

Appendix 8.2 Ornithology Scoping Report

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MacArthur
Green

Cumberhead West Wind Farm

Ornithology Scoping Report Technical Appendix 8.2

Date: 30 October 2020

Tel: [REDACTED]

Web: www.macarthurgreen.com

Address: 93 South Woodside Road | Glasgow | G20 6NT



MacArthur Green

**Cumberhead West Wind Farm:
Ornithology Scoping Report**

Prepared by: Rafe Dewar

Reviewed by: Nicola Goodship

Date: 10 October 2019

Tel: [REDACTED]

Email: [REDACTED]

Web: www.macarthurgreen.com

Address: 93 South Woodside Road | Glasgow | G20 6NT

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1 INTRODUCTION

This report sets out the planned ornithology survey requirements for the proposed Cumberhead West Wind Farm (the “proposed development”).

The proposed development site (‘the site’) is located within an area of active commercial forestry within the larger Cumberhead Forest complex, and is adjacent to the north eastern extent of the Muirkirk and North Lowther Uplands Special Protection Area (SPA, Figure 1). The site adjoins the existing cluster of operational and consented wind farms around Hagshaw Hill, known as the ‘Hagshaw Cluster’.

Ornithological surveys have regularly taken place for wind farm projects in the vicinity of the proposed development over the last 15 years (locations shown on Figure 1). As a result, a number of these projects’ survey areas have overlapped spatially with the site and wider ornithology study area. It is therefore considered to be the case that the ornithological baseline conditions within the site and surrounding area are well known.

This report therefore summarises the existing information available for the site and surrounding area, and outlines which surveys are considered, and are not considered, necessary to allow a robust ornithological impact assessment for the proposed development.

1.1 METHODOLOGY

The baseline conditions within the site and surrounding area will be assessed in the Environmental Impact Assessment (EIA) via a combination of a desk study and field surveys.

1.2 Desk Based Study

The desk study will gather ornithological information from a variety of online sources and consultation with conservation organisations, such as those listed below:

- National Biodiversity Network (NBN) Atlas Scotland (<https://scotland.nbnatlas.org>);
- Scottish Natural Heritage (SNH), including Sitelink (<https://sitelink.nature.scot/home>);
- South Lanarkshire Council; and
- South Strathclyde Raptor Study Group (RSG).

In addition, ornithological information available in the public domain relating to applications of the following local wind farm projects will be referred to:

- Auchrobert Wind Farm (AR);
- Cumberhead Wind Farm (CU);
- Dalquhandy Wind Farm (DQ);
- Douglas West Extension Wind Farm (DWX);
- Douglas West & Dalquhandy DP Renewable Energy Project (DW);
- Douglas West Community Wind Farm (DWCW);
- Dungavel Wind Farm (DG).

- Galawhistle Wind Farm (GA);
- Hagshaw Hill Extension Wind Farm (HH);
- Hagshaw Hill Repowering Wind Farm (HHR);
- Kype Muir Wind Farm (KM);
- Kype Muir Extension Wind Farm (KMx); and
- Nutberry Wind Farm (NU).

This information includes scoping reports, environmental statements and consultation responses from relevant stakeholders.

A timeline of baseline surveys carried out for the above wind farm projects is presented below in Table 1:

Table 1. Timeline of baseline surveys carried out at nearby wind farm sites

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
HH																
DG																
NU																
GA																
KM																
DWCW																
AR																
KMX																
DQ																
CU																
DW																
HHR																
DWX																

Table 2 below details the designated sites located within 20 km of the proposed development that have ornithological interests. It should be noted that the two Sites of Special Scientific Interest (SSSIs), North Lowther Uplands SSSI and Muirkirk Uplands SSSI are coincidental in extent with the Muirkirk and North Lowther Uplands SPA.

