Glentarken Wind Farm

Protected Species Survey Report

Technical Appendix 7.2

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1 INTRODUCTION

MacArthur Green was commissioned by the Applicant to carry out protected species surveys at Glentarken Wind Farm (hereafter referred to as the 'Proposed Development'). The Proposed Development is fully described within **Chapter 2: Development Description** (**EIAR Volume 1**) of the Glentarken Wind Farm Environmental Impact Assessment Report (EIAR).

These surveys primarily focussed on badger (*Meles meles*), beaver (*Castor fiber*), otter (*Lutra lutra*), pine marten (*Martes martes*), water vole (*Arvicola amphibius*) and red squirrel (*Sciurus vulgaris*).

A watching brief was also kept throughout these surveys, and during all ecological surveys for the Proposed Development, and signs recorded for other protected species potentially inhabiting the Site and Survey Area, such as adder (*Vipera berus*), common or viviparous lizard (*Zootoca vivipara*), and slow worm (*Anguis fragilis*).

Surveys for bat species and fish were carried out and are reported separately in **Technical Appendices 7.3** and **7.4** (**EIAR Volume 4**) respectively.

These protected species surveys were undertaken to aid and inform the design and ecological assessment for the Proposed Development.

2 THE SITE & SURVEY AREA

The Site is approximately 1,103 hectares, located approximately 45 km west of Perth within the Drummond Estate and approximately 2.8 km east of Lochearnhead, Stirling, Scotland. The Site, where the turbines are proposed to be located, is situated within the Perth and Kinross local authority, with the access track and western extent of the Site within the Stirling local authority.

This Technical Appendix reports on the protected species (or evidence there-of) recorded within the Survey Area, i.e., the entire area covered by protected species field surveys, covering a total of 1,742 ha . The Survey Area in many areas extends well beyond the Site boundary, which covers an area of 1,103 ha; a reflection of the iterative design process refining the Site boundary. The majority of the Site is set within open heathland and moorland or rough hill pasture; and the southern section of the Site contains areas of arable land and mixed woodland. The elevation of the Site varies, with several peaks of 510 m to 712 m Above Ordnance Datum (AOD). There are numerous minor watercourses in and around the Site.

The 'Survey Area' in which protected species surveys were undertaken for the Proposed Development exceeds the Site boundary to the south, as shown on **Figure 7.9** (**EIAR Volume 2**).

3 LEGAL PROTECTION

Details of the legal protection of the protected species surveyed for are given in **Annex A** of this Technical Appendix.

4 METHODS

4.1 Desk Study

A desk-based study was undertaken to inform the field surveys and assessment with regards to the presence of designated sites and species of interest within the Site and Study Area.

This study consisted of the consultation of various online resources, such as the National Biodiversity Network (NBN) Atlas[1], NatureScot Sitelink[2], Saving Scotland's Red Squirrels (SSRS) website[3], Red Squirrel Stronghold Areas[4], the British Deer Society Deer Distribution Survey (2023)[5], Drummond Estates Deer Management Plan[6] [7] and Scottish Wildcat Priority Areas[8].

4.2 Field Surveys

Surveys were predominantly undertaken in June 2023, with a smaller additional area surveyed in June 2024 to record the presence or likely absence of otter, water vole, badger, beaver, red squirrel and pine marten, with all habitats suitable for protected species surveyed within the Survey Area (as shown on **Figure 7.9** (**EIAR, Volume 2**)). The respective Survey Areas included the Site boundary at the time of the surveys, and species-specific buffers as deemed necessary, as per NatureScot guidance[9]. All surveys were undertaken within the optimal survey windows.

A watching brief for any protected species signs was also undertaken during other survey visits (e.g., ornithology/habitats/other ecology surveys) throughout 2021 - 2024.

The signs found indicate type and intensity of activity and consequently help in the assessment of the importance of a particular area for the protected species.

The survey methods used are described below and are in line with NatureScot guidance[10].

4.2.1 Badger

Land with the potential to support badger within the Survey Area was searched for field signs with particular attention given to areas around woodland and areas underlain by mineral soils. Field signs of badger are described in Neal & Cheeseman (1996)[11], Bang & Dahlstrøm (2001)[12] and Scottish Badgers (2018)[13]. Field evidence searched for included:

[1] NBN Atlas Scotland (2024). Online. Available at: https://nbnatlas.org/ [Accessed August 2024].
[2] NatureScot (2024). SiteLink. Online. Available at: https://sitelink.nature.scot/home [Accessed August 2024].
[3] Scottish Squirrels. (2024). Saving Scotland's Red Squirrels. Online. Available at: https://scottishsquirrels.org.uk/ [Accessed August 2024].
[4] Scottish Forestry (2024). Map of Red Squirrel Stronghold Areas. Online. Available at: https://forestry.gov.scot/publications/21-map-of-red-squirrel-stronghold-areas [Accessed August 2024].
[5] The British Deer Society (2023). Deer Distribution Survey Results. Available online: https://bds.org.uk/science-research/deer-surveys/deer-distribution-survey/ [Accessed August 2024].
[6] Scottish Forestry (2023) General Deer Management Plan; Ardveich Plantation.
[7] Drummond Estates (2023) Deer Management Plan Background Information & Analysis for Proposed Culls and Monitoring
[8] NatureScot. (2023). Wildcat Priority Areas. Online. Available at ://www.data.gov.uk/dataset/3491a9b0-1dd5-4f86-904f-55ca833e9aef/wildcat-priority-areas [Accessed: August 2024].
[9] NatureScot (2024). Planning and Development: Protected Species. Online. Available at: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-protected-species [Accessed August 2024].
[10] NatureScot. (2024). Standing Advice for Planning Consultations. Online. Available at: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-standing-advice-and-guidance-documents [Accessed August 2024].
[11] Neal, E., and Cheeseman, C.L. (1996). Badgers. Poyser Natural History, London.
[12] Bang, P., and Dahlstrøm, P. (2001). Animal Tracks and Signs. Oxford University Press, Oxford.
[13] Scottish Badgers (2018). Surveying for Badgers: Good Practice Guidelines. Version 1.

