figure 8.2 in Volume 2 of the EIA Report.

Table 8.6: Terrestrial Mammal Survey Results – Badger

Grid Reference	Description
NS 37387 00587	Badger latrines on either side of wooded copse.
NX 38242 99752	Badger latrine.
NX 38257 99715	Badger latrine.

The plantation woodland habitats adjacent to the Proposed Development and grassland on-site provide suitable sett-building and foraging opportunities for badger.

Red squirrel

No signs indicative of the presence of red squirrel, including feeding signs or possible dreys, were recorded during field surveys.

The plantation woodland adjacent to western, southern and eastern of the Proposed Development is likely to support red squirrel given the previous records (from the Saving Scotland’s Red Squirrels website) and due to the fact that the woodland is part of the Galloway RSPW.

Pine marten

No signs indicative of the presence of pine marten, were recorded during field surveys.

The woodland habitats adjacent to the Proposed Development do provide some opportunities for the establishment of den sites, with pockets of moorland and grassland habitats also providing a mix of habitat interest and the species known to utilise open habitats to some degree, at least for foraging and commuting.

Otter

No signs indicative of the presence of otter, were recorded during field surveys.

Watercourses within, and intersecting, the site boundary do provide suitable commuting opportunities for otter, particularly Palmullan Burn and Water of Girvan along the northern site boundary.

Water vole

Evidence of water vole activity recorded within the site boundary, included characteristic droppings, runs and a burrow as shown in Figure 8.2 in Volume 2 of the EIA Report and summarised in Table 8.7. Water vole signs were identified along watercourses at three locations in the south-west of the site.

Given the watercourses where the water vole signs were identified are typical of the watercourses on-site, it is reasonable to assume that the network of watercourses on-site may support water voles, including burrows.

Table 8.7 - Terrestrial Mammal Survey Results – Water Vole

Grid Reference	Description
NX 36914 99903	Several signs of water vole activity along watercourse, including runs, characteristic droppings and burrow.
NX 36721 99149	Water vole runs and characteristic droppings at several points along watercourse.
NX 37356 99421	Water vole characteristic droppings close to watercourse ¹ .

¹ This water vole evidence was recorded during the fish habitat survey in July 2020.

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