Table 2. Designated sites within 20 km of Cumberhead West Wind Farm

Name	Distance	Qualifying interests	Status
Muirkirk and North Lowther Uplands SPA	Adjacent to site boundary	Hen harrier (<i>Circus cyaneus</i>)	Unfavourable Declining
		Short-eared owl (<i>Asio flammeus</i>)	Favourable Maintained
		Peregrine (<i>Falco peregrinus</i>)	Unfavourable No Change
		Golden plover (<i>Pluvialis apricaria</i>)	Favourable Maintained
		Merlin (<i>Falco columbarius</i>)	Unfavourable No Change
Muirkirk Uplands SSSI	Adjacent to site boundary	Hen harrier (<i>Circus cyaneus</i>)	Unfavourable Declining
		Hen harrier (<i>Circus cyaneus</i>)	Favourable Maintained
		Short-eared owl (<i>Asio flammeus</i>)	Favourable Maintained
		Hen harrier (<i>Circus cyaneus</i>), non-breeding	Unfavourable Declining
North Lowther Uplands SSSI	3.2km to site boundary	Breeding bird assemblage	Favourable Maintained
		Hen harrier (<i>Circus cyaneus</i>)	Unfavourable No Change
		Breeding bird assemblage	Unfavourable Declining

It is anticipated that an assessment under the Habitats Regulations Appraisal (HRA) process will be required for the Muirkirk and North Lowther Uplands SPA, as likely significant effects are predicted due to the proximity of the site. The component SSSIs will be assessed as part of the EIA process.

1.3 Field Survey Methodologies

In the case of the proposed development, it is considered that the one year of survey effort outlined below is sufficient to allow a robust characterisation of the baseline ornithological assemblage and usage of the site and surrounding area, when used in combination with the substantial information collated for other nearby wind farm projects. A summary of this information is provided in Appendix 1.

1.3.1 Breeding and Wintering Bird Surveys

SNH (2017) guidance will be followed for distribution and abundance surveys. The following ornithology surveys are therefore planned for the site and relevant buffers in 2019 and 2020:

- Scarce breeding bird surveys (raptors and owls): 2019 breeding season within the site and 2 km buffer where access allows, following the methods described in Hardey *et al.* (2013);
- Black Grouse Surveys: 2019 breeding season within the site and 1.5 km buffer where access allows, following guidance in Gilbert *et al.* (1998);
- Winter walkovers: 2019-20 non-breeding season within the site and 500 m buffer, concentrating on locating key species, e.g. hen harrier roost activity.

As the site is comprised of mature conifer plantation, general upland/moorland breeding bird surveys are not considered to be required. Any evidence of breeding waders etc. will however be recorded during all other survey types.

1.3.2 *Flight Activity Surveys*

Flight activity (Vantage Point, VP) surveys commenced in May 2019, and will continue until April 2020. A total of five VPs have been selected to cover the site (Figure 2).

It is considered that one year of flight activity surveys are sufficient for the following reasons:

- Considerable information exists on flight activity surveys recorded for nearby wind farm projects, which have survey areas that either overlap with the site, or are close by; and
- The mature conifer plantation is likely to be of low habitat quality for target species such as breeding raptors or waders. Activity levels over the site are therefore likely to be very low.

Flight activity results, and associated Collision Risk Modelling from other projects will be considered in the impact assessment for the proposed development.

The following wind farm projects have carried out flight activity surveys where viewsheds have at least in part overlapped with the site and surrounding area (see Appendix 2):

- **Cumberhead Wind Farm (2013-14):** Five VPs have combined coverage of around 80% of the site;
- **Auchrobert Wind Farm (2010-11):** One VP covers northernmost extent of site and surrounding moorland; and
- **Nutberry Wind Farm (2005-06):** no figure showing VPs was available, but grid references provided show likely considerable overlap with the site, with some similar VPs, e.g. at Nutberry Hill and Birkenhead:
 - Black Hill NS 76599 33798
 - Nutberry Hill NS 74550 33769
 - Little Auchinstilloch NS 75053 31596
 - Birkenhead NS 76584 36412
 - Disused railway NS 77627 32384
 - Meikle Auchinstilloch NS 77091 31227
 - Dunside Rig NS 72600 36700

Table 1 above shows that baseline data for the local area are available over a long-term period (2003 to 2018), and over that time, the species assemblage has remained relatively similar between years, as well as across different sites. Table A.1 in Appendix 1 shows that there is a high degree of consistency in assemblage between different projects. In general, the local area including the site is of limited importance for target species, with few breeding records of raptors (e.g. no hen harrier or merlin breeding evidence), and low levels of site usage by foraging raptors. A similar range of wader species do breed within and/or adjacent to most sites, although the habitat within the proposed development site is unsuitable. Whooper swan, pink-footed goose and greylag goose were the only target wildfowl species regularly recorded, mainly in flight, and the closest roost evidence is where birds utilise the waterbody within the Dalquhandy Wind Farm site.