- **Setts:** single and/or groups of holes (refer to **Table 4-1** for categories);
- **Prints:** badgers have characteristic footprints that can be found in soft ground and muddy areas;
- **Latrines and dung pits:** these are small, excavated pits in which droppings are deposited. Latrines are a collection of dung pits used as territorial markers;
- **Hairs:** tufts of hair can often be found on fences, or in the entrances to setts;
- **Feeding signs:** small scrapes, also known as snuffle holes, where badgers have searched for insects and plant tubers. Feeding signs can also include dug up wasp or bee nests and ripped up dung of other species including cattle;
- **Scratching posts:** marks on trees (including fallen trees) where badgers have scratched leaving claw marks or ripped at areas of rotten bark to search for food; and
- **Paths:** these are routes that badgers take when moving between setts and foraging areas.

Where setts were recorded, their sett type and sett entrance classification were noted, in line with the definitions outlined in Scottish Badgers guidance[13], which are reproduced in **Table 4-1** and **Table 4.2.**

Table 4-1 Categories of Sett and Associated Descriptions[13]

Category	Description
Main	Main setts usually have several holes with large spoil heaps, and the sett generally looks well used. There are obvious paths to and from the sett and between sett entrances. In the British National Badger Survey, the average number of holes for a main sett was twelve, although main setts may be much smaller, even a single hole in exceptional circumstances. Although normally the breeding sett and in continuous use, it is possible to find a main sett that has some disused or dormant entrances.
Annexe	These are often close to a main sett, normally less than 150 m away, and are connected to the main sett by one or more well-worn paths. Usually there are several holes but the sett may not be in use all the time, even if the main sett is very active. The average number of holes per annexe sett in the British survey was eight.
Subsidiary	These are usually at least 50 m from a main sett, and do not have an obvious path connecting with another sett. They are not continuously active. The average number of holes per subsidiary sett in the British survey was four.
Outlier	These often have little spoil outside the holes, have no obvious path connecting them with another sett, and are only used sporadically. When not in use by badgers, they are often taken over by foxes or even rabbits. However, they can still be recognised as badger setts by the shape of the tunnel (not the actual entrance hole), which is at least 25 cm in diameter, and rounded or a flattened oval shape (i.e. broader than high). Fox and rabbit tunnels are smaller and often taller than they are broad. The average number of holes per outlying sett in the British survey was two.
Other	In some cases, it can be difficult to assess the status of a sett, and it is open to interpretation. It is therefore recommended that if there is uncertainty as to the type of sett present, setts should be referred to as 'Other'.

Table 4-2 Sett Entrance Classifications and Associated Descriptions[13]

Classification	Description
Well Used	Are clear of debris and vegetation, sides worn smooth but not necessarily excavated recently.
Partially Used	Are not in regular use and have debris e.g. twigs and leaves in the entrance. They could be used after only a minimal amount of clearance.
Disused	Not in use for some time, are partially blocked and could not be used without considerable effort. Rabbits and foxes may take over part of a sett and keep disused entrances open.
Collapses	Where a tunnel has collapsed.
Air Holes	Where badgers have made a small hole in a tunnel roof from below.

4.2.2 Beaver

All accessible watercourses within the Survey Area were surveyed for beaver field signs. Beaver field signs and survey methods are described in Campbell-Palmer *et al*. (2021)[14] and include:

- **Feeding signs:** characteristic gnawing of, or removal of bark from woody vegetation;
- **Dams:** obstruction of a watercourse with cut vegetation;
- **Food caches:** piles of cut woody vegetation;
- **Scent-mounds:** pile of mud or other material with a deposit of scent on the top, which may form part of a more concentrated group;
- **Slides:** path in vegetation or substrate leading into water;
- **Burrows:** hole in bank of watercourse or waterbody, usually below water level;
- **Lodges:** den with protruding nest chamber, built up using sticks and mud; and
- **Canals:** digging signs leading from watercourses towards further foraging grounds.

4.2.3 Otter

All accessible watercourses within the Survey Area were surveyed for otter field signs. Otter field signs and survey methods are described in Bang & Dahlstrøm (2001)[15], Sargent & Morris (2003)[16] and Chanin (2003)[17], and include:

- **Holts:** underground features where otters live. They can be tunnels within bank sides, underneath root-plates or boulder piles, and even man-made structures such as disused drains. Holts are used by otters to rest up during the day and are the usual location of natal or breeding sites. Otters may use holts permanently or temporarily;
- **Couches:** these are above ground resting-up sites. They may be partially sheltered, or fully exposed. Couches may be regularly used, especially in reed beds and on in-stream islands.

[14] Campbell-Palmer, R., Puttock, A., Needham, R.N., Wilson, K., Graham, H. & Brazier, R.E. (2021). Survey of the Tayside Area Beaver Population 2020-2021. NatureScot Research Report 1274.
[15] Bang, P., and Dahlstrøm, P. (2001). Animal Tracks and Signs. Oxford University Press, Oxford.
[16] Sargent, G., and Morris, P. (2003). How to Find and Identify Mammals. The Mammal Society, London.
[17] Chanin, P. (2003). Monitoring the Otter (*Lutra lutra*). Conserving Natura 2000 Rivers Monitoring Series No.10 English Nature, Peterborough.

They have been known to be used as natal and breeding sites. Couches can be very difficult to identify and may consist of an area of flattened grass or earth. Where rocks or rock armour are used as couches, these can be almost impossible to identify without observing the otter *in situ*;

- **Prints:** otters have characteristic footprints that can be found in soft ground and muddy areas;
- **Spraints:** otter faeces may be used to mark territories, often on in-stream boulders. They can be present within or outside the entrances of holts and couches. Spraints have a characteristic smell and often contain fish remains;
- **Feeding signs:** the remains of prey items may be found at preferred feeding stations. Remains of fish, crabs or skinned amphibians can indicate the presence of otter;
- **Paths:** these are terrestrial routes that otters take when moving between resting-up sites and watercourses, or at high flow conditions when they will travel along bank sides in preference to swimming; and
- **Slides and play areas:** slides are typically worn areas on steep slopes where otters slide on their bellies, often found between holts or couches and watercourses. Play areas are used by juvenile otters in play and are often evident by trampled vegetation and the presence of slides. These are often positioned in sheltered areas adjacent to the natal holt.

