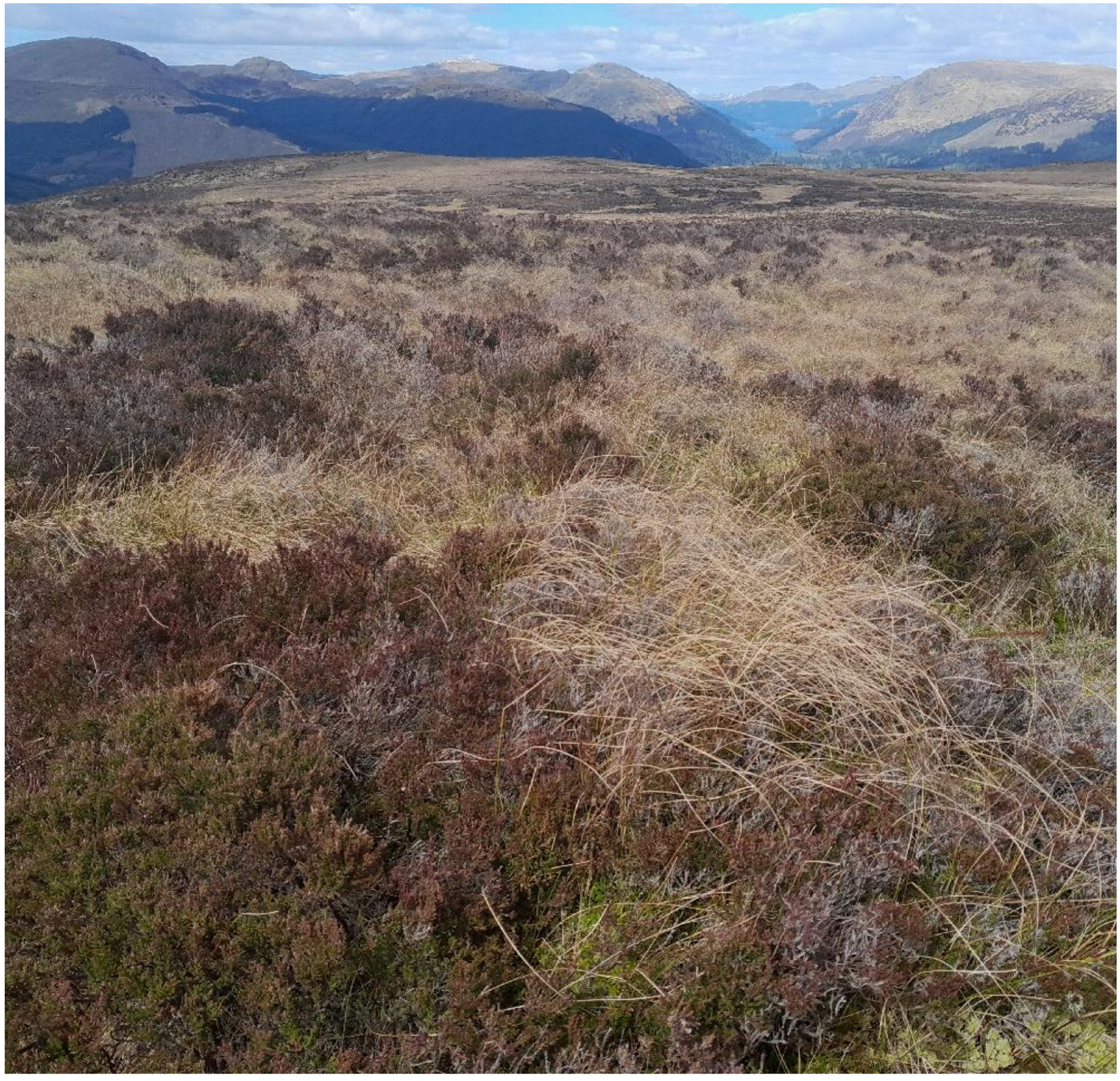

GB Wind Farm Ltd.

Giant's Burn Wind Farm EIA

Technical Appendix 6.3: Protected Species Survey Report

Final report
Prepared by LUC
July 2025

GB Wind Farm Ltd.

Giant's Burn Wind Farm EIA
Technical Appendix 6.3: Protected Species Survey Report

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Contents

Chapter 1
Introduction

1.1 This appendix details the full methods and results of the protected species surveys undertaken to inform the Ecological Impact Assessment (EcIA) of the proposed Giant's Burn Wind Farm (the 'Proposed Development'). The EcIA is provided in Chapter 6 of the Environmental Impact Assessment Report (EIA Report).

