



AI Appendix 8A

Non breeding Bird Survey Oct 18 - March 19



Stornoway Wind Farm Ltd

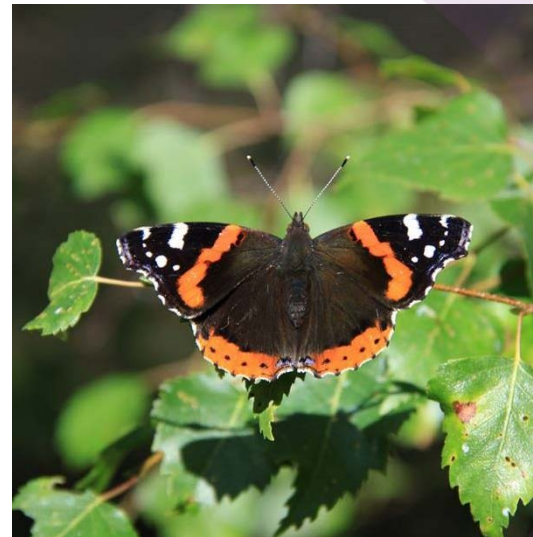
Stornoway Wind Farm

Additional Information:

Chapter 8 Ornithology

Appendix 8A. Bird Surveys

October 2018 – March 2019



Report for

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Document revisions

No.	Details	Date
1	Draft Report	September 2019
2	Final Report	January 2020

Executive summary

Purpose of this Report

Stornoway Wind Farm Limited is proposing to construct and operate a wind farm currently anticipated to comprise up to 35 turbines with a generating capacity in excess of 50MW on the site of the existing Consented (but not yet built) Stornoway Wind Farm. The Consented Stornoway Wind Farm gained section 36 consent and planning permission in September 2012 and in May 2015 an application was made to amend this consent with regard to the layout, output and size of the wind turbines, this being granted in spring 2016. The site of the Consented Stornoway Wind Farm (hereafter referred to as the 'Site') is located to the south west of the town of Stornoway on the Isle of Lewis and centred on National Grid Reference (NGR) E137149, N933373. The Proposed Development would comprise a revised layout, with turbine tip heights of approximately 156 m and 180 m and turbine rotor diameters of 136m and 150m respectively.

Changes to the consented wind farm layout and / or turbine specifications could potentially have implications on the existing assessed ornithological impacts of the wind farm. Furthermore, the status of the baseline bird populations and flight activity patterns will have potentially changed since the original application. Therefore, a comprehensive suite of survey work was initiated in October 2017 and continued until September 2019 to provide two years baseline information.

Previous appendices providing details of surveys carried out for the first year were submitted as part of the Environmental Impact Assessment (EIA) (Wood, 2019) for the Proposed Development (**Appendix 8B** and **Appendix 8C**, Wood 2019).

This appendix presents methods and results of bird surveys carried out over the second non-breeding period (October 2018 – March 2019) and forms part of **Chapter 8 Ornithology** of the Additional Information (AI) submitted in support of the EIA for the Proposed Development. Methods and results of surveys carried out from April – September 2019 (representing the second breeding period) are presented in **AI Chapter 8, Appendix 8B**.

Summary Findings

An extensive survey programme was carried out covering the period October 2018 – March 2019. In summary, the following was undertaken:

- ▶ 54 hours VP survey effort at each VP location (a total of 6 locations);
- ▶ Hen harrier roost monitoring at two different locations (Roost 1 from October 2018 – March 2019 for a total of 54 hours twenty minutes; Roost 2 from November 2018 – March 2019 covering 32 hours five minutes). A total of 13 surveys (ranging between 2-3 hours duration each) were carried out simultaneously;
- ▶ Searches within the 2km survey area found no further evidence of additional hen harrier roosts.

Flights were recorded from a total of 15 species during VP surveys. The most frequently recorded species were golden eagle, golden plover, greylag goose, hen harrier and white-tailed eagle.

Hen harrier were present throughout the winter period, with evidence of up to six individuals utilising the area for foraging and / or roosting. Birds were observed utilising two separate areas for roosting. Simultaneous observations indicated that both roosts were in use on at least two occasions.

All species excluding goosander, great skua, greylag, pink-footed goose and teal are listed on Annex 1 of the Birds Directive, whilst four species are on Schedule 1,1A or A1 of the Wildlife and Countryside Act (as amended), receiving special protection (black-throated diver, golden eagle, hen harrier and white-tailed eagle). Flights were recorded from four Lewis Peatlands SPA qualifying species (black-throated diver, golden eagle, golden plover and merlin).

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1. Introduction

1.1 Introduction

- 1.1.1 Stornoway Wind Farm Limited has submitted an application under section 36 of the Electricity Act (1989) (as amended) to construct and operate a wind farm currently anticipated to comprise up to 35 turbines with a generating capacity in excess of 50MW on the site of the Consented Stornoway Wind Farm. The application for the proposed wind farm scheme is hereafter referred to as the 'Proposed Development'.
- 1.1.2 The Consented Stornoway Wind Farm gained section 36 consent and deemed planning permission in September 2012 to construct and operate 36 wind turbines. In May 2015, an application was made under the Electricity Act 1989 to amend this consent with regard to the layout, output and size of the wind turbines, with this being granted in spring 2016. Stornoway Wind Farm currently has a consented maximum generating capacity of 180MW, with each turbine having an output of up to 5MW. A further direction to extend the commencement of development date to 06 September 2020 was granted in June 2017.
- 1.1.3 The site of the Consented Stornoway Wind Farm (hereafter referred to as the 'Site') is located to the south west of the town of Stornoway on the Isle of Lewis and centred on National Grid Reference (NGR) E 137149, N 933373.
- 1.1.4 The Proposed Development comprises a revised layout, with turbine tip heights of approximately 156m and 180m and turbine rotor diameters of potentially 136m and 150m respectively. The proposed blade tip heights and rotor diameters would maximise potential renewable energy generation at the Site.
- 1.1.5 Changes to the consented wind farm layout and / or turbine specifications could potentially have implications on the existing assessed ornithological impacts of the wind farm. Furthermore, the status of the baseline bird populations and flight activity patterns will have potentially changed since the original application. Therefore a comprehensive suite of survey work was initiated in October 2017 and continued until September 2019 to provide two years up to date baseline information.
- 1.1.6 Previous appendices providing details of surveys carried out for the first year were submitted as part of the Environmental Impact Assessment (**EIA**) (Wood, 2019) for the Proposed Development (**Appendix 8B** and **Appendix 8C**, Wood 2019).
- 1.1.7 This appendix presents methods and results of bird surveys carried out over the second non-breeding period (October 2018 – March 2019) and forms part of **Chapter 8 Ornithology** of the Additional Information (**AI**) submitted in support of the EIA for the Proposed Development. Methods and results of surveys carried out from April – September 2019 (representing the second breeding period) are presented in **AI Chapter 8, Appendix 8B**.
- 1.1.8 **Annex A** presents figures of flight activity of non-sensitive species, whilst figures for sensitive species are contained within **AI Appendix 8C: Confidential Appendix**. **Annex B** contains scientific names of all species referred to in this report, whilst **Annex C** and **Annex D** presents raw survey data and raw flight data.

1.2 Site Description

- 1.2.1 The Site is located approximately 1.5km west of the town of Stornoway, Isle of Lewis. It is centred at National Grid Reference (NGR) E 137149 N 933373. The Site area extends to approximately 1,700ha, although the wind farm infrastructure would occupy only a small part of the overall Site.
- 1.2.2 The topography of the Site ranges between 50 – 150m Above Ordnance Datum (AOD), with three hillocks within its northern, central and southern areas. The Site is dominated by blanket bog and associated mosses and heather, though there are some areas of woodland present. There are also a large number of water bodies on Site, both standing and flowing, none of which have any conservation designations.
- 1.2.3 Access to the Site is via the A859. The A858 runs through the northern part of the Site, and partly along the western boundary.
- 1.2.4 Other than the residential area of Stornoway to the east, the area surrounding the Site consists predominantly of boggy, undeveloped peatland. The Site is not subject to any environmental designations.
- 1.2.5 To the west of the Development Site is the Lewis Peatlands, which is designated as a Ramsar Site, Special Protection Area (SPA) and Special Area of Conservation (SAC) primarily on the basis of its blanket bog habitats and breeding bird populations.

