

Appendix 11.1: Ornithology – Technical Appendix

11.1 Introduction

- 11.1.1 A targeted ornithological field survey, concentrating on locally important and legally protected bird species, of the Revised Coire Glas Pumped Storage Scheme (The Proposed Development) was undertaken by EnviroCentre Limited during the 2017 bird breeding season. All surveyors were fully licensed to undertake their surveys/studies.
- 11.1.2 Care was taken to ensure that survey methods and the level and type of survey effort was consistent with SNH guidance available at the time surveys commenced. This report provides details of the surveys undertaken and a spreadsheet of the raw data collected.
- 11.1.3 Surveys in the same location were undertaken in 2010 to inform The Consented Development.

11.2 Reconnaissance

- 11.2.1 Due to the previous fieldwork, no preliminary assessment was undertaken ahead of the 2017 survey work.
- 11.2.2 The site consists of open heather moorland, mixed-species, mixed-age plantation woodland, agricultural land and rough pasture, and areas of saturation and shoreline habitat along the shores of the Caledonian Canal and Loch Lochy.
- 11.2.3 The geographical location and habitat types within the bird survey area identified the following potential bird issues:
- Raptors – the open moorland environment with craggy rock faces and mature woodland may provide suitable nesting and foraging opportunities for a variety of protected raptor species and owls. In particular, Golden Eagle (*Aquila chrysaetos*), Hen Harrier (*Circus cyaneus*) and Merlin (*Falco columbarius*) which appear on Annex 1 of the Birds Directive (The European Union, 2009) and Schedule 1 of the Wildlife and Countryside Act 1981 (UK Government, 1981).
 - Breeding birds – the woodland, rough pasture and scrub habitats may provide suitable nesting sites for a variety of species which are covered within the UKBAP (JNCC, n.d.) or which appear on the list Birds of Conservation Concern (BoCC) (Eaton *et al.*, 2015) - a traffic-light system which identifies the population trends of breeding and overwintering birds in the UK. Species such as Cuckoo (*Cuculus canorus*), Tree Pipit (*Anthus trivialis*), Spotted Flycatcher (*Muscicapa striata*) and Woodcock (*Scolopax rusticola*) were identified as potential Red-list BoCC species which may be present on site.
- 11.2.4 A subsequent desk-based review of the main (protected) bird sensitivities associated with the wider area was conducted. This was used to identify a range of field survey requirements with the following aims:
- Determine the distribution and abundance of breeding birds; and

- Identify if any protected species breed within the footprint of the Proposed Development.

11.3 Field Surveyors

- 11.3.1 The ornithological surveyor was Mike Coleman, Lead Principal Ornithologist at EnviroCentre Limited, the same surveyor that had undertaken the previous field surveys on the site in 2010.
- 11.3.2 The surveyor has extensive ornithological field experience of both lowland and upland areas across Europe, has worked on many renewable energy projects over many years, and holds a Scottish Natural Heritage Schedule 1 Bird Licence (Number 66155).

11.4 Survey Methods

Breeding Bird Surveys

- 11.4.1 The Breeding Bird Survey used in the lowland areas and woodland areas of the Proposed Development refers to a modified version of the British Trust for Ornithology (BTO) Breeding Bird Survey (BBS) (BTO, 1994) and Common Bird Census (CBC) (Marchant, 1983). This survey is undertaken as the standard survey in lowland areas, and areas of mixed habitat away from upland moors. Fieldwork involves three visits to the site between April and July. These visits are made in the early morning (to coincide with the peak of bird activity) about four weeks apart, ensuring that late-arriving migrants are recorded. A route through the survey area is walked at a constant steady pace and reaches within 50 metres of every point. Windy and rainy conditions are avoided where possible. All bird species are recorded, as is any relevant behaviour (gathering nesting material, territorial calling, fighting, feeding young, etc), which is then transferred to a 1:25000 scale map, from which breeding numbers or pairs/territories can be ascertained.
- 11.4.2 Due to areas of the site being under private ownership, and areas of woodland with limited accessibility, not every point was observed from within 50 metres, and some of the surveys were undertaken in rainy conditions. However, a similar accumulation of species was recorded on each visit, and therefore the validity of the survey data is not thought to have been compromised during any of the surveys.

Moorland Breeding Birds

- 11.4.3 The modified Brown and Shepherd (1993) Moorland Breeding Bird survey is the standard survey technique for moorland/upland breeding birds and is described in the SNH guidance (SNH, 2005 & 2009). The Brown and Shepherd methodology is based on a constant search method involving spending 25 minutes in each 500mx500m quadrat, within the survey area and 500m buffer. This equates to spending 100 minutes for every km². Each quadrant was walked to ensure that all parts were approached to within 100m. At regular intervals, the surveyor paused, scanned the area for species and listened out for calls and songs. All registrations were marked on a 1:25,000 scale map using BTO symbols with a note of the species activity.
- 11.4.4 This method is specifically designed to survey upland wader species, e.g. Golden Plover and Dunlin. However, SNH allows this method to be used to record passerine species if the survey is extended to include the period between dawn and 0900. It should also be noted that there are potential limitations to this survey method. For example, SNH recommends

that this survey should not be used to assess the collision risk of raptors or waterfowl, which are more suited to being surveyed using other methods, such as vantage point watches; however the methodology can be useful in adding to territory distribution data for these species and in locating breeding sites.