Supporting Documents

1.2 This appendix supports the EcIA in addition to the following appendices:

- Appendix 6.1: Desk Study and Legal/Policy Context;
- Appendix 6.2: Habitats and Vegetation Survey Report;
- Appendix 6.4: Bat Survey Report; and
- Appendix 6.5: Biodiversity Enhancement Strategy (BES).

1.3 This appendix is supported by the following figures which can be found in Volume 3a of the EIA report:

- Figure 3.1: Proposed Development;
- Figure 6.1: Ecology Survey Area; and
- Figure 6.6: Protected Species Survey Results.

Terminology and Survey Areas

1.4 The following terminology will be used throughout this appendix:

- Site
  - All land within the Site Boundary, as shown in Figure 3.1.
- Proposed Development
  - The physical process involved in the development of land at Giant's Burn Wind Farm, including the construction, operation and decommissioning of a seven turbine wind farm, Battery Energy Storage System (BESS) and ancillary infrastructure (described in detail in Chapter 3).
- Ecology Survey Area (ESA)
  - The area within the Site Boundary in which all ecology surveys were undertaken in line with good practice guidelines for all ecological features surveyed (as shown in Figure 6.1).

Scope

1.5 In February 2024, a Scoping Report[1] was submitted on behalf of Giant's Burn Wind Farm Ltd. ('the Applicant'), as a means of agreeing the full scope of surveys with relevant consultees to inform the EcIA.

1.6 Surveys for the following species were undertaken within the ESA:

- Otter *Lutra lutra*;
- Water vole *Arvicola amphibius*;
- Pine marten *Martes martes*;
- Red squirrel *Sciurus vulgaris*;
- Badger *Meles meles*; and
- Bats *Chiroptera*.

1.7 Bat surveys, including methods, findings, and interpretation of results are addressed separately in Appendix 6.4.

1.8 Reference should be made to Chapter 7 of the EIA Report for details of ornithological survey and assessment.

[1] LUC (2023). *Giant's Burn Wind Farm Environmental Impact Assessment Scoping Report.*

Chapter 2
Methods

Desk Study

2.1 A desk study was undertaken to inform the protected species surveys. A detailed account of the methods adopted, and findings, is provided in Appendix 6.1, which also sets out the legislative provisions afforded to protected species.

Field Surveys

Overview

2.2 Protected species surveys of the ESA were undertaken between June and October 2024, with additional surveys undertaken in April 2025 along proposed access tracks. Surveys were completed during accepted survey seasons by experienced field ecologists, in appropriate weather conditions.

2.3 All survey data was collected on GIS-enabled field tablets to increase accuracy and facilitate robust interpretation. Where field evidence was recorded, photographs (referred to as 'Images' within this appendix) were taken for post-survey analysis. Images are presented in Annex A of this appendix.

2.4 Surveys sought to identify suitable habitat for, and, where appropriate, direct evidence of, protected species. Suitable habitat was considered to include opportunities for shelter/protection, habitation/rest, foraging and commuting. All surveys followed good practice methods as detailed below.

Baseline Data Collection

Otter

2.5 An otter survey was undertaken on all watercourses located within the ESA in accordance with recognised best practice[2] . Ecologists searched for evidence of suitable habitat for, and direct evidence of, otter. Watercourses were categorised into four suitability classifications based on a variety of characteristics including wet width, water depth, suitable foraging resources, suitable resting sites, and connectivity to suitable habitats. Descriptions of suitability categories are provided in Table 2.1. This table is based on professional judgment and experience, and published guidance[3] .

Table 2.1: Watercourse Suitability for Otter

Suitability	Description
Optimal	Typically larger, main watercourses (at least 1 m in wet width). These watercourses contain flow at all times of year (not just in spate) and will support foraging resources (such as amphibians and fish). Rocky banksides or vegetation overhangs will provide suitable resting places, and large boulders will provide ideal sprainting sites.
Sub-optimal	Generally a substantial watercourse, greater than 0.5 m in width. These watercourses will comprise stone and rock substrate, with occasional boulders. There may be limited resting opportunities, however, vegetation overhangs and occasional rocky crevices may be present.
Suitable	These watercourses may be sporadically used by otter, with connectivity to optimal or sub-optimal watercourses. The watercourses themselves will typically be no wider than 0.5 m, with a relatively shallow flow of water. Substrate may comprise stone and earth, and banksides may comprise grassland.
Unsuitable	Generally will be a narrow channel, which may contain very little water. The channel may be very densely vegetated with limited suitability to support otter foraging resources.

2.6 Where watercourses were considered to have potential to support otter, a detailed survey was undertaken for field signs.

2.7 Field signs searched for included:

- Resting sites (as defined in Table 2.2);
- Spraint (including age and description: fresh, recent, old);
- Prints, tracks, slides and runs; and
- Feeding remains.