Any of the above signs (apart from paths) are diagnostic of the presence of otter. However, it is often not possible to identify couches with confidence unless other field signs are also present. Spraints are the most reliably identifiable evidence of the presence of this species.

4.2.4 Pine Marten

Signs of pine marten were searched for within the Survey Area following guidance from O'Mahony *et al.* (2006)[18] and Bright & Smithson[19]. Survey methods included:

- **Scats**: searches for pine marten scats were made along linear features such as fence lines, stone walls or forestry tracks/rides. Also searches for scats on prominent features such as tree stumps, dead logs or stones, and around rock piles and dense scrub where the species could establish a den; and
- **Dens**: identification of features which could be used as a den. Dens can include the utilisation of upturned trees, tree cavities, rocks or man-made structures such as log piles or large bird boxes.

[18] O'Mahony D., O'Reilly, C. & Turner, P. (2006). National Pine Marten Survey of Ireland 2005. COFORD, Dublin.
[19] Bright, P.W., and Smithson, T.J. (1997). Ecology of den use by pine martens reintroduced to a commercial coniferous forest. Pages 58-64 in: Species Recovery Programme for the Pine Marten in England: 1995-96. English Nature Research Report No. 240. English Nature, Peterborough.

4.2.5 Water Vole

All watercourses within the Survey Area were surveyed for water vole field signs following the methodology prescribed in Dean *et al.* (2016)[20]. This involved assessing the relative habitat suitability of the habitat for water vole and searching for the following field signs:

- **Faeces:** recognisable by their size, shape, and content. If not too dried-out these are also distinguishable from rat droppings by their smell;
- **Latrines:** faeces, often deposited at discrete locations;
- **Feeding stations:** food items are often brought to feeding stations along pathways and hauled onto platforms. Recognisable as neat piles of chewed vegetation up to 10 cm long;
- **Burrows:** appear as a series of holes along the water's edge distinguishable from rat burrows by size and position;
- **Lawns:** may appear as grazed areas around land holes;
- **Nests:** where the water table is high above ground woven nests may be found;
- **Footprints:** tracks may occur at the water's edge and lead into bank side vegetation. May be distinguishable from rat footprints by size; and
- **Runways in vegetation:** low tunnels pushed through vegetation near the water's edge; these are less obvious than rat runs.

Dean *et al.* (2016)[20] state that water vole droppings are the only field sign that can be used to determine water vole presence reliably on their own. Experience is required to distinguish feeding signs, burrows and footprints of water voles from those of other species. A collection of these field signs found in close proximity can indicate water vole presence.

4.2.6 Red Squirrel

Areas of woodland that have the potential to support red squirrel were surveyed for squirrels, following guidance from Gurnell *et al.* (2009)[21]. Survey methods included:

- **Sightings**: visual sightings of red squirrels;
- **Dreys**: dreys are usually built close to the main stem of a tree, over 3 m from ground level and over 50 x 30 cm in size; and
- **Feeding signs**: predated cone (cone cores) searches in areas of woodland.

[20] Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds. Fiona Mathews and Paul Chanin. The Mammal Society, London.
[21] Gurnell, J., Lurz, P. McDonald, R. & Pepper, H. (2009). Practical Techniques for Surveying and Monitoring Squirrels. Forestry Commission Practice Note.

4.2.7 Reptiles

Targeted reptile surveys were not undertaken, however, incidental records of reptile sightings, or signs such as shed skins, and features of particular importance (i.e. potential hibernacula) were recorded using relevant guidance[22, 23].

4.2.8 Other Species

A watching brief was maintained for all other protected, notable, and/or invasive species during surveys and presence or field signs recorded as appropriate (e.g., hares (*Lepus* spp.) and American mink (*Neovison vison*)).

4.2.9 Species Scoped Out

Surveys for wildcat (*Felis silvestris*) and Great Crested Newt (GCN) (*Triturus cristatus*) were scoped out of field surveys due to the absence of suitable habitat, or the Survey Area being located out with the known range or distribution of these species. As such, these species are not considered further.

5 SURVEY DETAILS & LIMITATIONS/CONSTRAINTS

Surveys for protected species were undertaken between 13 and 15 June 2023. A further survey focussing on data gaps following change to the Site boundary was undertaken on 12 June 2024.

As noted above, a watching brief for protected species signs was maintained throughout all other ecology, ornithology and peat surveys undertaken for the Proposed Developed throughout 2021 - 2024.

The weather conditions recorded during the protected species surveys (June 2023 and June 2024) were very warm and dry. Watercourses were recorded as being in either low flow conditions, or in the case of the 2023 surveys, having no flowing water at all, indicating the extremely dry conditions at the Survey Area during this period.

There is uncertainty associated with identifying scats produced by pine marten due to their variability in composition and their similarity with those produced by other species such as fox (*Vulpes vulpes*). DNA analysis is often used as a method to increase reliability of identification, although it is often not possible to determine to species level with this method due to possible degradation of samples or the collection of scat samples from species that cannot be sequenced (Croose *et al.*, 2014)[24]. The scats recorded within the Survey Area that were undeterminable between pine marten and fox were therefore considered as 'potential pine marten' and a precautionary approach is applied when discussing their presence and utilisation of the Site and the habitats within the wider area.

Due to the mobile nature of protected species, it is possible that new features (e.g. badger setts) may be created in the period between surveys and the commencement of construction. It is

[22] Edgar, P., Foster, J. and Baker, J. (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth.
[23] Cathrine, C. (2018). ARG UK Advice Note 10: Reptile Survey and Mitigation Guidance for Peatland Habitats. Amphibian and Reptile Groups of the United Kingdom.
[24] Croose, E., Birks, J.D.S., Schofield, H.W., and O'Reilly, C. (2014). Distribution of the pine marten (Martes martes) in southern Scotland in 2013. Scottish Natural Heritage Commissioned Report No. 740.

therefore recommended that pre-construction surveys are undertaken in advance of construction activities progressing across the Site.