The overlapping baseline surveys will provide additional supporting information to surveys carried out in 2019 to determine the level of significance of any effects from the proposed development.

1.4 REFERENCES

Brown, A.F. & Shepherd, K.B. (1993) A Method for Censusing Upland Breeding Waders. *Bird Study*, 40(3): 189-195.

Gilbert, G., Gibbons, D.W. & Evans, J. (1998) *Bird Monitoring Methods. A Manual of Techniques for Key UK Species*. RSPB, BTO, WWT, JNCC, ITE & The Seabird Group: Sandy.

Hardey, J. Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013) *Raptors: A Field Guide for Surveys and Monitoring Raptors*. Stationery Office: Edinburgh (3rd edition).

Scottish Natural Heritage (2017). *Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms*.

APPENDIX 1: ORNITHOLOGICAL ACTIVITY AT OTHER LOCAL SITES

A summary of the ornithological findings for other local wind farm projects is presented below. The location of these projects is shown in Figure 1.

2.1 Douglas West Community Wind Farm

Status: Scoping

Baseline Data: One full year of surveys completed in 2009/10. Scoping Report issued in 2012.

Various ornithological surveys were carried out between 2009 and 2010; a scoping report was produced in March 2012 for this proposed 15 turbine project.

Although baseline surveys were completed prior to the production of the scoping report, no summary of results was contained in that document and survey data were not made available in the public domain as no planning submission was made. Data were, however, summarised as part of the Douglas West & Dalquhandy DP Renewable Energy Project's EIA.

2.2 Douglas West & Dalquhandy DP Renewable Energy Project

Status: Consented

Baseline Data: One year of surveys from September 2014 to September 2015. ES and Supplementary Environmental Information (SEI) report issued in 2015 with non-material variation in 2016 and revised ES in 2017.

Work comprised the following surveys out to a 2 km buffer of the site:

- Flight activity surveys. Fieldwork carried out from September 2014 to mid-March 2014 (non-breeding season), and from mid-March to August 2015 (breeding season) inclusive;
- Moorland Breeding Birds Surveys. Fieldwork carried out in spring-summer 2015;
- Breeding raptor surveys. Fieldwork carried out in spring-summer 2015;
- Barn owl surveys. Fieldwork carried out in spring-summer 2015; and
- Black grouse lek surveys. Fieldwork carried out in spring 2015.

Raptors: No target raptor species recorded breeding within the site and 2 km buffer. The following target species were recorded during baseline surveys - hen harrier, merlin, peregrine, barn owl and short-eared owl.

Wildfowl: Whooper swan, pink-footed goose and greylag goose flying over the site.

Waders: Seven species of waders were recorded breeding: oystercatcher (3 pairs), ringed plover (2 pairs), lapwing (7 pairs), snipe (13 pairs), curlew (5 pairs), common sandpiper (5 pairs) and redshank (4 pairs).

Black grouse: Lek of up to two males recorded within Hagshaw Hill Extension site.

2.3 Dalquhandy Wind Farm

Status: Consented

Baseline Data: One year of surveys from September 2011 to November 2012 inclusive. Additional breeding bird surveys in 2017.

The following bird surveys were carried out in 2011-12 within the site boundary and up to a 2 km buffer zone:

- Flight activity surveys;
- 3 x Common Bird Census (CBC) surveys (adapted);
- 3 x breeding bird surveys (Brown and Shepherd,1993), with 4 x surveys in 2017;
- 3 x Woodland point count surveys;
- 2 x black grouse surveys;
- 4 x breeding raptor surveys;
- 4 x breeding owl surveys;
- 2 x wintering bird surveys; and
- 7 x wintering wildfowl counts.

Raptors: The following target species were recorded during baseline surveys - hen harrier, osprey, merlin, peregrine and short-eared owl. No evidence of breeding or roosting raptors was recorded within the study area.

Wildfowl: Whooper swan (up to 15 using site), pink-footed goose (up to 1,361 birds roosting within study area), greylag goose (up to 185 birds roosting within study area).

Waders: Seven species of waders were recorded breeding: oystercatcher (3 pairs, 0-1 in 2017), ringed plover (6 pairs, absent in 2017), lapwing (10 pairs, 1 in 2017), snipe (8 pairs, 7-9 in 2017), curlew (4 pairs, 1 in 2017), common sandpiper (11 pairs, 1-2 in 2017) and redshank (3 pairs, absent in 2017). Up to 138 golden plover during winter surveys (absent in 2017).