2. Survey Methods

2.1 Vantage Point Surveys

- 2.1.1 Vantage Point (VP) watches were undertaken following the standard practices outlined in SNH guidance (2014) covering the period October 2018 to March 2019 inclusive. Locations were the same as those used during the October 2017 – September 2018 surveys (**AI Figure 8A.2.1**), with the exception of two locations. VP 6 and VP 7, located to the south west of the site boundary were excluded from the surveys as a large proportion of their viewshed fell outside of the proposed development boundary and 500m buffer. Any areas of their viewsheds that did fall within the proposed development boundary were covered by the viewsheds of VP 5 and VP 8.
- 2.1.2 The grid references for these locations are as follows:
- ▶ VP 1 – NB 39378 36606;
 - ▶ VP 2 – NB 36132 35739;
 - ▶ VP 3 – NB 38260 33600;
 - ▶ VP 4 – NB 39860 33719;
 - ▶ VP 5 – NB 35054 32180;
 - ▶ VP 8 – NB 37516 30748.
- 2.1.3 Following the recommended methodology, the altitude of the birds were recorded at 15 second intervals, and flights were split across four height bands, with Potential Collision Height (PCH) covering bands B and C:
- ▶ A: <20m;
 - ▶ B: 20-100m;
 - ▶ C: 100-200m;
 - ▶ D: 200m >
- 2.1.4 As per surveys carried out in 2009-2010 surveys, target species were identified as:
- ▶ Geese and swans
 - ▶ Golden eagle
 - ▶ White-tailed eagle
 - ▶ Merlin
 - ▶ Hen harrier
 - ▶ Peregrine
 - ▶ Short-eared owl
 - ▶ Waders
 - ▶ Skuas
- 2.1.5 Given the proximity of the Lewis Peatlands SPA / Ramsar sites and the large range of target species identified in the area the time spent watching from each vantage point totalled 54 hours at each location over the period October 2018 – March 2019, thus providing a robust baseline for assessment of these key sensitive receptors. Effort was made to ensure that the data was representative and therefore dusk, dawn and daytime watches were all undertaken. Survey effort, including a summary of weather conditions, is presented in **Table C.1, Annex C**.

2.2 Hen Harrier Roost Monitoring and Search

Roost Search

- 2.2.1 Given the presence of hen harriers throughout the winter period across the survey area, additional searches were carried out in February 2019 within a 2km buffer of the Site Boundary in habitats that presented similar characteristics to those areas where hen harrier had already been recorded

roosting (tussocky juncus habitats) in order to determine if alternative roost locations were being utilised.

- 2.2.2 Based on aerial photography, Phase 1 habitat classification and NVC data and knowledge of the site, there were several areas identified where suitable habitats were present (**AI Figure 8A.2.2**). Searches consisted of checking these areas for characteristic roosting platforms (splayed out plant stems / grass / rush tussocks), faecal droppings, pellets or feathers.

Roost Monitoring

- 2.2.3 Roost surveys were carried out from two different locations, covering two areas where hen harrier were observed to be utilising habitats for roosting (**AI Appendix 8C: Confidential Appendix AI Figure 8C.2.5**). A total of 13 surveys (ranging between 2-3 hours duration each) were carried out simultaneously at both locations in order to determine if different birds were using the two roosts at the same time or if the same birds were changing roost locations on different days.

Roost 1

- 2.2.4 Following confirmation of hen harrier utilising habitats on site during winter surveys in 2017-2018, roost monitoring surveys were established at the same location in order to determine the on-going status and development of these roost locations. The original roost locations fell wholly within the viewshed of the standard VP 3 location, and although were already covered by 9 hours survey effort a month from standard VP watches, additional survey effort was carried out specifically covering the dawn and dusk periods, either starting c.45 minutes before scheduled sunrise times, or finishing c.30 minutes after scheduled sunset times. A total of 54 hours twenty minutes survey effort was carried out between October 2018 and March 2019, each survey lasting up to a maximum of three hours, and details are summarised in **Table C.2, Annex C**.

Roost 2

- 2.2.5 In addition, observations made during monitoring and other surveys in November 2018 indicated that there appeared to be a second roosting location, this being located outside of the site boundary. Therefore, a second observation point was established from which to monitor roosting activity at this second location. A total of 32 hours five minutes survey effort was carried out between November 2018 and March 2019, each survey lasting up to a maximum of three hours, and details are summarised in **Table C.2, Annex C**.

3. Results

3.1 Vantage Point Surveys

3.1.1 A summary of all flight activity recorded from VP surveys is shown in **Table 8A.3.1**. Note this accounts for multiple birds recorded on a single flight line (e.g. four birds recorded for 30 seconds = 120 seconds). The table indicates whether the bird is a qualifying feature of the Lewis and Peatlands SPA, is listed on Annex 1 of the Birds Directive, Schedule 1 of the Wildlife and Countryside Act (as amended) (W.C.A.) or is a species of principal importance on the Scottish Biodiversity list (SBL). The species status on the Birds of Conservation Concern List is displayed as green, amber or red (BoCC) (Eaton et al. 2015). Species have been arranged alphabetically as opposed to taxonomically for convenience.

3.1.2 Full details of all flight data are provided in **Table D.1, Annex D**.

Table 8A.3.1 Seconds Activity by Height Band from VP Flight Data October 2018-March 2019

	Number of flights	Status	Band A (0-20 m)	Band B and C (20-100 m)	Band D (200 m+)	Proportion of time at PCH %
Black-throated diver	2	Lewis Peatlands SPA / Ramsar W.C.A. Schedule 1 Scottish Biodiversity List (SBL) BoCC Amber list	-	60	-	100
Barnacle goose	1	Annex 1 Birds Directive SBL BoCC Amber List	-	1,170	-	100
Golden eagle*	57	Annex 1 Lewis Peatlands SPA / Ramsar W.C.A Schedule 1,1A and A1 ¹ SBL. BoCC Green List	1,745	13,585	135	88
Golden plover	8	Annex 1 Lewis Peatlands SPA / Ramsar SBL BoCC Green List	480	795	-	68
Goosander	3	BoCC Green List	195	120	-	38
Great skua	2		60	-	-	0
Greenland white-fronted goose	1	Annex 1 Birds Directive SBL BoCC Red List	960	240	-	20
Greylag goose	14	BoCC Amber list	1,770	9,060	-	84

¹ Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) makes it an offence to recklessly or intentionally disturb any Schedule 1 species while they are nest building, or at a nest containing eggs or young, or to disturb the dependant young of such birds. Further protection is given to birds listed on Schedule 1A (it is an offence **at any time** to harass a white-tailed eagle, golden eagle, hen harrier or red kite) and Schedule A1 (it is an offence to damage a nest of a white-tailed eagle or golden eagle)

	Number of flights	Status	Band A (0-20 m)	Band B and C (20-100 m)	Band D (200 m+)	Proportion of time at PCH %
Hen harrier	34	Annex 1 Birds Directive Schedule 1A SBL, BoCC Red List	3,479	555	-	14
Merlin	5	Annex 1 Birds Directive SBL BoCC Red List	165	90	-	35
Peregrine	1	Annex 1 Birds Directive W.C.A. Schedule 1 SBL	-	15	30	33
Pink-footed goose	1	BoCC Amber list	-	4,680	-	100
Teal	1	BoCC Amber list	30	-	-	0
White-tailed eagle	24	Annex 1 Birds Directive W.C.A. Schedule 1, 1A and A1 SBL BoCC Red List	485	2,280	120	79
Whooper swan	4	Annex 1 Birds Directive SBL	6,120	885	-	12

The defined breeding season for golden eagle, golden plover, greenshank, peregrine and white tailed eagle all fall inside the reporting period of this document and so the correct breeding season status has been identified for these species.

- 3.1.3 Flights were recorded from a total of 15 species during VP surveys. The most frequently recorded species were golden eagle, golden plover, greylag goose, hen harrier and white-tailed eagle:
- ▶ Fifty seven golden eagle flights were recorded during VP surveys, with 88% of recorded time occurring at PCH;
 - ▶ Golden plover was recorded in flight eight times, with 68 % of flight activity at PCH;
 - ▶ Greylag goose was recorded in flight nine times, and 84 % of those flights were recorded at PCH;
 - ▶ Hen harrier was recorded in flight on 34 occasions. Time at PCH amounted to 14 % of all flight activity;
 - ▶ White-tailed eagle were recorded on 24 occasions, with 79 % of those flights at PCH;
- 3.1.4 Due to the low levels of flight activity recorded, the following species are not discussed further: black-throated diver, barnacle goose, goosander, great skua, Greenland white-fronted goose, merlin, peregrine, pink-footed goose, teal and whooper swan.
- 3.1.5 Figures showing the distribution of flight activity for sensitive species associated with breeding season nest locations (golden eagle) (marked * in **Table 8A.3.1**) are presented within **AI Appendix 8C: Confidential Appendix AI Figure 8C.2.2**.
- ▶ The majority of golden eagle activity took place in two distinct areas, to the south west and to the north. Activity in the south west was mostly recorded outside of the 500m buffer and is likely attributable to a territory located to the south of the site - observations indicated that the majority of activity in this area were of adult birds, either singly or in pairs. Activity

recorded to the north was predominantly recorded within the 500m buffer and was likely associated with a second territory to the north of the site.

3.1.6

AI Figures 8A.3.1a-d shows the distribution of flights for golden plover, greylag goose, hen harrier and white-tailed eagle:

- ▶ Golden plover flights were recorded at the northern and southern areas of the survey area (**AI Figure 8A.3.1a**);
- ▶ Greylag goose flights were scattered across the site, although approximately 50% (three) were orientated in an east-west direction following the route of the A858 (Pentland Road) across the Site (**AI Figure 8A.3.1b**);
- ▶ Hen harrier VP flight activity was recorded across the Site and observations indicated that the survey area was being used by at least three different birds, comprising an adult female, an adult male and at least one unaged (either female/immature) ringtail (**AI Figure 8A.3.1c**);
- ▶ White-tailed eagle activity was also scattered across the survey area (**AI Figure 8A.3.1d**).