6 RESULTS

6.1 Desk Study Results

6.1.1 Designated Sites

There are no designated sites within the Site boundary. **Table 6-1** below details the designated sites with qualifying interests for protected species within 5 km of the Site.

Table 6-1 Ecologically designated sites within 5 km of the Site

Designated site	Distance from Site (km)	Qualifying interests	Last assessed condition & date
Cambusurich Wood Site of Special Scientific Interest (SSSI)	3.7	Fly assemblage	Unfavourable No change (12 August 2015)
River Tay Special Area of Conservation (SAC)	4.3	Atlantic salmon (*Salmo salar*)	Favourable Maintained (19 September 2011)
		Brook lamprey (*Lampetra planeri*)	Favourable Maintained (30 November 2017)
		Otter	Favourable Maintained (3 September 2012)
		River lamprey (*Lampetra fluviatilis*)	Favourable Maintained (30 November 2007)
		Sea lamprey (*Petromyzon marinus*)	Favourable Maintained (30 November 2007)

Giving consideration to the qualifying features (fly assemblage) of Cambusurich Wood SSSI and distance from the Site boundary, it is considered that there is no connectivity between the Site and this SSSI, nor is the SSSI within the Zone of Influence of the Proposed Development.

As discussed in the **Chapter 7: Ecology, and Chapter 8: Geology, Peat, Hydrology and Hydrogeology** (**EIAR Volume 1**) of the EIAR, it is considered unlikely that there will be significant effects on the River Tay SAC and as such, this SAC is scoped out of the assessment.

6.1.2 Online Resources/Data Searches

6.1.2.1 *NBN Atlas Scotland*

A search of the NBN Atlas Scotland[1] within 5 km of the Site in the past 15 years (i.e. from 2009) returned records of the following protected or notable species (excluding bats, discussed in **Technical Appendix 7.3** (**EIAR Volume 4**)):

- Beaver;
- Common lizard;
- Mountain hare (*Lepus timidus*);

- Pine marten;
- Red deer (*Cervus elaphus*);
- Red squirrel; and
- Slow worm.

No invasive non-native species (INNS) were recorded under these search parameters. Details regarding licenses and data providers for the above records are included in **Annex B**.

6.1.2.2 *Saving Scotland's Red Squirrels (SSRS)*

Sightings of red squirrels have been recorded by SSRS within 5 km of the Site each year since 2010[3]. Sightings of grey squirrels (INNS) have also been recorded by SSRS over the majority of years since 2010[25]. There is no Priority Area for Red Squirrel Conservation (PARC) within 5 km of the Site.

6.1.2.3 *Deer Distribution Survey and Drummond Estates Deer Management Plan*

Results of the Deer Distribution Survey[5] suggest that the following deer species are likely to be present or have been previously recorded in the wider area of the Site:

- Roe deer (*Capreolus capreolus*);
- Red deer;
- Sika deer (*Cervus nippon*); and
- Fallow deer (*Dama dama*).

Drummond Estates Deer Management Plan[6] [7] states that deer species present are principally red deer, with occasional roe deer. It states that no sika deer are present.

A helicopter survey discussed in the above Management Plan recorded densities of 9 deer per km^2 (Invergeldie), to 12 deer per km^2 (Ardeonaig and Lochearnside) and 23 deer per km^2 (Glenbeich) giving an average of 12 deer per km^2 for Drummond Estate.

6.2 Field Survey Results

The survey results are summarised in **Table 6-2** below, with full detailed results provided within **Annex C**. Survey results are displayed on **Figure 7.9** (**EIAR Volume 2**).

Table 6-2 Protected species survey results summary

Species	Survey Results Summary	General Habitat Suitability
Badger	Badger signs (footprints) were recorded and one sett was recorded within the Site during the protected species surveys. Full details are contained within **Confidential Annex D**.	The Site offers relatively limited suitability for badger. Much of the north and central areas of the Site are covered by drained peaty soils and open moorland, which is generally not utilised for sett building.

[25] 2010 - 2011, 2013, 2015, 2018 - 2021 and 2024.

Species	Survey Results Summary	General Habitat Suitability
		The sloped and partially wooded areas by Glen Beich offer more suitable habitat for sett building and foraging.
Beaver	No signs of beaver were recorded during the protected species surveys.	The Site offers limited suitability for beaver, with few wooded areas. Much of the north and central areas of the Site are covered by drained peaty soils and open moorland, which is generally not utilised by beaver. The sloped and partially wooded areas by Glen Beich offer more suitable habitat for shelter and foraging.
Otter	Two otter sightings were incidentally recorded during ornithology surveys (one adjacent to the Site boundary west of Creag Dhubh in May 2021, and the other east of the Site boundary on Lochan Mhaoil na Meidhe in May 2021). Sixty-five records of otter spraints were recorded at watercourses and waterbodies across the Site and wider Survey Area during protected species surveys. The ages of spraints varied from very old to fresh, indicating that the Site and Survey Area is frequently used by otters. No otter sightings, holts or couches were recorded during the protected species surveys.	Many of the watercourses within the Site and Survey Area provide suitable foraging and commuting habitat for otter and provide connectivity between the Site and Loch Earn and Loch Lednock Reservoir. The watercourses within the north and central area of the Site provide limited opportunities for resting places, with limited riparian tree presence.
Pine marten	One potential pine marten scat was recorded during the protected species surveys. The scat was recorded within the Site to the south west in a gorge by Beich Burn. The age of the scat was relatively old, suggesting the Site is not frequently used by pine marten.	The Site offers very limited suitability for pine marten, with no extensive areas of woodland or forestry present. The sloped and partially wooded areas by Glen Beich may provide some limited, suitable habitat for foraging and hunting.
Water vole	No signs of water vole were recorded during the protected species surveys.	The watercourses within the Site are varied, with some having suitability for water vole burrowing and foraging. Rush vegetation was noted along many stream banks, with areas of steep, peaty banks.
Red squirrel	Three red squirrel sightings were incidentally recorded during ornithology surveys for the Proposed Development (two south of Glentarken Wood and one east of the Site by Invergeldie). Two potential squirrel feeding signs (both stripped pine cones) were recorded during the protected species surveys by Scots pine trees within the Site to the south. This sign alone cannot distinguish between red and grey squirrels.	The Site and Survey Area offer limited suitability for red squirrel, with no extensive areas of woodland or forestry present. The sloped and partially wooded areas by Glen Beich and areas of broadleaf woodland south west of the Site boundary may offer suitability for feeding and drey building.
Reptiles	Fifteen common lizard were sighted across the Site and wider Survey Area during protected species surveys; and several (at	Much of the Site is open ground with upland vegetation, providing suitable foraging habitat for reptiles.