Table 2.2: Otter Resting Site Classifications

Resting Site Type	Description
Natal Holt	A discreet holt site that is used by a bitch to birth cubs, where they will normally remain for up to three months, before being moved to a secondary holt. These sites are seldom identified during surveys and they are rarely recorded without the aid of camera traps. It is generally accepted that most natal holts will contain bedding material and sprainting activity is minimal whilst occupied.
Holt	A cavity or hole on or adjacent to a watercourse. It may be in the ground, under tree roots, within rocks or caves; where it cannot be readily observed. If a holt is confirmed as active it usually contains field evidence such as spraint.
Hover	A bolt hole or ledge that provides temporary cover or a place to eat prey. It is not fully enclosed, and the back of the feature can normally be observed. There may be spraints, footprints and feeding evidence present.
Couch	An above-ground shelter normally used for lying-up and grooming. They may take the form of a depression in tall vegetation or may be covered in a vegetated grass 'roof'.
Breeding Site	An area of land in which otters breed. The site may be large, and it is usually more important to protect this site than an individual natal holt.

2.8 This assessment was subjective and corroborated by the presence, or lack of, field evidence located in, or around, the features. Diagnostic evidence (such as spraints, urination "green" spots, spraint mounds, sign heaps, grooming hollows, footprints, paths, and slides), where identified, was used to interpret if a resting site was present.

2.9 Where spraint was recorded, it was allocated an age class in accordance with the following descriptions:

- Fresh: The spraint is still very moist and pungent, and was likely to have been deposited within the last few hours or days.
- Recent: The spraint has become decayed but retains consistency and some odour. It is dry and colour is more faded. It is likely to have been deposited within the last week or two.

[2] NatureScot (2016). *Protected Species Advice for Developers: Otters.* Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-otters [Accessed May 2025].

[3] Chanin, P.C. (2003). *Ecology of the European Otter.* Conserving Natura 2000 Rivers Ecology Series No. 10. English Nature, Peterborough.

- Old: The spraint is desiccated and powdery having lost its shape and most odours. Usually remains are still evident and identifiable, usually by the abundance of fish-bone or scales. It is likely to have been deposited approximately a month ago (sometimes longer).

Water Vole

2.10 The survey for water vole aimed to assess all watercourses and waterbodies within the ESA for potential to support populations of water vole in accordance with recognised best practice[4]. Surveys were completed by competent field ecologists who searched for suitable habitat for, and direct evidence of, water vole.

2.11 Watercourses were classified for their suitability to support water vole depending on a variety of characteristics including bankside composition, substrate, water flow rate and bankside vegetation. Descriptions of watercourse suitability categories are detailed in Table 2.3.

Table 2.3: Watercourse Suitability for Water Vole

Suitability	Description
Optimal	These watercourses will typically have a very slow flow rate and will comprise peaty bankside and substrate. Banksides will also comprise tussocky vegetation, including rushes (a common food source of water vole). The watercourses will generally be deep to enable predatory escape.
Sub-Optimal	Typically, these watercourses will have a relatively slow flow rate. Banksides may be peaty but may not be very steep, therefore not allowing burrows to account for varying water levels. Rushes will be present, providing foraging resource.
Suitable	Banksides may comprise earth allowing for some burrowing. Herbaceous vegetation will generally be lacking, and invertebrates, amphibians and fish will be sparse. Flow rate will be slow to moderate; however, the watercourse may comprise rocky substrate.
Unsuitable	Watercourses will comprise rock and stone substrate and banksides. The flow rate will be moderate or fast flowing and rushes will be absent from bankside vegetation. Watercourses may also be heavily poached by livestock.

2.12 Where watercourses were considered suitable, these were surveyed with the aim of identifying and recording presence of water vole.

2.13 Field signs searched for included:

- Burrows and tunnel systems;
- Runs, tracks and slides;
- Latrines (with droppings categorised as fresh, recent, or old);
- Feeding stations and remains; and
- Physical sightings.

2.14 Where burrows and tunnels were identified, population estimates were made, drawing on best practice methods[4].

Pine Marten

2.15 Surveys for pine marten were undertaken within the ESA in accordance with best practice guidelines[5,6]. The survey assessed habitats within the ESA for their suitability to support the species, while searching for indicative field signs such as feeding remains, scat, footprints, and dens.

2.16 The survey was undertaken using a systematic approach. Suitable habitats were surveyed for evidence of pine marten by walking linear transect routes. Transects generally followed defined wayleaves, firebreaks and access tracks as these are frequently used by pine marten and, therefore, where indicative field signs are most commonly found.