3.1.7

Final species maps prepared for presentation within this report and confidential annex followed the following conventions:

- ▶ Flight lines split by height band:
 - Green = below 20m;
 - Red = 20-200m;
 - Blue = 200m +.

3.2 Hen Harrier Roost Monitoring and Search

Roost Search

3.2.1

Apart from the two known roosting areas (**AI Appendix 8C: Confidential Appendix AI Figure 8C.2.5**) there was no evidence of roosting signs recorded at any other areas of suitable habitat searched between 22nd – 23rd February 2019.

Roost Monitoring

3.2.2

A total of 51 hen harrier flights were recorded during roost surveys (see **AI Appendix 8C: Confidential Appendix AI Figure 8C.2.6**). **Table D.2, Annex D** provides a summary of all flight lines recorded during the survey period. **Table 8A3.2** shows the activity recorded at each roost location.

3.2.3

A minimum total of six separate birds were observed during roost monitoring, consisting of an adult female, two adult males and three ringtails.

3.2.4

Observations between October and March indicated that Roost 1 was used by at least three different birds, comprising an adult male and at least two ringtails. Roost 2 appeared to be utilised by at least two ringtails plus an adult male.

3.2.5

Simultaneous observations indicated that both roosts were in use at the same time on two occasions. On the 21st November, an adult male was seen roosting at Roost 1 whilst two ringtails were observed at Roost 2. On the 5th December, an adult male was seen using Roost 1 with an additional adult male and two ringtails at Roost 2.

Table 8A.3.2 Hen Harrier Flight Activity Recorded during Hen Harrier Roost Monitoring Surveys

	Total number of flights recorded	Time (seconds) at height band A (0-20 m)	Time (seconds) at height Band B (20-100 m)	Time (seconds) at height Band C (100-200 m)	Time (seconds) at height band D (200 m+)	Proportion of time at risk height % (Bands B and C)
Roost 1	67	5,400	660	-	-	11
Roost 2	15	1,510	330	-	-	18

4. Conclusion

Survey results show that 15 species were recorded during VP surveys. The most frequently recorded species were golden eagle, golden plover, greylag goose, hen harrier and white-tailed eagle. All species excluding goosander, great skua, greylag, pink-footed goose and teal are listed on Annex 1 of the Birds Directive, whilst four species are on Schedule 1,1A or A1 of the Wildlife and Countryside Act (as amended), receiving special protection (black-throated diver, golden eagle, hen harrier and white-tailed eagle). Flights were recorded from four Lewis Peatlands SPA qualifying species (black-throated diver, golden eagle, golden plover and merlin).

Hen harrier continue to use the area during the non-breeding period, with evidence of up to six individuals utilising the area for foraging and roosting, utilising two different roosting locations. The more heavily used site was located within the Site boundary whilst a second satellite location was located c 1.5km from the site boundary.

References

Challis, A., Wilson, M.W., Holling, M., Roos, S., Stevenson, A. & Stirling-Aird, P. (2018). Scottish Raptor Monitoring Scheme Report 2016. BTO Scotland, Stirling.

Lewis Wind Power (2016a). Stornoway Wind Farm – Ornithology Desk-study and Survey Scope. TUV SUD PMSS.

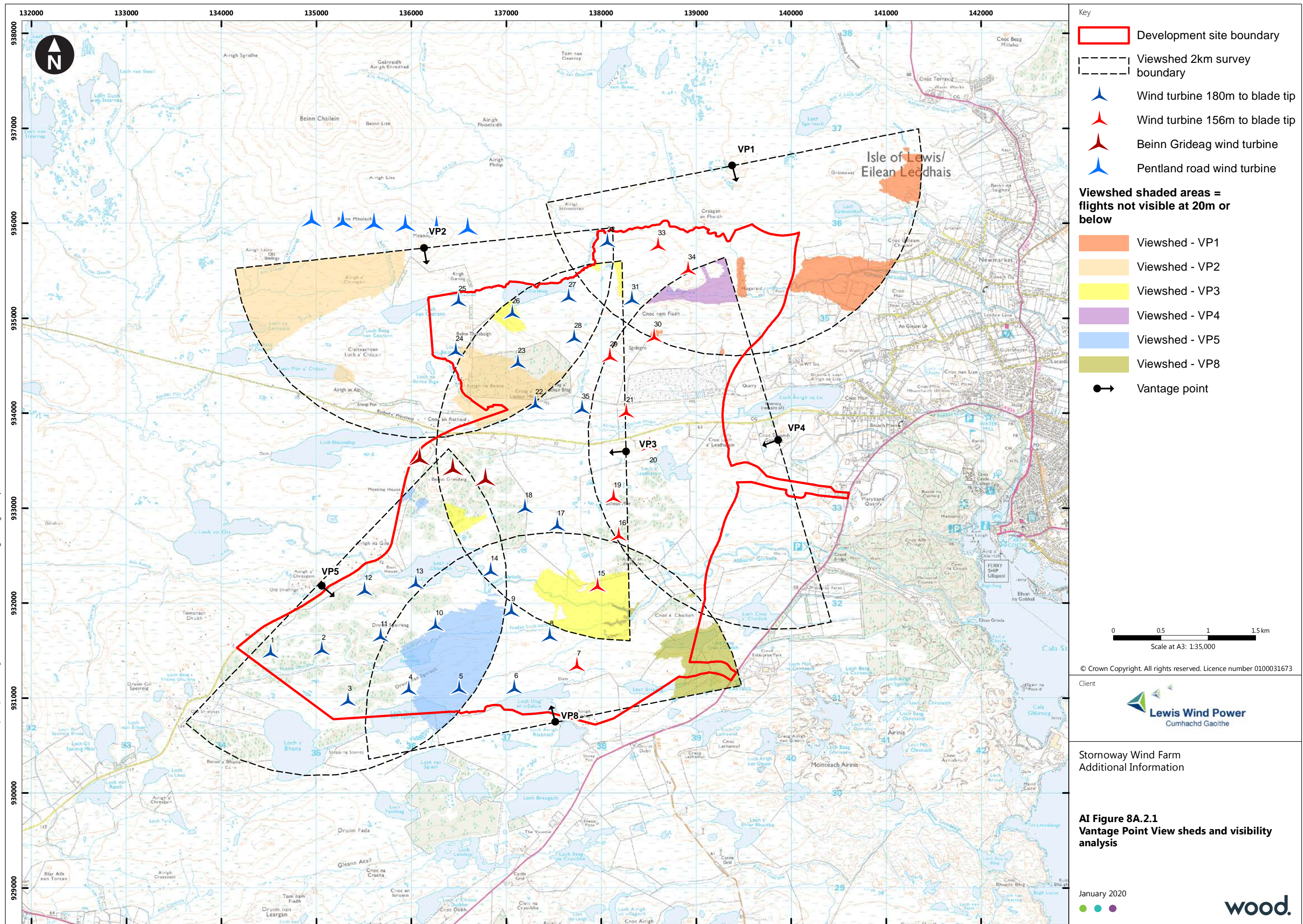
Lewis Wind Power (2016b). Stornoway Wind Farm Ornithology Field Survey Results (Winter 2015/2016). TUV SUD PMSS.

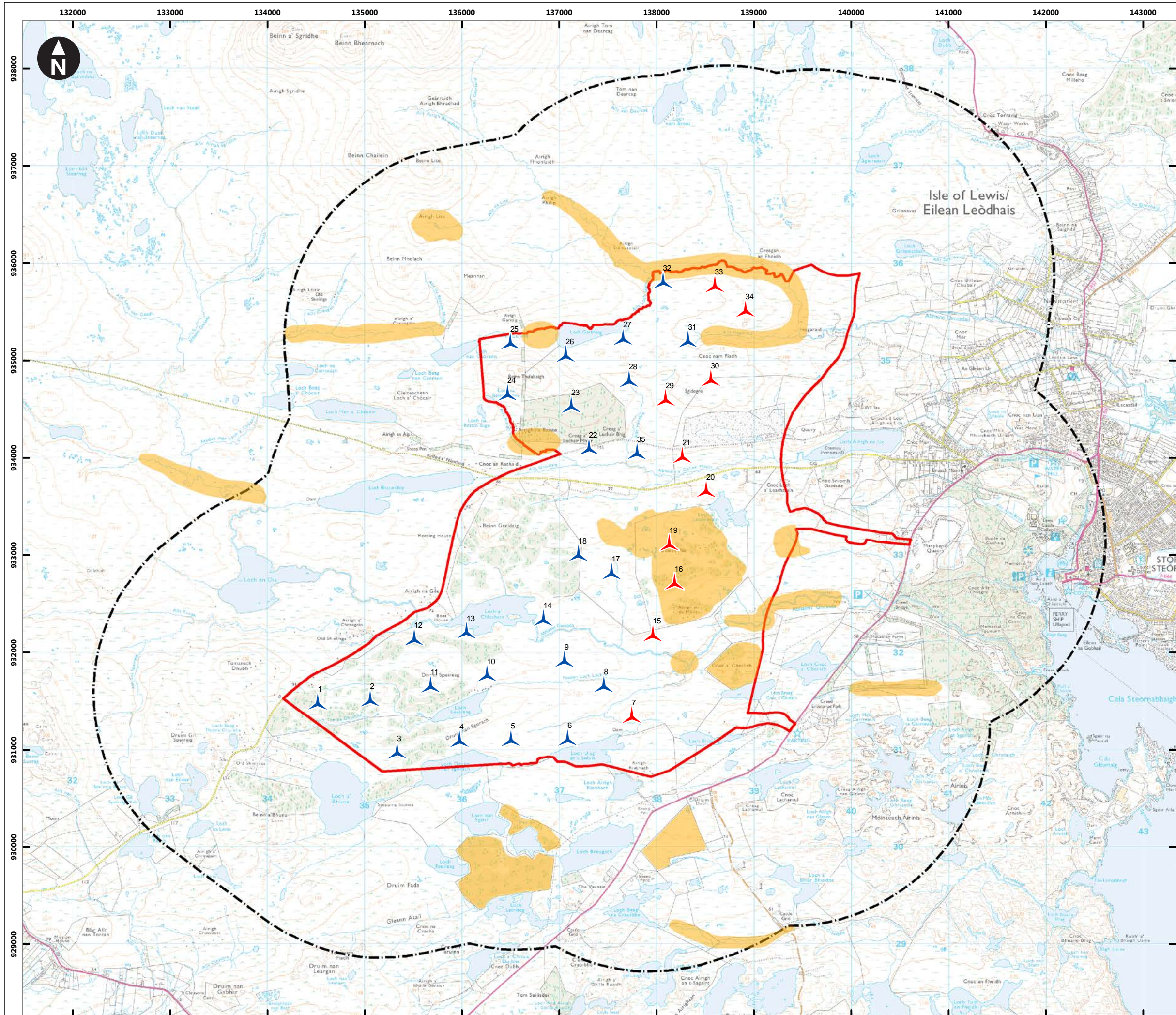
Lewis Wind Power Ltd (2016c) Stornoway Wind Farm Ornithology Field Survey Results Spring/Summer 2016. AMECFW.