- 11.4.5 Due to the paucity of birds present in the open moorland areas of the Proposed Development, the time spent undertaking Brown & Shepherd surveys during the June and July surveys was reduced to concentrate on breeding raptor surveys. The records are comparable to the 2010 survey results in the same area, and the reduction in time is not considered to have caused any constraint to the validity of the data.

Breeding Raptor Surveys

- 11.4.6 Breeding raptor surveys were conducted as part of the Moorland Breeding Bird Surveys and Breeding Bird Surveys, with priority being given to detecting species listed on Annex 1 of the Birds Directive or Schedule 1 of the Wildlife and Countryside Act 1981.
- 11.4.7 Some of these species are considered to be particularly sensitive to disturbance, so survey work was carried out in order to avoid preventable disturbance using specific survey methods for each relevant species from Hardey *et al.* (2009).
- 11.4.8 SNH provides clear guidance in relation to raptor sensitivities and survey effort concerning onshore wind farms (SNH, 2005 & 2009). However, on this occasion, no surveys beyond the Development area survey boundary were undertaken to determine the location of breeding raptors.
- 11.4.9 Additional time was spent undertaking breeding raptor surveys within the survey area during the survey period.

Study Area

- 11.4.10 The ornithological study area was located in the southern part of Glengarry Forest and comprised of Coire Glas, Loch a' Choire Ghlais, Allt a' Choire Ghlais, open moorland to the east of Ben Tee, the South Laggan Forest, and land along the length of the public road extending between North Laggan and Kilfinnan. The study included birds of the moorland around the proposed dam and upper reservoir, surge shaft, ventilation shaft and access tracks, and the birds in the forested and agricultural areas adjacent to access roads and tracks to the lower reservoir works area, site establishment areas and other structures associated with The Proposed Development.
- 11.4.11 The study area is illustrated in Figure 1.

11.5 Fieldwork Dates

- 11.5.1 A programme of bird surveys were undertaken in order to identify those birds likely to be affected by The Proposed Development and thereby inform the impact assessment process. The bird surveys were undertaken on May 11th and 12th, June 12th and 13th, and July 27th and 28th 2017.
- 11.5.2 A summary table of all fieldwork dates and survey conditions during ornithological surveys for the Proposed Development is provided below (Table 1).

Table 1: Revised Coire Glas Pumped Storage Scheme Ornithology: Dates, Times and Conditions of Surveys

DATE	TIME START	TIME FINISH	SURVEY TYPE ⁺	WIND SPEED [*]	WIND DIRECTION ^{**}	CLOUD COVER [#]	CLOUD BASE ^{##}	VISIBILITY ^x	PRECIPITATION ^{***}	GROUND CONDITION ^{xxx}	TEMPERATURE ^{xxx}	SURVEYOR ^{###}
11/05/2017	0800	1800	BBS / B&S	2-4	SSW	4	1250+	EXCELLENT	0	DRY CRUST / SOFT	17	MC
12/05/2017	0415	0900	BBS	0-4	SW	3	2000+	EXCELLENT	0	HARD / DRY	8-13	MC
12/06/2017	0930	1830	BBS / B&S	5	W	8	720+	GOOD	3>1	SATURATED	13	MC
13/06/2017	0330	0815	BBS	3	SW	8	200	GOOD	2 (drizzle)	WET	11	MC
27/07/2017	1030	1830	BBS / B&S	5	SSW	8>4	900>2000	EXCELLENT	2>0	SATURATED	15	MC
28/07/2017	0415	0800	BBS	3	S	7	800	GOOD/ EXCELLENT	1	SOFT	12	MC

LEGEND: ⁺Survey BBS=breeding bird survey/raptor search, b&s=moorland breeding bird survey/raptor search; ^{*}Wind Speed is based on the Beaufort Scale; ^{**}Wind Direction based on a 16 point compass direction; [#]Cloud Cover is based on oktas; ^{##}Cloud Base is metres above sea level; ^{***}Precipitation Scale is 0=none, 1=light showers, 2=persistent rain/heavy showers, 3=heavy rain; ^xVisibility scale is EXCELLENT=5km+, GOOD=2-5km, POOR=1-2km, ZERO=<1km; ^{xxx}Ground Condition scale is Saturated-Wet-Soft-Dry-Hard; ^{xxx}Temperature is degrees Celsius; ^{###}Surveyor, MC=Mike Coleman.

11.6 References

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

 Bird Survey Area

Do not scale this map

Client
ASH Design + Assessment

Project
Revised Coire Glas Pumped Storage Scheme

Title
Bird Survey Area
Appendix 11.1 - Ornithology Technical Appendix

Status
FINAL

Drawing No. 169281-004	Revision
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Scale 1:40,000	A3	Date 5 Jan 2018
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Drawn GV	Checked GV	Approved MC
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