Species	Survey Results Summary	General Habitat Suitability
	least ten) were sighted incidentally during ornithology surveys. Five features with the potential to act as reptile hibernacula were recorded across the south west of the Site. Collapsed drystone sections of wall, dilapidated stone structures and stone piles accounted for the majority of features, offering hibernation opportunities.	
Hare	Two mountain hares and one brown hare were incidentally recorded during ornithology and other ecology surveys.	There is suitable habitat for the species' across the Site and wider Survey Area, with extensive upland moorland habitat.
General	Four mammal holes (two located in watercourse banks and considered suitable for water vole, and two D-shaped and considered suitable for badger) were recorded during the protected species surveys across the Site and Survey Area. No further field signs that could be attributed to any protected species were found.	n/a

ANNEX A. LEGAL PROTECTION

A full list of protected species and the associated legislation can be found on the NatureScot website[26]. The following provides a summary of relevant protected species' legal protection; however, the specific legislation should be consulted for the true terminology.

Bats, Beaver and Otter

All **bat species**, **beaver and otter** receive protection in Scotland under the Conservation (Natural Habitats, &c.) Regulations (1994) (as amended) (the 'Habitats Regulations'), being classified as European protected species of animals[27].

For European protected species, NatureScot guidance[28] sets out that it is an offence to deliberately or recklessly:

- capture, injure or kill an animal;
- harass an animal or group of animals;
- disturb an animal while it is occupying a structure or place used for shelter or protection;
- disturb an animal while it is rearing or otherwise caring for its young;
- obstruct access to a breeding site or resting place, or otherwise deny an animal use of a breeding site or resting place;
- disturb an animal in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species;
- disturb an animal in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young;
- disturb an animal while it is migrating or hibernating; or
- damage or destroy a breeding site or resting place of such an animal (these sites and places are protected even when the animal is not present)[29].

Regulation 44(2)(e) of the Habitats Regulations allows a licence to be granted for activities ordinarily prohibited, where that purpose is:

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

[26] NatureScot (2022). Table of all of Scotland's Protected Species. Online: https://www.nature.scot/doc/table-all-scotlands-protected-species [Accessed August 2024].
[27] Schedule 2.
[28] NatureScot (2023). European protected species. Online: https://www.nature.scot/professional-advice/protected-areas-and-species/protected-species/legal-framework/habitats-directive-and-habitats-regulations/european-protected [Accessed August 2024].
[29] Note that this is a summary of offences. Refer to Regulations 39 and 40 of the Habitats Regulations for legislative context.

Otter is also listed on Appendix I of the Convention of International Trade in Endangered Species (CITES), Appendix II of the Bern Convention, and Annexes II and IV of the Habitats Directive[30]. It is also listed as globally threatened on the IUCN/WCMC Red Data List.

Mountain Hare, Pine Marten and Red Squirrel

Mountain hare, pine marten and **red squirrel** and are protected in Scotland under the Wildlife and Countryside Act 1981[31] (the '1981 Act').

Under Sections 9(1) and 9(2) of the 1981 Act, it is an offence to intentionally or recklessly kill, injure or take such an animal, or be in possession or control of such an animal (whether live or dead).[32]

Under Section 9(4)(a) and (b), it is an offence to intentionally or recklessly:

- damage or destroy, or obstruct access to, any structure or place which any wild animal included in Schedule 5[33] uses for shelter or protection; or
- disturb any such animal while it is occupying a structure or place which it uses for that purpose.

Further, Section 9(5) sets out that it is an offence to:

- sell, offer or expose for sale, or possess or transport for the purpose of sale, any live or dead wild animal included in Schedule 5, or any part of, or anything derived from, such an animal; or
- publish or cause to be published any advertisement likely to be understood as conveying that he buys or sells, or intends to buy or sell, any of those things.

Water Vole

Water vole is protected in Scotland under Sections 9(4) and 10 of the 1981 Act[34].

Under Section 9(4)(a) and (b) of the 1981 Act, it is an offence to intentionally or recklessly:

- damage or destroy, or obstruct access to, any structure or place which any wild animal included in Schedule 5[35] uses for shelter or protection; or
- disturb any such animal while it is occupying a structure or place which it uses for that purpose.

Section 10(3)(c) provides for exceptions under Section 9, such that a person shall not be guilty of an offence where that person shows:

- that each of the conditions specified in subsection (3A) was satisfied in relation to the carrying out of the unlawful act; or

[30] European Union Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.
[31] Schedule 5.
[32] See exceptions under Section 9(3).
[33] Animals which are protected under Section 9 of the 1981 Act.
[34] as amended by the Nature Conservation (Scotland) Act 2004.
[35] Animals which are protected under Section 9 of the 1981 Act.

- that the unlawful act was carried out in relation to an animal bred and, at the time the act was carried out, lawfully held in captivity.