Annex A

Figures







- Key
- Development site boundary
 - 2km Breeding raptor survey boundary
 - ▲ Wind turbine 180m to blade tip
 - ▲ Wind turbine 156m to blade tip
 - Hen harrier search areas

0 0.5 1 1.5 km
Scale at A3: 1:37,626

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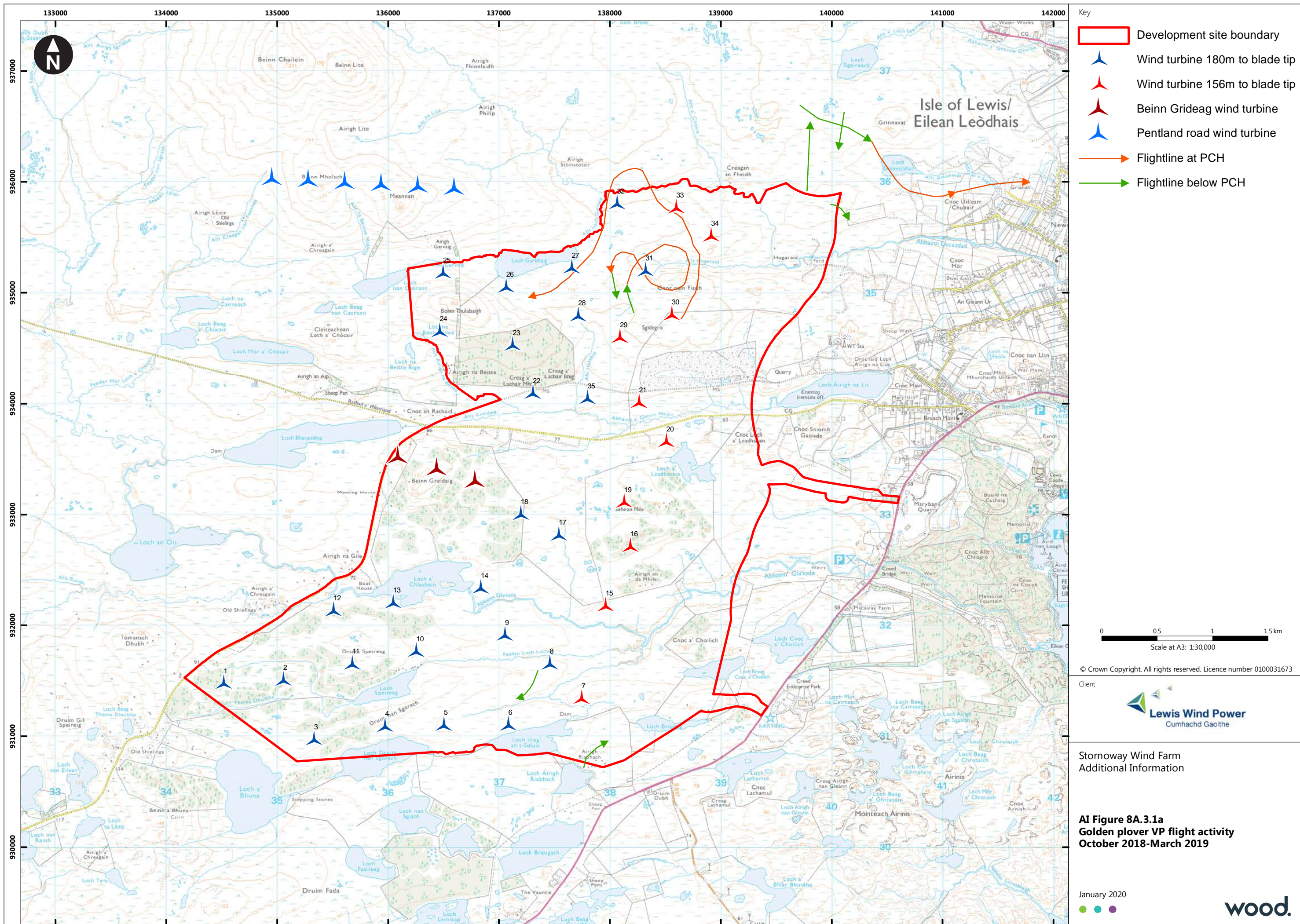
Stormoway Wind Farm
Additional Information

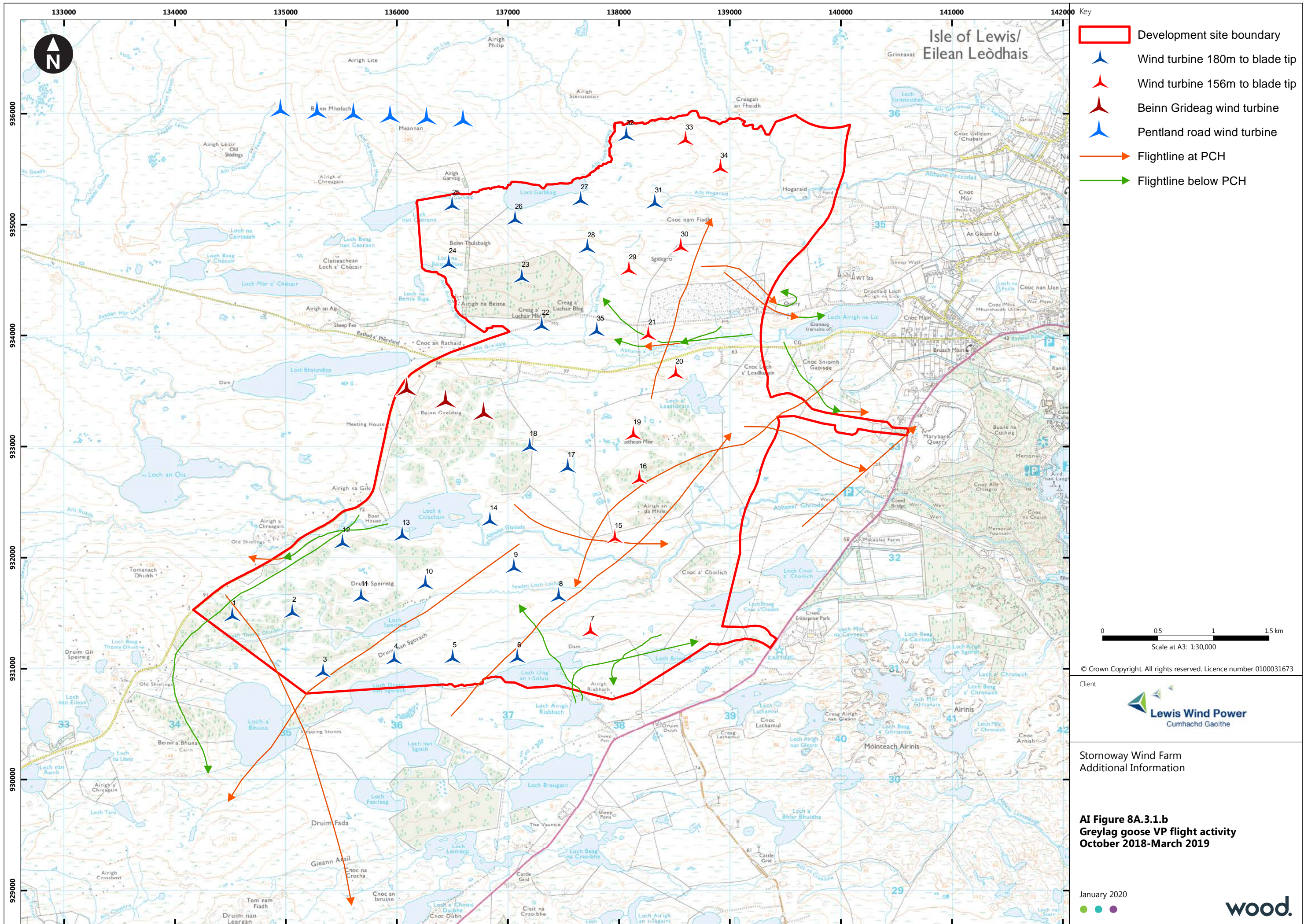
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Hen harrier roost search areas 2018-19