Red Squirrel

2.17 A survey for red squirrel was undertaken in accordance with best practice guidelines[7,8] and aimed to assess the suitability of habitats within the ESA for the species. Suitable habitat includes cone-bearing conifer plantation woodland located on free-draining soils, with good connectivity to other woodland habitats. Where suitable red squirrel habitat was recorded, searches for foraged cones, dreys[9] and tracks/prints were undertaken.

2.18 The survey was undertaken using a systematic approach. Suitable habitats were surveyed for evidence of red squirrel by walking linear transect routes. Transects generally followed defined wayleaves, firebreaks and access tracks as woodland edges are frequently used by red squirrel and, therefore, where indicative field signs are most commonly found.

Badger

2.19 A badger survey was undertaken in accordance with best practice guidelines[10,11]. The survey sought to identify suitable habitat for, and direct evidence of, badger within the ESA. Suitable habitat was considered to be sheltered areas with free-draining soils; normally woodland, scrub or mosaics that incorporate these habitat types. Where suitable habitat was identified, direct evidence was searched for, including:

- Badger setts (as defined in Table 2.4);
- Tracks, prints, and paths (including scratched logs and fallen wood);
- Guard hair;
- Latrines and dung pits (categorised as fresh, recent or old);
- Snuffle holes (i.e. surface foraging); and
- Feeding remains.

Table 2.4: Badger Sett Definitions

Sett Type	Description
Main	These usually have a large number of entrances with large spoil heaps. The sett generally looks well used. They may have well used paths to and from the sett and between sett entrances. They are generally active all year round; being used for breeding and cub-rearing.
Annexe	These usually have a large number of entrances with large spoil heaps. The sett generally looks well used and is connected to the main sett by clear tracks and paths. They may not be in use all the time, despite their proximity to a Main sett. Pregnant subordinate females may use this type of sett to give birth and rear cubs.

[4] Strachan, R.S., Moorhouse, T.M., and Gelling, M.G, (2011). *Water Vole Conservation Handbook (3rd Edition)*. Wildlife Conservation Research Unit, Oxford.
[5] Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trewhella, W.J., Wells, D. and Wray, S. WS, (2012). *UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation*. The Mammal Society, Southampton.
[6] NatureScot (n.d.). *Protected Species Advice for Developers: Pine Marten.* Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-pine-martens [Accessed May 2025].
[7] Gurnell, J.G., Lurz, P.L., McDonald, R.M. and Pepper, H.P. (2009). *Practical Techniques for Surveying and Monitoring Squirrels*. Forestry Commission [Online]. Available at: https://www.forestresearch.gov.uk/documents/666/fcpn011.pdf [Accessed May 2025].
[8] NatureScot (n.d.). *Protected Species Advice for Developers: Red Squirrel.* Available at: https://www.nature.scot/sites/default/files/2018-09/Species%20Planning%20Advice%20-%20red%20squirrel.pdf [Accessed May 2025].
[9] It is important to note that dreys alone are not diagnostic in determining red squirrel presence. Rather, a range of evidence is collected to ascertain the presence of red squirrel in any given survey area.
[10] Scottish Badgers (2018). *Surveying for Badgers: Good Practice Guidelines. Version 1.*
[11] NatureScot (n.d.). Protected Species Advice for Developers: Badger. Available at https://www.nature.scot/sites/default/files/2018-09/Species%20Planning%20Advice%20-%20Badger_0.pdf [Accessed May 2025].

Sett Type	Description
Subsidiary	These setts often only have a few entrances and are located at least 50 m from a main sett. They are not continuously active and evidence may be limited. They are likely to be use periodically in response to food availability or breakdowns in the social structure within a clan.
Outlier	These setts may have only one or two entrances with little spoil. Used sporadically, these setts often show little signs of use.

Constraints and Limitations

2.20 Ecological surveys represent a snapshot of the faunal and floral assemblages present at the time of survey. As such, results cannot be used to determine long-term trends in species and habitat populations or behaviours. The methods described above represent current good practice, but the data collected cannot be used to confirm the absence of a species from the areas surveyed. The habitats recorded are therefore considered with regards to their suitability to support protected species, as well as undertaking direct searches for field evidence.

2.21 All surveys aimed to avoid periods directly following heavy rainfall, particularly for otter. This was to minimise the risk of surveying areas where evidence had been washed away and to reduce the health and safety risk of these surveys. Whilst weather conditions were generally optimal, occasional rainfall was unavoidable. It is considered unlikely that this rainfall will have caused a significant reduction in evidence being present and it is therefore not considered to have had a negative effect on the assessment.