Black grouse: none recorded.

2.4 Hagshaw Hill Extension Wind Farm

Status: Operational

Baseline Data: One year of surveys from April 2003 to July 2004 inclusive.

The following bird surveys were carried out within the site boundary and up to a 2 km buffer zone:

- Flight activity surveys;
- Breeding bird surveys;
- Black grouse surveys; and
- Winter walkover surveys.

Raptors: The following target species were recorded during baseline surveys - hen harrier, merlin, peregrine and barn owl. No evidence of breeding or roosting was recorded within the study area.

Black grouse: Four to six males were recorded lekking at up to four lek sites within the study area.

Waders: Five pairs of curlew bred within the study area. Golden plover present on migration.

2.5 Galawhistle Wind Farm

Status: Operational

Baseline Data: Two years of surveys from 2007 to 2009.

The following bird surveys were carried out within the site boundary and up to a 2 km buffer zone:

- Flight activity surveys;
- Breeding bird surveys;
- Breeding raptor surveys;
- Winter walkover surveys; and
- Black grouse surveys.

Wildfowl: Whooper swan, pink-footed goose and greylag goose recorded during flight activity surveys, but no usage of site.

Raptors: Peregrine and barn owl recorded breeding within the study area. Hen harrier, merlin, red kite, osprey and short-eared owl present on occasion, but no breeding or roosting evidence.

Waders: Seven breeding species within study area – curlew (14 pairs), lapwing (2 pairs), ringed plover (4 pairs), snipe (6 pairs), common sandpiper (7 pairs), oystercatcher (11 pairs), with golden plover present.

Black grouse: Active at three locations within study area.

2.6 Nutberry Wind Farm

Status: Operational

Baseline Data: April 2004 to March 2006 (original and revised applications).

The following bird surveys were carried out within the site boundary and up to a 2 km buffer zone:

- Flight activity surveys from 2004 to 2006;
- Breeding bird surveys in 2004 and 2005;
- Raptor breeding survey in 2005 and 2006;
- Black grouse surveys in 2004 and 2005;
- Forest point count surveys in the 2004 breeding and 2004/05 non-breeding seasons;
- Winter walkover survey in 2004/05;

- Monitoring of clear-fell areas to assess how birds might use deforested areas in the future (2005 and 2006); and
- Golden plover field searches in 2006.

Raptors: Hen harrier recorded foraging, with occasional merlin, peregrine, short-eared owl, osprey and red kite. Peregrine recorded breeding within the study area, and goshawk considered likely to be breeding within site.

Wildfowl: No regular migratory movements, but greylag goose and pink-footed goose flight activity recorded.

Waders: Breeding curlew and snipe within study area. Surrounding fields showed usage by golden plover in winter.

Black grouse: Two leks located within wider study area in 2004, but none in 2005.

2.7 Cumberhead Wind Farm

Status: Consented

Baseline Data: Surveys from April 2013 to August 2014.

The following bird surveys were carried out within the site boundary and up to a 2 km buffer zone:

- Flight activity surveys from May 2013 to August 2014;
- Black grouse surveys in 2013 and 2014;
- Breeding bird surveys in 2013 and 2014;
- Breeding raptor surveys in 2013 and 2014; and
- Winter walkover surveys in 2013-14.

Raptors: Hen harrier recorded foraging, with occasional merlin, peregrine and short-eared owl. Goshawk considered likely to be breeding within survey area.

Wildfowl: No regular migratory movements, but greylag goose and pink-footed goose flight activity recorded.

Waders: Breeding curlew within study area. Some usage by golden plover in winter.

Black grouse: Single male, but no lek sites recorded.

2.8 Auchrobert Wind Farm

Status: Operational

Baseline Data: Surveys from March 2010 to August 2011.

The following bird surveys were carried out within the site boundary and up to a 2 km buffer zone:

- Flight activity surveys from March 2010 to August 2011;
- Black grouse surveys in 2011;
- Breeding bird surveys in 2011; and

- Breeding raptor surveys in 2010 and 2011.