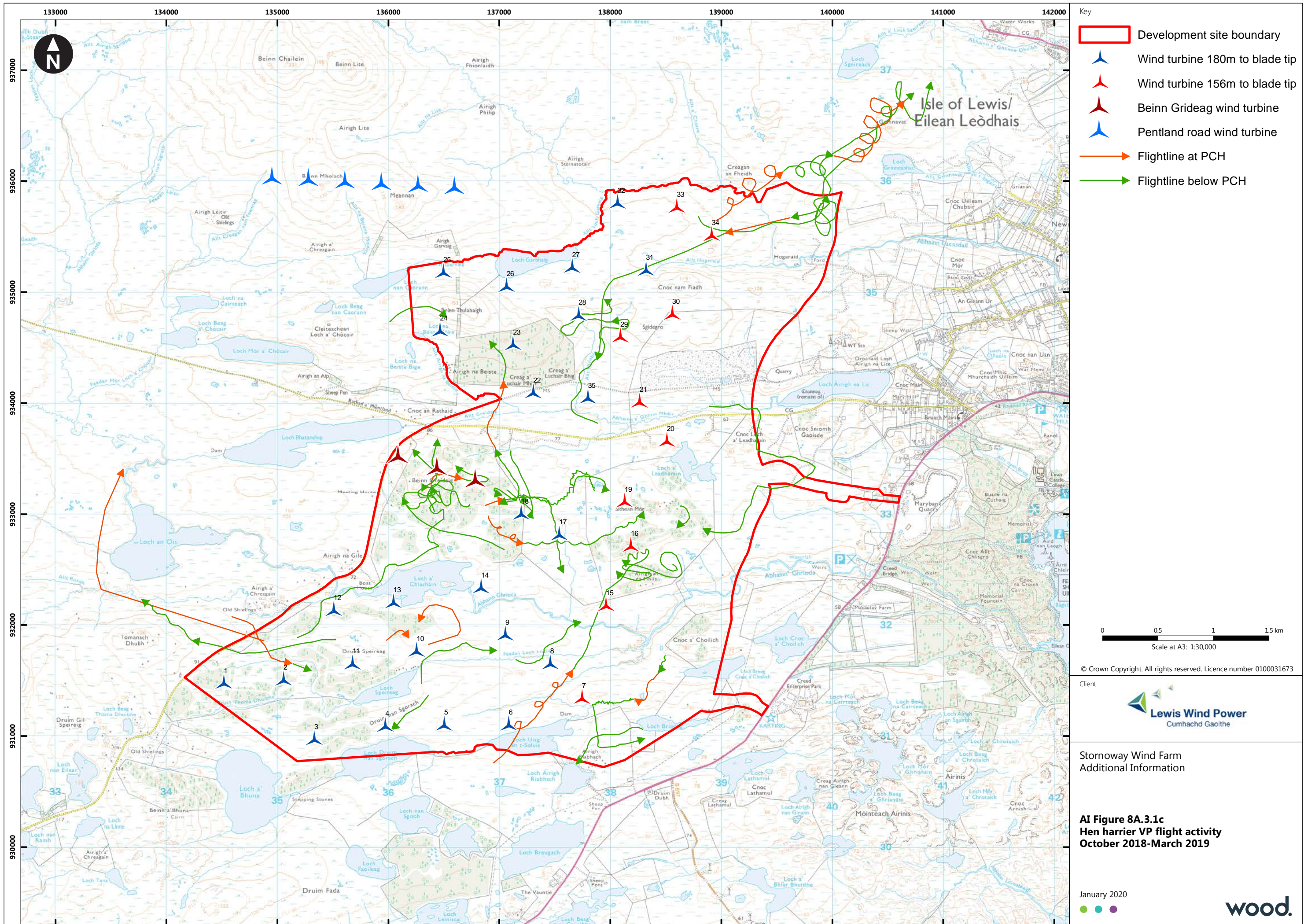
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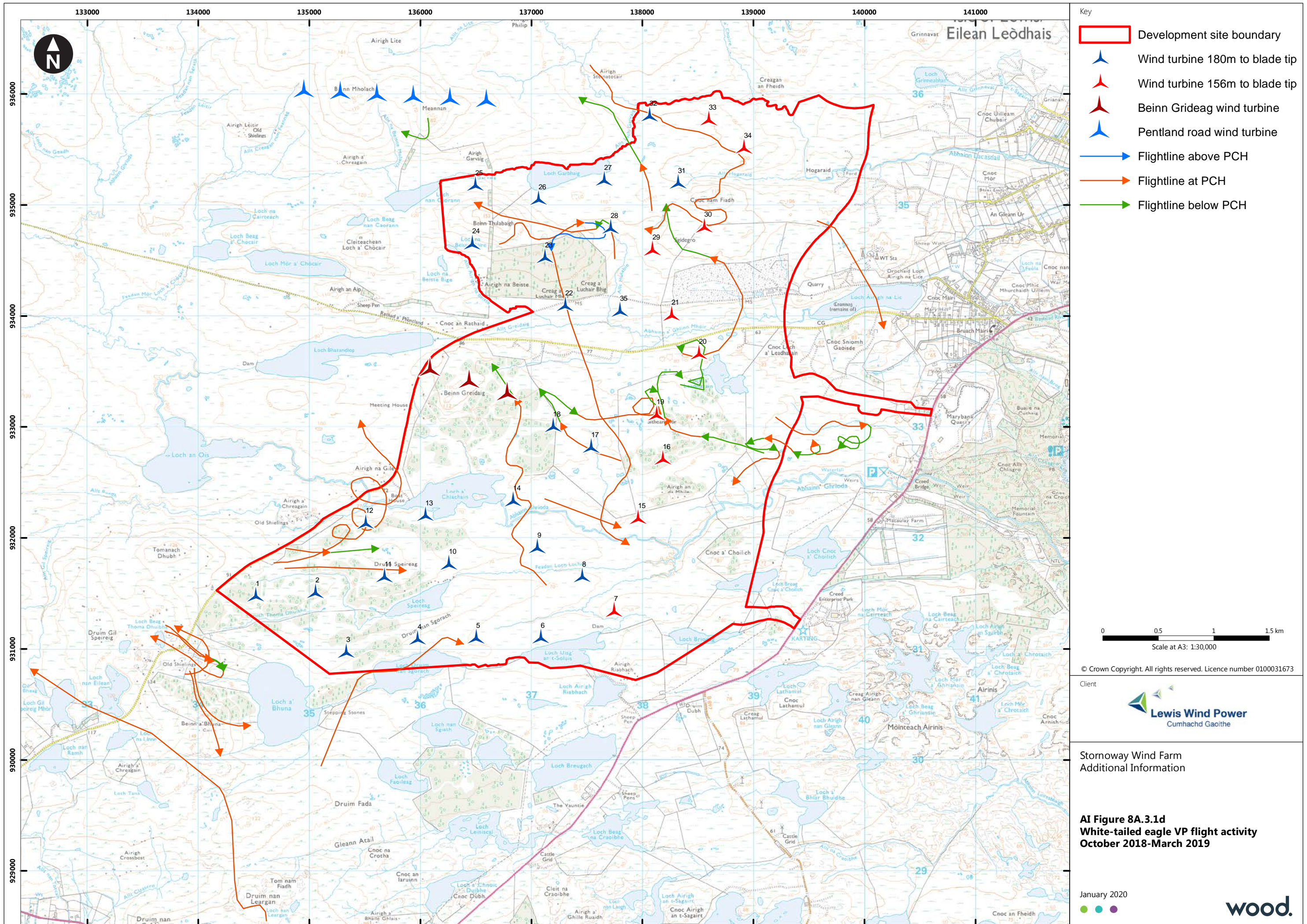


wood.









Annex B

Scientific Names



Species have been arranged alphabetically as opposed to taxonomically for convenience.