2.22 All areas of woodland were surveyed for evidence of protected species, where possible. Areas which posed a health and safety risk (such as wind-blown trees or re-stocked plantation) were not surveyed in full. Instead, woodland edges were walked as these are important areas of protected species activity and evidence, and adjoining unsafe areas were surveyed with the aid of binoculars to ensure all areas were appropriately assessed. It is therefore considered that protected species surveys can appropriately inform ecological constraints related to the Proposed Development.

Chapter 3
Baseline Results

Desk Study

3.1 A detailed account of the methods adopted, and findings, is provided in Appendix 6.1, which also sets out the legislative provisions afforded to protected species.

3.2 The desk study returned 314 records of red squirrel and one record of otter within 2 km of the ESA. There were no other records of protected species within the Study Area.

Field Study

Site Overview

3.3 The Site is located approximately 1.3 km west of Dunoon within the Argyll and Bute administrative area, and has a total area of approximately 700.6 ha. The area is topographically complex and is characterised by several raised peaks including Tom Odhar (256 m AOD) to the east, and Kilbride Hill (3,960 m AOD) to the south. The area reaches a topographic height at Cruanch nan Capuall to the north-west, at an elevation of 611 m AOD.

3.4 The Site largely comprises open moorland with a range of upland habitats, including blanket bog. The undulating topography and variable climatic conditions give rise to a complex habitat assemblage, containing a variety of vegetation communities and habitats. The west of the Site is largely dominated by acid grassland, while the centre of the Site, which is the location of the proposed wind farm infrastructure, is largely comprised of mosaics of blanket bog, wet modified bog and dry heath, with occasional acid flushes and marshy grassland. The lower slopes of the Site, to the north-west, north and east, are dominated by conifer plantation. Small areas of broadleaved woodland, acid grassland and bracken were also recorded on freer-draining sloping ground, particularly along the north-west boundary of the ESA. Despite the presence of habitats of conservation interest[12], the Site has been impacted by the history of land management.

3.5 The Site is drained by a number of small tributaries such as Giant's Burn and Spout Burn, which eventually flow into the Glenkin Burn to the north-west of the Site. On the east side of the Site, tributaries such as the Badd Burn drain into Balgaidh Burn, which flows south-east towards Dunoon.

3.6 The location of the Site is shown in Figure 6.1. For more detailed descriptions of the habitats recorded during the surveys, see Appendix 6.2.

Habitat Suitability and Evidence

3.7 The ESA supports a range of different habitat types, with varying degrees of suitability for protected species.

Otter

3.8 The habitats and watercourses within the ESA were considered to be largely unsuitable to support otter. The larger watercourses within the ESA, such as the Spout Burn and Giant's Burn, ranged from approximately 0.5 m-1.0 m in width, with slow to moderate flowing water. These watercourses appeared to contain some flow at all times of year (Image 6.3.1 and Image 6.3.2, Annex A), as they provide a route for rainfall and surface water to flow downhill through the ESA. Despite being sub-optimal in terms of their size, these watercourses could provide commuting opportunities for the species, as they eventually flow into the Glenkin Burn to the north-west of the ESA. However, despite being directly connected to this larger watercourse, the topography of the west of the ESA provides a physical barrier to the dispersal of otter, as the hillsides are very steep and contain areas of difficult terrain (see Image 6.3.3, Annex A). Watercourses also lack shallow pools, rocky outcrops and grassy knolls, reducing opportunities for otter to forage and rest out of the water.

3.9 The ESA is drained by a number of smaller, unnamed tributaries which drain east into the Firth of Clyde, and north-east into the Holy Loch. These watercourses varied in their width, ranging from 0.2 m-1.5 m in width. During the protected species surveys it was noted that some tributaries contained very little water and that the channels were beginning to be dominated by vegetation (Image 6.3.4, Annex A). Shallow pools, rocky outcrops and grassy knolls were also absent in these locations, reducing opportunities for otter to forage. As a result, these tributaries were considered to be largely unsuitable for otter due to a lack of commuting, foraging and breeding opportunities.

3.10 No evidence of otter was identified during the surveys.

Water Vole

3.11 Some areas within the ESA were considered suitable for water vole, where peaty banksides and tall swards of soft rush *Juncus effusus* were present, such as along sections of the Spout Burn. However, the majority of watercourses within the ESA were narrow, contained stoney substrate, lacked steep embankments and contained very little water. As defined in Table 2.3, these watercourses were considered unsuitable for water vole.

3.12 No evidence of water vole was identified during surveys.

Pine Marten

3.13 The ESA was considered to contain some suitable habitat to support breeding populations of pine marten. The ESA was dominated by open, predominantly boggy landscapes which provide very limited suitable habitat for foraging, commuting or dens. However there were stands of conifer plantation and some broadleaved woodland adjacent the boundaries of the Site. Whilst the Sitka spruce conifer plantation is not considered to be a high-value resource for pine marten, it is still utilisable by pine martin. The areas of broadleaved woodland, particularly to the north-west, were more optimal for pine marten as the habitats present here offered more of the structural complexity favoured by this species.