Raptors: Occasional hen harrier, peregrine and merlin flights but no breeding evidence within study area. The closest hen harrier nest site in 2010 was 2.9 km from the nearest turbine (direction unknown) and the closest merlin nest in 2010 and 2011 was 3.7 km away (direction unknown).

Wildfowl: No regular migratory movements, but whooper swan and pink-footed goose flight activity recorded.

Waders: Breeding curlew (3 pairs) within study area. Some usage by golden plover in winter.

Black grouse: No records within 500 m of turbines.

2.9 Kype Muir Wind Farm

Status: Operational

Baseline Data: Surveys from October 2008 to November 2010.

The following bird surveys were carried out within the site boundary and up to a 2 km buffer zone:

- Flight activity surveys from October 2008 to November 2010;
- Black grouse surveys in 2009 and 2010;
- Breeding bird surveys in 2009 and 2010;
- Breeding raptor surveys in 2009 and 2010; and
- Winter walkovers in 2009-10 and 2010-11.

Raptors: Hen harrier, peregrine, goshawk and merlin recorded. Hen harrier breeding recorded within 2 km study area in 2010 (location unknown). Merlin breeding recorded within 2 km study area in 2009 and 2010 (locations unknown). Barn owl roost sites recorded.

Wildfowl: No regular migratory movements, but whooper swan, pink-footed goose and greylag goose flight activity recorded during non-breeding seasons.

Waders: Breeding golden plover (1 territory), curlew (5 territories) and lapwing (1-2 territories). Flocks of migrating golden plover in spring.

Black grouse: Lek of two males 2.3 km from nearest turbine in 2009 (over 3 km west of Cumberhead West site). Lekking at four locations in 2010, the closest being 1.4 km from turbine (over 3 km west of Cumberhead West site).

2.10 Kype Muir Extension Wind Farm

Status: Approved

Baseline Data: Surveys from October 2008 to August 2013 (including original Kype Muir Wind Farm surveys).

The following bird surveys were carried out within the site boundary and up to a 2 km buffer zone:

- Flight activity surveys from December 2010 to August 2013;

- Black grouse surveys in 2009 and 2010;
- Breeding bird surveys in 2009 and 2010;
- Breeding raptor surveys in 2009 and 2010; and
- Winter walkovers in 2009-10 and 2010-11.

Raptors: Hen harrier, peregrine, goshawk, merlin and red kite recorded. No hen harrier or merlin breeding evidence after 2010 (noted above).

Wildfowl: No regular migratory movements, but whooper swan, pink-footed goose and greylag goose flight activity recorded during non-breeding seasons.

Waders: Breeding golden plover (0 territories), curlew (6 territories) and lapwing. Flocks of golden plover in winter.

Black grouse: No further surveys after 2010 (see above).

2.11 Dungavel Wind Farm

Status: Operational

Baseline Data: Surveys from April 2004 to November 2005.

The following bird surveys were carried out within the site boundary and up to a 2 km buffer zone:

- Flight activity surveys from April 2004 to November 2005;
- Black grouse surveys in 2004 and 2005;
- Breeding bird surveys in 2004 and 2005;
- Breeding raptor surveys in 2004 and 2005; and
- Winter walkovers in 2004-05.

Raptors: Hen harrier, goshawk, merlin and short-eared owl recorded. Three hen harrier nests (two pairs) recorded in 2004 and two pairs in 2005, over 1 km from wind farm (locations unknown). Two pairs of merlin in 2004 and one pair in 2005 over 1 km from wind farm (locations unknown). Two short-eared owl pairs over 3 km from development in 2004 (location unknown).

Wildfowl: No regular migratory movements, but whooper swan and pink-footed goose flight activity recorded during non-breeding seasons.

Waders: 16 curlew territories, lapwing (4 territories), golden plover (2 territories), oystercatcher (2 territories), snipe (2 territories) and common sandpiper (1 territory) in 2004.

Black grouse: One lek with two males recorded in 2004. Single male present in 2005.

2.12 Hagshaw Hill Repowering Wind Farm and Douglas West Extension Wind Farm

Status: Application

Baseline Data: Surveys from March to August 2018.

The following bird surveys were carried out within the site boundaries and up to a 2 km buffer zones:

- Flight activity surveys from March to August 2018;
- Black grouse surveys in 2018;
- Breeding bird surveys in 2018; and
- Breeding raptor surveys in 2018.