Species	Scientific name
Black-throated diver	Gavia arctica
Barnacle goose	Branta leucopsis
Golden eagle	Aquila chrysaetos
Golden plover	Pluvialis apricaria
Goosander	Mergus merganser
Great skua	Stercorarius skua
Greenland white-fronted goose	Anser albifrons
Greylag goose	Anser anser
Hen harrier	Circus cyaneus
Merlin	Falco columbarius
Peregrine	Falco peregrinus
Pink-footed goose	Anser brachyrhynchus
Teal	Anas crecca
White tailed eagle	Haliaeetus albicilla
Whooper swan*	Cygnus cygnus



Annex C

Survey Effort



Table C.1 Vantage Point Survey Effort

Date	VP	Surveyor	Start	Finish	Duration	Weather summary (i.e. Dry, Wind F3-5 N-W, Cloud Cover 1-3/8, Visibility >3km, Temp 15-18c)
22/10/2018	8	PRO	12:30	15:30	03:00	Dry, Wind F7-8 SW, Cloud Cover 7-8/8, Visibility >3km, Temp 9c
24/10/2018	5	PRO	10:00	13:00	03:00	Drizzle, Wind F5 W, Cloud Cover 8/8, Visibility 1-3km to >3km, Temp 8c
25/10/2018	4	PRO	08:20	11:20	03:00	Drizzle, Wind F3-4 W, Cloud Cover 8/8, Visibility >3km, Temp 7-6c
26/10/2018	2	PRO	08:55	11:55	03:00	Light showers, Wind F5 N, Cloud Cover 7-5/8, Visibility >3km, Temp 2-3c
30/10/2018	2	PRO	11:20	14:20	03:00	Dry, Wind F5-6 SE, Cloud Cover 6/8, Visibility >3km, Temp 4c
31/10/2018	8	PRO	09:20	12:20	03:00	Light showers, Wind F4 S, Cloud Cover 3-4/8, Visibility >3km, Temp 2-4c
01/11/2018	3	PRO	08:50	11:50	03:00	Dry, Wind F1-2 SW, Cloud Cover 2-4/8, Visibility >3km, Temp -1-2c
01/11/2018	5	PRO	13:20	16:20	03:00	Dry, Wind F1-3 SW, Cloud Cover 3-4/8, Visibility >3km, Temp 4-8c
02/11/2018	5	CBR	08:45	11:45	03:00	Dry, Wind F1-2 S, Cloud Cover 3-4/8, Visibility >3km, Temp 3-6c
02/11/2018	2	CBR	13:30	16:30	03:00	Heavy showers, Wind F4-6 S, Cloud Cover 8/8, Visibility >3km to 1-3km, Temp 8c
03/11/2018	8	CBR	11:10	14:10	03:00	Light showers, Wind F6-4 SW, Cloud Cover 8-3/8, Visibility >3km to 1-3km, Temp 10-12c
05/11/2018	3	CBR	09:30	12:30	03:00	Dry, Wind F1 SW, Cloud Cover 6/8, Visibility 1-3km, Temp 8c

Date	VP	Surveyor	Start	Finish	Duration	Weather summary (i.e. Dry, Wind F3-5 N-W, Cloud Cover 1-3/8, Visibility >3km, Temp 15-18c)
05/11/2018	4	CBR	13:15	16:15	03:00	Light showers, Wind F1-2 S, Cloud Cover 8-4/8, Visibility 1-3km to >3km, Temp 8-5c
06/11/2018	4	CBR	09:30	12:30	03:00	Dry, Wind F2-1 SW, Cloud Cover 6-8/8, Visibility >3km, Temp 10-9c
06/11/2018	3	CBR	13:30	16:30	03:00	Light showers, Wind F3-4 SW, Cloud Cover 8-7/8, Visibility >3km, Temp 10-9c
07/11/2018	8	CBR	08:20	11:20	03:00	Light to heavy showers, Wind F2 E, Cloud Cover 8/8, Visibility 1-3km to >3km, Temp 9c
07/11/2018	5	CBR	12:20	15:20	03:00	Light to heavy showers, Wind F4 E, Cloud Cover 8-5/8, Visibility >3km, Temp 11c
18/11/2018	4	YBR	09:10	12:10	03:00	Dry, Wind F0-1 SE, Cloud Cover 0/8, Visibility >3km, Temp 3-11c
18/11/2018	3	YBR	13:00	16:00	03:00	Dry, Wind F1 SE, Cloud Cover 0/8, Visibility >3km, Temp 11-5c
19/11/2018	1	YBR	08:10	11:10	03:00	Dry, Wind F1 SE, Cloud Cover 0/8, Visibility >3km, Temp -1c to 4c
19/11/2018	1	YBR	11:40	14:40	03:00	Dry, Wind F1-2 SE, Cloud Cover 0/8, Visibility >3km, Temp 9-8c
19/11/2018	5	PCL	10:00	13:00	03:00	Dry, Wind F1-2 E-SE, Cloud Cover 0/8, Visibility >3km, Temp 2-7c
19/11/2018	5	PCL	13:30	16:30	03:00	Dry, Wind F2-3 E-SE, Cloud Cover 0-1/8, Visibility >3km, Temp 8-3c
20/11/2018	8	PCL	09:50	12:50	03:00	Dry, Wind F3-4 E, Cloud Cover 6-3/8, Visibility >3km, Temp 7c
20/11/2018	2	YBR	09:15	12:15	03:00	Dry, Wind F3 SE, Cloud Cover 6-4/8, Visibility >3km, Temp 7c

Date	VP	Surveyor	Start	Finish	Duration	Weather summary (i.e. Dry, Wind F3-5 N-W, Cloud Cover 1-3/8, Visibility >3km, Temp 15-18c)
21/11/2018	2	PCL	10:40	13:40	03:00	Heavy showers, Wind F5-6 E, Cloud Cover 8-7/8, Visibility >3km, Temp 8c
21/11/2018	8	YBR	10:10	13:10	03:00	Dry, Wind F5 E, Cloud Cover 7-6/8, Visibility >3km, Temp 7-9c
22/11/2018	3	PCL	09:05	12:05	03:00	Dry, Wind F1-2 E-SE, Cloud Cover 1/8, Visibility >3km, Temp 5-7c
22/11/2018	1	PCL	13:10	16:10	03:00	Dry, Wind F1 E, Cloud Cover 2-5/8, Visibility >3km, Temp 7c
03/12/2018	1	PRO	12:25	15:25	03:00	Heavy showers, Wind F4-5 NW, Cloud Cover 3-5/8, Visibility >3km, Temp 2-3c
04/12/2018	4	PRO	09:15	12:15	03:00	Dry, Wind F1-3 NW, Cloud Cover 3-4/8, Visibility >3km, Temp -1/1c
04/12/2018	3	PRO	12:50	15:50	03:00	Light showers, Wind F3 NW, Cloud Cover 3-4/8, Visibility >3km, Temp 0-1c
05/12/2018	2	PRO	09:15	12:15	03:00	Dry, Wind F2-3 NE, Cloud Cover 2-4/8, Visibility >3km, Temp -1/0c
05/12/2018	4	YBR	08:40	11:40	03:00	Dry, Wind F1 SW-SE, Cloud Cover 1-7/8, Visibility >3km, Temp -1/2c
06/12/2018	4	YBR	09:45	12:45	03:00	Heavy showers, Wind F3-4 SW, Cloud Cover 7/8, Visibility >3km, Temp 9-10c
06/12/2018	5	PRO	09:50	12:50	03:00	Heavy showers, Wind F5-6 SW, Cloud Cover 7-8/8, Visibility >3km, Temp 4c
07/12/2018	3	YBR	11:40	14:40	03:00	Light showers, Wind F5 W, Cloud Cover 7-8/8, Visibility >3km, Temp 6c
08/12/2018	3	YBR	08:50	11:50	03:00	Light showers, Wind F2-4 NW, Cloud Cover 4-8/8, Visibility >3km, Temp 5-8c

Date	VP	Surveyor	Start	Finish	Duration	Weather summary (i.e. Dry, Wind F3-5 N-W, Cloud Cover 1-3/8, Visibility >3km, Temp 15-18c)
08/12/2018	8	YBR	12:40	15:40	03:00	Dry, Wind F1-2 NE, Cloud Cover 6-8/8, Visibility >3km, Temp 7-8c
09/12/2018	1	YBR	08:50	11:50	03:00	Drizzle, Wind F0-3 N, Cloud Cover 4-8/8, Visibility >3km, Temp 4-6c
09/12/2018	4	YBR	12:50	15:50	03:00	Light showers, Wind F2-3 N, Cloud Cover 3-4/8, Visibility >3km, Temp 4-6c
10/12/2018	3	YBR	09:10	12:10	03:00	Dry, Wind F1-2 NE-SE, Cloud Cover 5-8/8, Visibility >3km, Temp 3-5c
17/12/2018	1	NRO	11:30	14:30	03:00	Dry, Wind F6 SE, Cloud Cover 8/8, Visibility >3km, Temp 6c
17/12/2018	5	EDO	12:35	15:35	03:00	Dry, Wind F5 S, Cloud Cover 8/8, Visibility >3km, Temp 7c
17/12/2018	8	EDO	09:00	12:00	03:00	Dry, Wind F3, Cloud Cover 5/8, Visibility >3km, Temp 7c
19/12/2018	1	EDO	09:20	12:20	03:00	Dry, Wind F5 S, Cloud Cover 7/8, Visibility >3km, Temp 7c
19/12/2018	5	NRO	09:15	12:15	03:00	Light showers, Wind F5 SE, Cloud Cover 7/8, Visibility >3km, Temp 7c
20/12/2018	2	EDO	09:05	12:05	03:00	Light showers, Wind F3 S, Cloud Cover 6/8, Visibility >3km, Temp 6c
20/12/2018	2	EDO	12:35	14:05	01:30	Light-heavy showers, Wind F4 S, Cloud cover 8/8, Visibility >3km, Temp 6c
20/12/2018	4	NRO	08:50	11:50	03:00	Dry, Wind F4 SE, Cloud cover 7/8, Visibility >3km, Temp 7c
20/12/2018	8	NRO	12:30	14:30	02:00	Dry-heavy showers, Wind F4 SE, Cloud cover 8/8, Visibility 1-3km, Temp 7c