3.14 No evidence of pine marten was identified during surveys.

Red Squirrel

3.15 Habitats within the ESA had some suitability to support populations of red squirrel. The ESA was dominated by open, predominantly boggy landscapes which provide very limited habitat for foraging, commuting or dreys. There were stands of Sitka spruce conifer plantation adjacent to the boundaries of the Site. These plantations were not considered a high-value resource for red squirrel as they lack the structural complexity favoured by this species, although they could still be utilised. There were small areas of broadleaved woodland adjacent to the north-western boundary of the ESA that would be more suitable for red squirrel.

3.16 No evidence of red squirrel was identified during surveys.

Badger

3.17 The habitats within the ESA had some suitability to support badger. The ESA was dominated by open heathland and bog habitats which were wet and exposed due to an absence of tree and scrub cover (Image 6.3.5 and Image 6.3.6, Annex A). These areas are considered to be sub-optimal for badger sett creation and foraging as these areas were very exposed, offered limited opportunity for sheltered commuting and lacked the free-draining soils preferred by badger. However, more suitable habitats were present within the woodlands around the north, north-west and eastern boundaries of the ESA. In the vicinity of the access track, the terrain included more free-draining slopes which provide more suitable habitat for sett creation, foraging and commuting opportunities, particularly within broadleaved woodland areas (Image 6.3.7, Annex A). Despite this, these areas are likely to be subject to some disturbance due to the use of the adjacent access track for ongoing forestry operations (Image 6.3.8, Annex A).

[12] Defined as Annex 1 habitats, Scottish Biodiversity List habitats, habitats included in the Argyll and Bute Local Biodiversity Action Plan, and habitats considered to indicate potential Groundwater Dependent Terrestrial Ecosystems (GWDTE).

3.18 Suitable foraging and commuting habitat was limited within the ESA. Foraging resources, in the form of semi-improved acid grassland and scrub, were recorded in small patches in the west of the ESA. However, the areas of suitable grassland were often in mosaics with marshy grassland, bog and heath habitats. Optimal badger habitat typically includes mosaics of woodland and scrub, and these habitats were absent from the ESA.

3.19 No evidence of badger was identified during surveys.

Notable Species

3.20 There were incidental sightings of other notable species across the ESA (see Figure 6.6):

- Eight records of common frog *Rana temporaria*
- Five records of common lizard *Zootoca vivpara*

Discussion and Conclusion

3.21 The ESA is largely comprised of predominantly open expanses of heathland and bog. Vegetation is tussocky, dense and waterlogged which reduces foraging opportunities for species such as badger and otter. In addition to this, stands of mixed or broadleaved woodland are mostly absent from these upland habitats, resulting in reduced breeding and foraging opportunities for badger, red squirrel and pine marten in these areas.

3.22 Stands of conifer plantation and broadleaved woodland within the ESA do offer some limited suitability for protected species. The areas of broadleaved woodland to the north-west of the ESA are most suitable, due to their drier soils and structural complexity, and therefore offer more breeding and foraging opportunities. However, whilst Sitka spruce conifer plantation is not considered to be a high-value resource, it is still utilisable, particularly on the freer draining slopes on the Site. Plantation habitats within the ESA still provide limited, but suitable, breeding and foraging opportunities for species like badger, red squirrel and pine marten. While physical evidence of protected species was lacking within the ESA, it is not possible to rule out their presence.

3.23 The ESA does provide some limited but suitable habitat for otter and water vole along the Spout Burn, Giant's Burn and other watercourses which flow through the ESA. However, despite the presence of suitable habitats, no evidence of either species was recorded during the protected species surveys.