Raptors: No evidence of breeding within the 2 km study area in 2018. Small numbers of merlin, osprey and peregrine flights recorded.

Wildfowl: None recorded.

Waders: Curlew (2 territories) and common sandpiper (1 territory) recorded. Lapwing, golden plover, oystercatcher, ringed plover and snipe recorded.

Black grouse: None recorded.

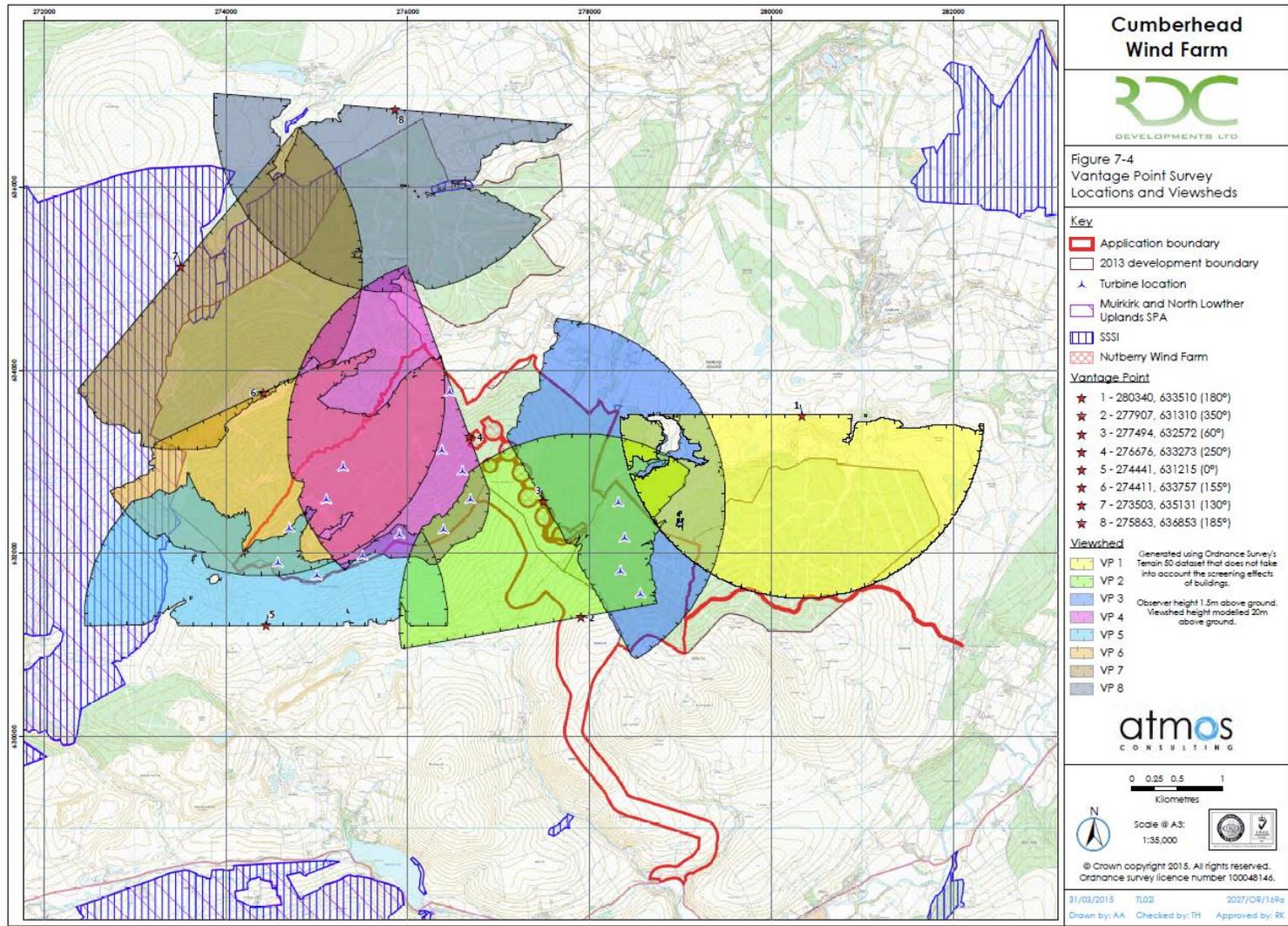
Table A.1. Noted presence of target species during baseline surveys at local wind farm projects