Date	VP	Surveyor	Start	Finish	Duration	Weather summary (i.e. Dry, Wind F3-5 N-W, Cloud Cover 1-3/8, Visibility >3km, Temp 15-18c)
21/12/2018	3	EDO	09:00	12:00	03:00	Dry, Wind F1 SW, Cloud Cover 7-3/8, Visibility >3km, Temp 1-4c
21/12/2018	4	EDO	12:30	15:30	03:00	Dry, Wind F1 SW, Cloud Cover 2/8, Visibility >3km to 1-3km, Temp 4c
14/01/2019	5	PRO	14:45	16:15	01:30	Dry, Wind F4 W, Cloud Cover 8/8, Visibility >3km, Temp 3c
14/01/2019	2	PRO	11:15	14:15	03:00	Dry, Wind F3 NW, Cloud Cover 3-8/8, Visibility >3km, Temp 3c
15/01/2019	5	PRO	09:30	11:30	02:00	Drizzle to heavy showers, Wind F3 SW, Cloud Cover 8/8, Visibility 1-3km - >3km, Temp 6-7c
16/01/2019	3	PRO	14:00	16:00	02:00	Heavy showers, Wind F4 SW, Cloud Cover 8/8, Visibility 1-3km - >3km, lying snow, Temp 1c
17/01/2019	4	PRO	09:00	12:00	03:00	Dry, Wind F3-4 N, Cloud Cover 3-5/8, Visibility >3km, lying snow, Temp -1c
17/01/2019	8	PRO	12:45	15:45	03:00	Dry, Wind F1-2 N, Cloud Cover 5-6/8, Visibility >3km, lying snow, Temp 0-1c
28/01/2019	1	NRO	13:00	16:00	03:00	Light showers, Wind F4 SW, Cloud cover 5/8, Visibility >3km, temp 1c. snow/ground frost
29/01/2019	8	NRO	09:25	12:25	03:00	Dry, Wind F3 SW, Cloud cover 3/8, Visibility >3km, temp 1c, all day frost/snow
30/01/2019	8	NRO	10:10	13:10	03:00	Light showers, Wind F3 SW, Cloud cover 5/8, visibility >3km, temp 1c, all day frost/snow
31/01/2019	8	NRO	08:35	11:35	03:00	Dry, Wind F2 N, Cloud cover 2/8, visibility >3km, temp -3c, all day frost/snow
25/01/2019	1	YBR	08:40	11:40	03:00	Dry, Wind F1-2 SW, Cloud 2-4/8, Visibility >3km, temp 3-6c

Date	VP	Surveyor	Start	Finish	Duration	Weather summary (i.e. Dry, Wind F3-5 N-W, Cloud Cover 1-3/8, Visibility >3km, Temp 15-18c)
25/01/2019	1	YBR	12:10	15:10	03:00	Dry, Wind F4 SW, Cloud 2-7/8, Visibility >3km, temp 6-7c
26/01/2019	5	YBR	08:40	09:40	01:00	drizzle-heavy rain, Wind F4-6 NE, Cloud 8/8, Visibility >3km, temp 2c
27/01/2019	2	YBR	08:40	11:40	03:00	Dry, Wind F4-5 NW, Cloud 2-4/8, Visibility >3km, temp 6-7c
27/01/2019	2	YBR	13:45	16:45	03:00	Dry, Wind F4 NW, Cloud 2/8, Visibility >3km, temp 3c
28/01/2019	8	YBR	13:40	16:40	03:00	Light showers, Wind F3 SW, Cloud cover 2-8/8, Visibility >3km, temp 2-3c
28/01/2019	3	YBR	09:20	12:20	03:00	Dry, Wind F3 SW, Cloud cover 5-8/8, visibility >3km, temp 1-2c, frost/snow
29/01/2019	1	YBR	09:50	12:50	03:00	Dry with heavy shower at end, Wind F2 NW, Cloud 1-4/8, vis >3km, frost/snow, temp -3c to 1c
30/01/2019	1	YBR	10:00	13:00	03:00	Dry, Wind F1 NW, Cloud 5-8/8, Visibility >3km, temp 1-2c
31/01/2019	1	YBR	08:50	11:50	03:00	Dry, Wind F1 NE, Cloud 0-4/8, Visibility >3km, temp -6 to -4c, frost/snow
31/01/2019	4	YBR	14:00	17:00	03:00	Dry, Wind F2 NE, Cloud 0-2/8, Visibility >3km, temp 1-2c, frost/snow
24/01/2019	5	YBR	13:50	15:20	01:30	Dry, Wind F0, Cloud 6/8, Visibility >3km, frost, temp 1-2c
24/01/2019	3	YBR	15:40	16:40	01:00	Dry, Wind F0, Cloud 8/8, Visibility >3km, frost, temp 1-2c
11/02/2019	2	YBR	15:45	17:45	02:00	Dry, Wind F2-4 SW, Cloud 8/8, Visibility >3km-1-3km, temp 4-5c

Date	VP	Surveyor	Start	Finish	Duration	Weather summary (i.e. Dry, Wind F3-5 N-W, Cloud Cover 1-3/8, Visibility >3km, Temp 15-18c)
11/02/2019	8	YBR	14:05	15:05	01:00	Dry, Wind F2-3 SW, Cloud 8/8, Visibility >3km-1-3km, temp 5-6c
12/02/2019	5	YBR	08:15	11:15	03:00	Dry, Wind F5-7 SW Cloud 3-6/8, Visibility >3km, temp 10-11c
12/02/2019	3	YBR	14:15	17:15	03:00	Dry, Wind F5-7 SW Cloud 3-6/8, Visibility >3km, temp 10-11c
13/02/2019	5	YBR	14:15	17:15	03:00	Light showers, Wind F6-7 SW Cloud 8/8, Visibility >3km-1-3km, temp 9-10c
14/02/2019	2	YBR	08:10	11:10	03:00	Drizzle, Wind F2-5 S Cloud 8/8, Visibility >3km-1-3km, temp 7c
16/02/2019	4	YBR	09:40	12:40	03:00	Heavy showers, Wind F4-5 S Cloud 7-8/8, Visibility >3km, temp 7c
16/02/2019	5	EDO	09:40	12:40	03:00	Heavy showers, Wind F4 SE Cloud 7/8, Visibility >3km, temp 9c
17/02/2019	2	EDO	11:00	14:00	03:00	Heavy showers, Wind F6 S Cloud 7/8, Visibility >3km, temp 9c
17/02/2019	8	YBR	11:15	14:15	03:00	Heavy showers, Wind F4-6 S Cloud 8/8, Visibility >3km, temp 9c
18/02/2019	3	EDO	12:30	15:30	03:00	Heavy showers, Wind F3-4 SW Cloud 4-5/8, Visibility >3km, temp 8c
19/02/2019	5	YBR	07:35	10:35	03:00	Dry, Wind F1 SE Cloud 5-6/8, Visibility >3km, temp 4c
19/02/2019	8	EDO	13:35	16:35	03:00	Light showers, Wind F2-3 S Cloud 8/8, Visibility >3km, temp 6c
20/02/2019	4	EDO	13:35	16:35	03:00	Heavy showers, Wind F4-5 SW Cloud 7/8, Visibility >3km, temp 9-10c

Date	VP	Surveyor	Start	Finish	Duration	Weather summary (i.e. Dry, Wind F3-5 N-W, Cloud Cover 1-3/8, Visibility >3km, Temp 15-18c)
21/02/2019	3	EDO	08:45	11:45	03:00	Light showers, Wind F5 S Cloud 8/8, Visibility >3km, temp 11c
21/02/2019	2	EDO	14:45	17:45	03:00	Light showers, Wind F5-6 S Cloud 7-8/8, Visibility >3km, temp 11-12c
21/02/2019	4	YBR	14:50	17:50	03:00	Dry, Wind F5-6 S Cloud 8/8, Visibility >3km, temp 12-13c
14/03/2019	1	YBR	15:30	18:30	03:00	Dry, Wind F4-5 SW, Cloud 2-6, Visibility >3km, temp 7-8c
15/03/2019	3	YBR	06:45	09:45	03:00	Showers, Wind F5-6 W, Cloud 4-6, Visibility >3km, temp 4-6c
15/03/2019	5	YBR	15:35	18:35	03:00	Dry, Wind F5-6 W, Cloud 7-8, Visibility >3km, Temp 3-4c
16/03/2019	2	YBR	06:50	09:50	03:00	Dry, Wind F1-2 NW, Cloud 2-8, Visibility >3km, temp 2-4c
16/03/2019	4	YBR	11:10	14:10	03:00	Dry, Wind F1 NW, Cloud 8, Visibility >3km, temp 3-4
17/03/2019	1	YBR	07:10	10:10	03:00	Dry, Wind F5 N, Cloud 2-8, Visibility 1-3km, temp 4-7
17/03/2019	3	YBR	15:30	18:30	03:00	Dry, Wind F4 NW, Cloud 6-7, Visibility >3km, temp 5-7
18/03/2019	5	YBR	06:50	09:50	03:00	Showers, Wind F1-3 S-SW, Cloud 6-8, Visibility >3km, temp 5-6
18/03/2019	3	NRO	11:30	14:30	03:00	Dry, Wind F4 S-SW, Cloud 6-8, Visibility >3km, temp 7-8c
20/03/2019	5	NRO	10:10	13:10	03:00	Showers, Wind F4-6 SW, Cloud 6-8, Visibility >3km, temp 8-9c