Annex A

Images

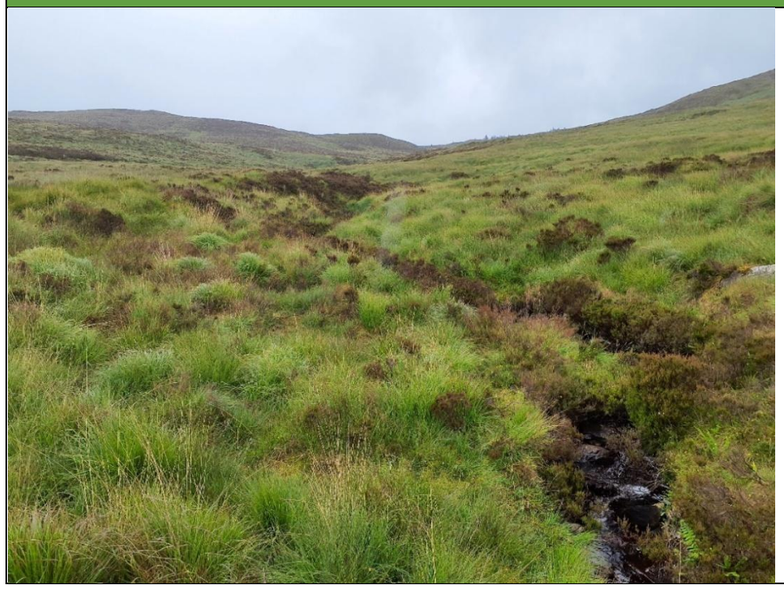
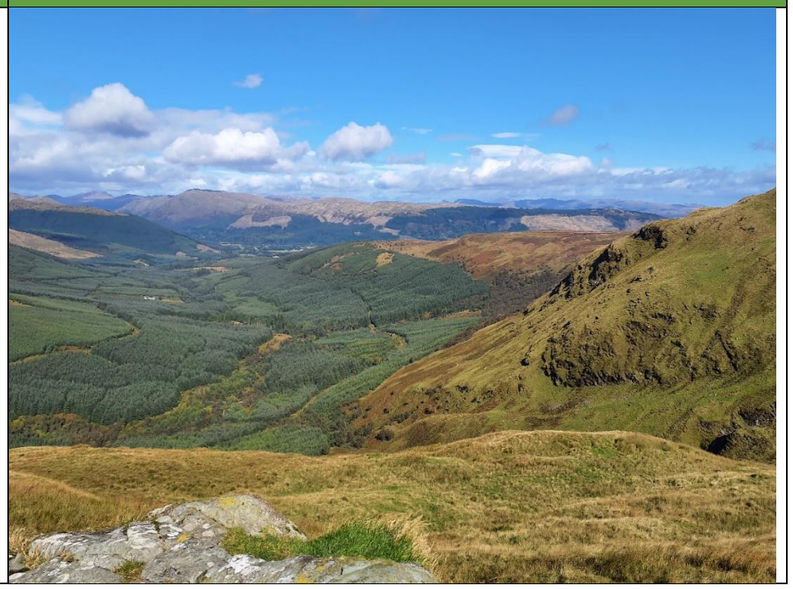
Image 6.3.1 – Section of the Spout Burn, along the western Site Boundary.	Image 6.3.2 – Section of the Giant's Burn at the south-west of the ESA.	Image 6.3.3 – View from the western Site Boundary, showing the extremely steep terrain.
		

Image 6.3.4 - Tributary at the north of the ESA. Water is stagnant and vegetation is beginning to colonise the water channel.

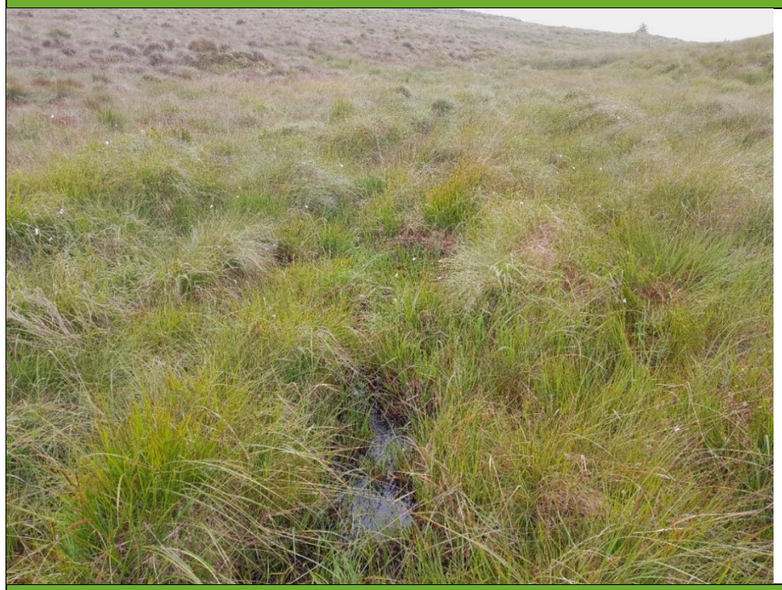


Image 6.3.5 – Upland habitats within the south of the ESA.