Subsection (3A) states those conditions referred to in Section 10(3)(c) are:

a) That the unlawful act was the incidental result of a lawful operation or other activity;

b) That the person who carried out the lawful operation or other activity:

   i. took reasonable precautions for the purpose of avoiding carrying out the unlawful act; or

   ii. did not foresee, and could not reasonably have foreseen, that the unlawful act would be an incidental result of the carrying out of the lawful operation or other activity; and

c) That the person who carried out the unlawful act took, immediately upon the consequence of that act becoming apparent to the person, such steps as were reasonably practicable in the circumstances to minimise the damage or disturbance to the wild animal, or the damage or obstruction to the structure or place, in relation to which the unlawful act was carried out.

Badger

Badgers are protected in Scotland under the Protection of Badgers Act 1992 (the 'Badgers Act')[36].

Under Section 1(1) of the Badgers Act, "a person is guilty of an offence if, except as permitted by or under this Act, he wilfully kills, injures or takes, or attempts to kill, injure or take, a badger."

Where it can reasonably be concluded that a person had been attempting to kill, injure or take a badger, then it will be presumed that that person had been attempting to do so, unless it can be proven otherwise[37].

Under Section 1(3), unless authorised under the Badgers Act, a person is guilty of an offence where "he has in his possession or under his control any dead badger or any part of, or anything derived from, a dead badger."

Under Section 3(1), unless authorised under the Badgers Act, it is an offence to interfere with a badger set[38]. The following actions are described as interference:

- damaging a badger sett or any part of it;
- destroying a badger sett;
- obstructing access to, or any entrance of, a badger sett;
- causing a dog to enter a badger sett; or
- disturbing a badger when it is occupying a badger sett,

intending to do any of those things or being reckless as to whether his actions would have any of those consequences.

[36] as amended by the Nature Conservation (Scotland) Act 2004 (as amended).
[37] Section 1(2) of the Badgers Act.
[38] Note: A badger sett is defined under the Badgers Act as any structure or place which displays signs of current use by a badger (refer to Section 14).

It is also an offence if a person knowingly causes or permits any of the above actions to be carried out[39].

Reptiles

The three native species of **reptile** to Scotland, **adder**, **slow worm** and **viviparous lizard**, are protected under Section 9(1) (insofar as the action relates to killing or injuring the animal), and Section 9(5) of the 1981 Act.

Under Section 9(5), it is an offence to:

- sell, offer or expose for sale, or possess or transport for the purpose of sale, any live or dead wild animal included in Schedule 5, or any part of, or anything derived from, such an animal.
- publish or cause to be published any advertisement likely to be understood as conveying that he buys or sells, or intends to buy or sell, any of those things.

Section 10(3)(c) provides for exceptions under Section 9, such that a person shall not be guilty of an offence where that person shows:

- that each of the conditions specified in subsection (3A) was satisfied in relation to the carrying out of the unlawful act; or
- that the unlawful act was carried out in relation to an animal bred and, at the time the act was carried out, lawfully held in captivity.

Subsection (3A) states those conditions referred to in Section 10(3)(c) are:

a) That the unlawful act was the incidental result of a lawful operation or other activity;

b) That the person who carried out the lawful operation or other activity:

   i. took reasonable precautions for the purpose of avoiding carrying out the unlawful act; or;

   ii. did not foresee, and could not reasonably have foreseen, that the unlawful act would be an incidental result of the carrying out of the lawful operation or other activity; and

c) That the person who carried out the unlawful act took, immediately upon the consequence of that act becoming apparent to the person, such steps as were reasonably practicable in the circumstances to minimise the damage or disturbance to the wild animal, or the damage or obstruction to the structure or place, in relation to which the unlawful act was carried out.

[39] Section 3(2).

ANNEX B. NBN ATLAS SCOTLAND DATA PROVIDERS AND LICENCES

Table B-1 Data Providers and Licence Details for NBN Atlas Scotland Records Used

Species	Reason for Inclusion	Data Provider (Recorder)	Licence
Beaver	Protected species (Habitats Regulations)	Mammal Society (K. McDonald)	CC-BY[40]
Common lizard	Protected species (1981 Act)	Amphibian and Reptile Conservation (S. Kerr); British Trust for Ornithology; Amphibian and Reptile Groups of the UK	CC-BY-NC[41]
Mountain hare	Protected species (1981 Act)	British Trust for Ornithology	CC-BY-NC; OGL[42]
Pine marten	Protected species (1981 Act)	Mammal Society (N. Bradshaw)	CC-BY-NC
Red deer	Welfare and impacts of deer on habitats and on neighbouring land and interests (inc. public roads)	Mammal Society (C. Watson); British Trust for Ornithology	CC-BY; CC-BY-NC; OGL
Red squirrel	Protected species (1981 Act), Nature Conservation (Scotland) Act 2004)	Scottish Wildlife Trust (A. MacMaster; M. Collins; C. McInroy; K. Neil); British Trust for Ornithology	CC-BY; CC-BY-NC
Slow worm	Protected species (1981 Act)	Amphibian and Reptile Groups of the UK; British Trust for Ornithology	CC-BY-NC

[40] Creative Commons with Attribution 4.0 (CC-BY). Available online: https://creativecommons.org/licenses/by/4.0/ [Accessed August 2024].
[41] Creative Commons with Attribution 4.0 (CC-BY-NC). Available online: https://creativecommons.org/licenses/by-nc/4.0/ [Accessed August 2024].
[42] Open Government Licence (OGL). Available online: https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ [Accessed August 2024].

ANNEX C. SURVEY RESULTS

Table B-1 below details the relevant data collected for protected species during surveys for the Proposed Development, sorted by species, then survey date (see also **Figure 7.9** (**EIAR Volume 2**)). Confidential information relating to badger is contained within **Confidential Annex D** and shown on **Figure 7.9C** (**EIAR Volume 2**).