Site	HH	ML	PE	SE	KT	GI	OP	BO	BK	WS	PG	GJ	CU	OC	SN	CS	L.	RP	GP	RK
Douglas West & Dalquhandy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DWCW	✓	✓	✓				✓			✓	✓	✓	✓	✓	✓		✓		✓	
Douglas West Extension			✓				✓						✓	✓	✓		✓	✓	✓	
Dalquhandy	✓	✓	✓	✓			✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hagshaw Hill Extension	✓	✓	✓					✓	✓				✓							✓
Hagshaw Hill Repowering	✓	✓	✓				✓						✓	✓	✓	✓	✓	✓	✓	✓
Galawhistle	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nutberry	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓		✓					✓
Cumberhead	✓	✓	✓	✓		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Auchrobert	✓	✓	✓			✓				✓	✓	✓	✓		✓					✓
Kype Muir	✓	✓	✓			✓		✓	✓	✓	✓	✓	✓				✓			✓
Kype Muir Extension	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓				✓			✓
Dungavel	✓	✓	✓	✓		✓			✓		✓		✓	✓	✓	✓	✓			✓

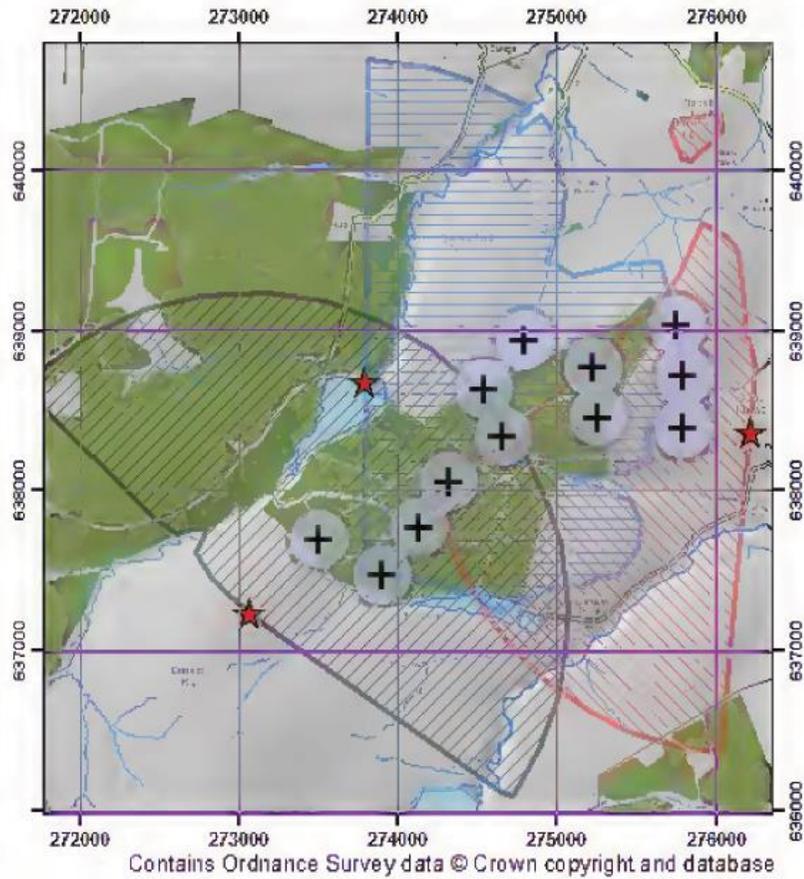
HH = hen harrier; ML = merlin; PE = peregrine; SE = short-eared owl; KT = red kite; GI = goshawk; OP = osprey; BO = barn owl; BK = black grouse; WS = whooper swan; PG = pink-footed goose; GJ = greylag goose; CU = curlew; OC = oystercatcher; SN = snipe; CS = common sandpiper; L. = lapwing; RP = ringed plover; GP = golden plover; RK = redshank.

APPENDIX 2: OVERLAPPING VANTAGE POINTS AND VIEWSHEDS

Cumberhead Wind Farm



Auchrobert Wind Farm



Legend

- | | | | |
|---|----------------------|---|----------------|
| + | Turbine | ★ | Vantage Points |
| ■ | Turbine 200 m buffer | ▨ | VP 1 Viewshed |
| | | ▨ | VP 2 Viewshed |
| | | ▨ | VP 3 Viewshed |