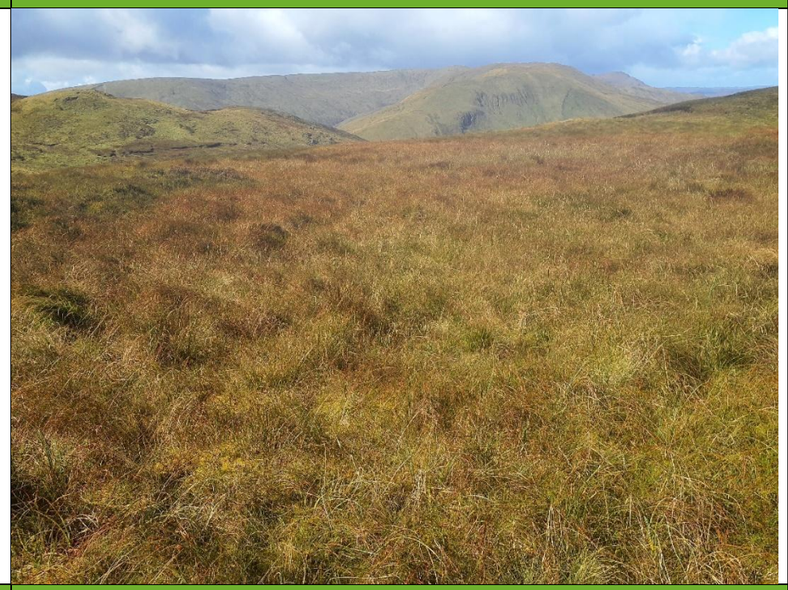


Image 6.3.6 – Upland habitats within the north of the ESA.

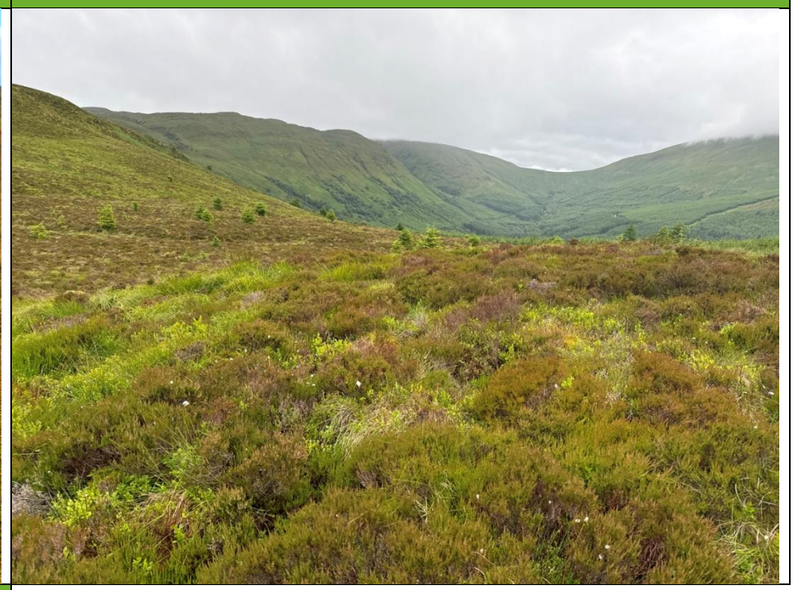


Image 6.3.7 – Small stand of broadleaved woodland along the existing access track.

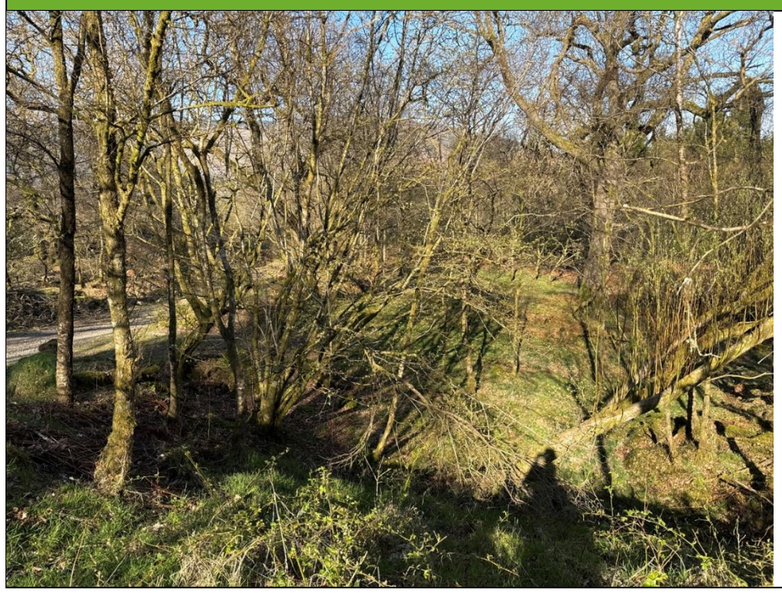


Image 6.3.8 – Sitka spruce conifer plantation, along the existing access track.