Table C-1 Protected Species Survey Results

Species	Sign	Easting	Northing	Survey date	Notes
Brown hare	Sighting	262887	727040	12/06/2024	Flushed during Peatland Condition Assessment survey.
General	Mammal hole	267573	728100	13/06/2023	Burrow in the bank of burn that is correct size/shape to be water vole. However, no other water vole field signs found in the area, whilst lots of field/bank vole burrows and droppings are present.
General	Mammal hole	267733	728936	13/06/2023	Burrow in the bank of burn that is correct size/shape to be water vole. However, no other water vole field signs found in the area, whilst lots of field/bank vole burrows and droppings are present.
General	Mammal hole	264856	727942	14/06/2024	Along tributary by Creag Dhubh in banking. D-shape with clear entrance and run. Approx. 20-25 cm wide x 15 cm tall. Unsure how far into bank it extends. No other field signs nearby.
General	Mammal hole	262520	727478	15/06/2024	Disused mammal hole on steep slope along Beich Burn. Completely covered in bracken debris. Correct size and shape to have been previously used by badger, although no field signs recorded.
General	Squirrel feeding sign	262018	725192	15/06/2024	Stripped cone on stump and a few others surrounding bottom of Scots pine.
General	Squirrel feeding sign	262079	725165	15/06/2024	Stripped cones along fence line and close to track below Scots pines.

Species	Sign	Easting	Northing	Survey date	Notes
Mountain hare	Sighting	271000	728900	Dates for incidental records not provided; 2021 or 2022.	East of Creag nan Eun.
Mountain hare	Sighting	269500	730300	Dates for incidental records not provided; 2021 or 2022.	South of River Lednock.
Otter	Sighting	270100	729050	28/05/2021	On Lochan Mhaoil na Meidhe.
Otter	Sighting	264300	728450	22/09/2021	West of Creag Dhubh, very tame, rubbing belly on track. Large male.
Otter	Spraint	267181	727639	13/06/2023	Large, relatively fresh spraint on boulder next to small pool.
Otter	Spraint	267213	727660	13/06/2023	Potential very old spraint on rock in burn. Only a few crumbly bones remaining.
Otter	Spraint	267219	727665	13/06/2023	Large fresh spraint on rock in burn.
Otter	Spraint	267222	727683	13/06/2023	Two older spraints on a rock next to a small pool within burn.
Otter	Spraint	267237	727734	13/06/2023	Very large, fresh spraint on rock in burn.
Otter	Spraint	267549	728070	13/06/2023	Small group of old probable spraints on large boulder within burn.
Otter	Spraint	267398	728491	13/06/2023	Large fresh spraint on boulder within burn.
Otter	Spraint	267414	728555	13/06/2023	One fresher and one older spraint on boulder at side of pool within burn.
Otter	Spraint	267382	728723	13/06/2023	Small old spraint on upturned lump of peat within burn.
Otter	Spraint	267494	728856	13/06/2023	Habitual sprainting site on rock within burn with remains of several old spraints. Moss slightly stained and rubbed away.

Species	Sign	Easting	Northing	Survey date	Notes
Otter	Spraint	267775	728950	13/06/2023	Very old remains of spraint on grassy tussock by lochan.
Otter	Spraint	267853	728978	13/06/2023	Habitual sprainting site on rock within lochan, with the remains of many old spraints.
Otter	Spraint	267877	728971	13/06/2023	Very large habitual sprainting site with remains of many older and one fresher spraint. On mossy boulder next to lochan.
Otter	Spraint	267916	729154	13/06/2023	Remains of old spraint on large, vegetated boulder by lochan.
Otter	Spraint	267877	729122	13/06/2023	Two relatively older spraints on grassy bank of lochan.
Otter	Spraint	267873	729022	13/06/2023	Probable spraint remains, a black tarry streak with a few bones remaining.
Otter	Spraint	267852	729021	13/06/2023	Habitual sprainting site on large rock in lochan, with remains of many old spraints. Some moss rubbed off rock.
Otter	Spraint	266817	729247	13/06/2023	Habitual sprainting site on boulder by small pool in burn. Some moss rubbed off.
Otter	Spraint	266804	729137	13/06/2023	Habitual sprainting site on boulder by small pool in burn. Some moss rubbed off.
Otter	Spraint	266648	729079	13/06/2023	Remains of old spraint on upturned chunk of peat in burn.
Otter	Spraint	266498	728851	13/06/2023	Relatively fresh spraint on rock within burn.
Otter	Spraint	266318	728965	13/06/2023	Large fresh spraint on boulder within lochan.
Otter	Spraint	266292	729072	13/06/2023	Very old remains of spraint on mossy rock on bank of lochan.

Species	Sign	Easting	Northing	Survey date	Notes
Otter	Spraint	266180	729022	13/06/2023	Large relatively fresh spraint on boulder within lochan.
Otter	Spraint	266161	728929	13/06/2023	Old spraint on large boulder on bank of lochan, just a black tarry streak remaining.
Otter	Spraint	266266	728934	13/06/2023	Three relatively fresh spraints on rock on ban of lochan.
Otter	Spraint	268771	726848	13/06/2023	Fairly large, relatively fresh spraint on small rock along across livestock crossing point over tributary of Allt an Fhionn. Watercourse small and very little water running, with many frogs present.
Otter	Spraint	268887	726873	13/06/2023	Two old spraints on tributary of Allt an Fhionn. On rock before small pool and steep section of watercourse.
Otter	Spraint	268904	726878	13/06/2023	Old spraint on very large boulder along tributary of Allt an Fhionn.
Otter	Spraint	269634	726695	13/06/2023	A few old spraints on algae-stained rock in tributary to Loch Boltachan. Moss removed from centre of rock. Water levels low, but a wide watercourse.
Otter	Spraint	269627	726718	13/06/2023	Fresher spraint on grass beside large rocks and pool along tributary of Loch Boltachan.
Otter	Spraint	269571	726905	13/06/2023	Very old spraint on tributary of Loch Boltachan. On rock on plateau, moss removed from top of rock.
Otter	Spraint	269546	726935	13/06/2023	Old spraint on grassy rock on plateau of tributary of Loch Boltachan.
Otter	Spraint	269551	727132	13/06/2023	Old remains of spraint on algae-stained rock on tributary of Loch Boltachan.
Otter	Spraint	268431	727326	13/06/2023	Several old spraints along tributary of Allt an Fhionn on rock with moss missing from middle.

Species	Sign	Easting	Northing	Survey date	Notes
Otter	Spraint	267678	727039	13/06/2023	Several older spraints on very large boulder in tributary of Glentarken Burn around 5m from track. Watercourse very low.
Otter	Spraint	265303	728729	14/06/2023	Two fresh spraints on walls of intake, next to small pool.
Otter	Spraint	265268	728807	14/06/2023	One fresh spraint on wall of intake, next to small pool.
Otter	Spraint	265574	730045	14/06/2023	Small, relatively fresh spraint on large boulder within burn.
Otter	Spraint	265517	730128	14/06/2023	Remains of old spraint on large boulder in burn.
Otter	Spraint	265479	730163	14/06/2023	Relatively fresh spraint on large boulder in burn, patch of moss rubbed off.
Otter	Spraint	265419	730206	14/06/2023	Relatively fresh spraint on large boulder in burn, patch of moss rubbed off.
Otter	Spraint	265163	730509	14/06/2023	Relatively fresh spraint on boulder in burn.
Otter	Spraint	265146	730590	14/06/2023	Relatively fresh spraint on boulder in burn.
Otter	Spraint	264690	730694	14/06/2023	Remains of old spraint on rocky outcrop within burn.
Otter	Spraint	263902	728543	14/06/2023	Old remains of spraint on large mossy boulder in burn.
Otter	Spraint	263769	728637	14/06/2023	Remains of old spraint on boulder next to pool in burn.
Otter	Spraint	264073	728482	14/06/2023	Very old remains of spraint (only a few bones remaining) on rock on bank of burn.
Otter	Spraint	266831	727271	14/06/2023	Old spraint on mossy rock in tributary to Glentarken Burn. Tributary is narrow with little water.
Otter	Spraint	266601	726853	14/06/2023	Relatively fresh spraint on rock by pool in tributary to Glentarken Burn. Moss removed from top.

Species	Sign	Easting	Northing	Survey date	Notes
Otter	Spraint	266600	726828	14/06/2023	Relatively fresh spraint on rock where tributary meets Glentarken Burn. Previous staining on rock.
Otter	Spraint	266564	726850	14/06/2023	A few older spraints on end of large rock in Glentarken Burn.
Otter	Spraint	266423	727125	14/06/2023	Relatively fresh, long spraint on top of rock in Glentarken Burn by tributary.
Otter	Spraint	266379	727424	14/06/2023	Slightly degraded spraint on large rock in Glentarken Burn.
Otter	Spraint	266465	727305	14/06/2023	Slightly degraded, large spraint on rock in Glentarken Burn.
Otter	Spraint	266260	727498	14/06/2023	Relatively fresh spraint on rock in Glentarken Burn. Moss removed from top of rock.
Otter	Spraint	266210	727615	14/06/2023	Old and new spraints on grassy rock in Glentarken Burn.
Otter	Spraint	266038	727688	14/06/2023	Old and new spraints on grass banking of Glentarken Burn.
Otter	Spraint	266010	727703	14/06/2023	Degrading spraint on rock along Glentarken Burn.
Otter	Spraint	265643	728039	14/06/2023	Old spraint on rock with moss cleared on top, in tributary to Glentarken Burn.
Otter	Spraint	262152	726957	15/06/2024	Small fresh spraint on boulder where tributary meets Beich Burn.
Otter	Spraint	262633	727877	15/06/2024	Remains of old spraint on boulder within Beich Burn.
Otter	Spraint	262078	726183	15/06/2024	Fresh spraint on large boulder within Beich Burn.
Pine marten	Potential scat	262051	726114	15/06/2024	Potential pine marten scat on large mossy boulder along mammal trackway in the gorge by Beich Burn. Quite thin and coiled, relatively old with little smell.

Species	Sign	Easting	Northing	Survey date	Notes
Red squirrel	Sighting	269600	724500	Dates for incidental records not provided; 2021 or 2022.	By track to site entrance near St Fillans (grid ref. approximate from description).
Red squirrel	Sighting	274231	727286	Dates for incidental records not provided; 2021 or 2022.	Near Invergeldie.
Red squirrel	Sighting	269100	724600	Dates for incidental records not provided; 2021 or 2022.	On forestry road.
Reptile	Common lizard sighting	269144	726701	05/06/2023	
Reptile	Common lizard sighting	267427	728002	13/06/2023	Darted into heather.
Reptile	Common lizard sighting	269088	726910	13/06/2023	
Reptile	Common lizard sighting	269330	726706	13/06/2023	
Reptile	Common lizard sighting	269554	727323	13/06/2023	
Reptile	Common lizard sighting	267286	726910	13/06/2023	
Reptile	Common lizard sighting	264560	730634	14/06/2023	Running through grass alongside burn.
Reptile	Common lizard sighting	264323	729749	14/06/2023	Basking, before darting into vegetation.
Reptile	Potential hibernaculum	263068	728114	14/06/2023	Partially-collapsed overgrown drystone structure.

Species	Sign	Easting	Northing	Survey date	Notes
Reptile	Common lizard sighting	266520	727047	14/06/2023	
Reptile	Common lizard sighting	266876	727836	14/06/2023	
Reptile	Common lizard sighting	266613	727616	14/06/2023	
Reptile	Common lizard sighting	266417	727165	14/06/2023	
Reptile	Common lizard sighting	265611	727902	14/06/2023	
Reptile	Common lizard sighting	265520	727776	14/06/2023	
Reptile	Common lizard sighting	262115	726049	15/06/2023	Darting through bracken brash.
Reptile	Potential hibernaculum	262369	726647	15/06/2023	Old stone structure surrounded by bracken.
Reptile	Common lizard sighting	261974	725617	15/06/2023	
Reptile	Potential hibernaculum	261815	725027	15/06/2023	Long stretch of moss-covered stone wall.
Reptile	Potential hibernaculum	261892	724595	15/06/2023	Several piles of large rocks in livestock field.
Reptile	Potential hibernaculum	261943	724552	15/06/2023	Several piles of large rocks in livestock field.