Date	VP	Surveyor	Start	Finish	Duration	Weather summary (i.e. Dry, Wind F3-5 N-W, Cloud Cover 1-3/8, Visibility >3km, Temp 15-18c)
20/03/2019	4	YBR	10:05	13:05	03:00	Dry, Wind F5-6 SW, Cloud 6-8/8, Visibility >3km, temp 8-6c
21/03/2019	8	NRO	07:30	10:30	03:00	Dry, Wind F2-3 SW, Cloud 2-5, Visibility >3km, temp 8-10c
21/03/2019	2	NRO	15:20	18:20	03:00	Dry, Wind F4-6 S-SE, Cloud 6-8, Visibility >3km, temp 7-9c
25/03/2019	1	EDO	09:30	12:30	03:00	Dry, Wind F2-3 W, Cloud 6-8, Visibility >3km, temp 7-9c
25/03/2019	2	PRO	13:00	16:00	03:00	Showers, Wind F4 W, Cloud 4-8, Visibility 1-3km, temp 9c
26/03/2019	8	PRO	09:30	12:30	03:00	Showers, Wind F5-6 W, Cloud 8, Visibility 1-3km, temp 7c
27/03/2019	1	PRO	09:55	12:55	03:00	Showers, Wind F5 SW, Cloud 8, Visibility >3km, temp 9c
27/03/2019	4	EDo	13:30	16:30	03:00	Showers, Wind F5 SW, Cloud 8, Visibility >3km, temp 9c

Table C.2 Hen Harrier Roost Monitoring Effort

Date	VP	Surveyor	Start	Finish	Duration	Weather summary (i.e. Dry, Wind F3-5 N-W, Cloud Cover 1-3/8, Visibility >3km, Temp 15-18c)
24/10/2018	Dusk	PRO	15:40	18:40	03:00	Drizzle, Wind F5 W, Cloud Cover 8/8, Visibility 1-3km, Temp 7c
29/10/2018	Dusk	PRO	14:15	17:15	03:00	Dry, Wind F5-6 SE, Cloud Cover 4/8, Visibility >3km, Temp 3-4c
30/10/2018	Dawn	PRO	06:35	09:35	03:00	Dry, Wind F3 SE, Cloud Cover 4/8, Visibility >3km, early frost, Temp 0-1c
31/10/2018	Dusk	PRO	14:10	17:10	03:00	Dry, Wind F2-4 S, Cloud Cover 3-4/8, Visibility >3km, Temp 3-6c
20/11/2018	Dusk	YBR	13:45	16:45	03:00	Dry, Wind F2-3 SE, Cloud Cover 1-0/8, Visibility >3km to 1-3km, Temp 7-6c
20/11/2018	Dusk	PCL	13:45	16:45	03:00	Dry, Wind F4-3 SE, Cloud Cover 1-2/8, Visibility >3km, Temp 7-6c
21/11/2018	Dawn	PCL	07:10	10:10	03:00	Dry, Wind F4 E, Cloud Cover 5-7/8, Visibility >3km, Temp 4-6c
21/11/2018	Dusk	YBR	13:45	16:45	03:00	Dry, Wind F3-4 SE, Cloud Cover 6/8, Visibility >3km to 1-3km, Temp 9-7c
21/11/2018	Dusk	PCL	14:50	16:30	01:40	Dry, Wind F5 E, Cloud Cover 3-5/8, Visibility >3km, Temp 8-5c
05/12/2018	Dusk	YBR	13:10	16:10	03:00	Dry, Wind F1 SW, Cloud Cover 3-5/8, Visibility >3km, Temp 0-4c
05/12/2018	Dusk	PRO	13:10	16:10	03:00	Dry, Wind F1 NE, Cloud Cover 3/8, Visibility >3km, Temp -1/0c
06/12/2018	Dusk	YBR	13:20	16:20	03:00	Light showers, Wind F3-4 SW, Cloud Cover 6-8/8, Visibility >3km, Temp 8-9c

Date	VP	Surveyor	Start	Finish	Duration	Weather summary (i.e. Dry, Wind F3-5 N-W, Cloud Cover 1-3/8, Visibility >3km, Temp 15-18c)
06/12/2018	Dusk	PRO	13:20	16:20	03:00	Light showers, Wind F6 SW, Cloud Cover 5-7/8, Visibility >3km, Temp 4c
18/12/2018	Dusk	NRO	14:00	16:30	02:30	Light showers, Wind F4 SW, Cloud Cover 8/8, Visibility 1-3km, Temp 8-5c
18/12/2018	Dusk	EDO	14:00	16:35	02:35	Light showers, Wind F4 S, Cloud Cover 7/8, Visibility >3km, Temp 8c
19/12/2018	Dusk	NRO	14:00	16:25	02:25	Dry, Wind F4 SE, Cloud cover 6/8, Visibility >3km to 1-3km, Temp 6c
19/12/2018	Dusk	EDO	14:00	16:30	02:30	Light-Heavy showers, Wind F4 S, Cloud Cover 7/8, Visibility >3km, Temp 6c
29/01/2019	Dusk	NRO	15:00	17:00	02:00	Dry, Wind F3 SW, Cloud cover 4/8, visibility >3km, temp 0c, all day frost/snow
30/01/2019	Dusk	NRO	15:10	17:30	02:20	Dry, Wind F2 NW, Cloud cover 5/8, visibility >3km, temp 1-0c, all day frost/snow
29/01/2019	Dusk	YBR	15:10	17:15	02:05	Heavy snow at end, Wind F1-3 SW, Cloud 1-6/8, Visibility .>3km, frost/snow, temp 0-1c
30/01/2019	Dusk	YBR	15:10	17:30	02:20	Dry, Wind F1 W, Cloud 3-6/8, Visibility >3km, frost/snow, temp 0-2c
16/02/2019	Dusk	YBR	15:55	18:00	02:05	Dry, Wind F4-6 S Cloud 7-8/8, Visibility >3km, temp 7c
16/02/2019	Dusk	EDO	16:00	18:00	02:00	Dry, Wind F4-5 S Cloud 7-8/8, Visibility >3km, temp 8c
17/02/2019	Dusk	YBR	15:55	18:00	02:05	Dry, Wind F4-5 S Cloud 3-6/8, Visibility >3km, temp 6c
17/02/2019	Dusk	EDO	16:00	18:00	02:00	Dry, Wind F4 S Cloud 4/8, Visibility >3km, temp 8c

Date	VP	Surveyor	Start	Finish	Duration	Weather summary (i.e. Dry, Wind F3-5 N-W, Cloud Cover 1-3/8, Visibility >3km, Temp 15-18c)
18/03/2019	dusk	YBR	17:00	17:20	02:20	Dry, wind F 0-2, Cloud 1-6, Visibility >3km, temp 7-8c
18/03/2019	dusk	NRO	17:00	17:20	02:20	Dry, wind F2-3 SW, Cloud 2-5/8, Visibility >3km, temp 2-7c
19/03/2019	dawn	YBR	05:30	08:30	03:00	Showers, Wind F4 SW, Cloud 8, Visibility >3km, temp 6-7c
19/03/2019	dawn	NRO	05:30	08:30	03:00	Showers, Wind F4-6 SW, Cloud 7-8, Visibility >3km, temp 5-6c
19/03/2019	dusk	YBR	17:05	19:20	02:15	Dry, Wind F5-4 SW, Cloud 6-8/8, Visibility 1-3km, temp 8-5c
19/03/2019	dusk	NRO	17:00	19:15	02:15	Showers, Wind F4-5 SW, Cloud 7-8, Visibility 1-3km, temp 10-8c
20/03/2019	dawn	YBR	05:30	08:30	03:00	Dry, Wind F3 SW, Cloud 6-8/8, Visibility 1-3km, temp 5-6c
20/03/2019	dawn	NRO	05:30	08:30	03:00	Dry, Wind F3 SW, Cloud 6-8, Visibility 3km, temp 5-6c

Annex D

Survey Results



Table D.1 Recorded Flight Activity

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0001_a	22/10/2018	8	PRO	13:25	NW	16	A	60	960	Flew into wind then left viewshed.
40001_VP_0001_b	22/10/2018	8	PRO	13:25	NW	16	B	15	240	
40001_VP_0002_a	22/10/2018	8	PRO	13:44	BY	13	C	60	780	Calling. Left viewshed.
40001_VP_0002_b	22/10/2018	8	PRO	13:44	BY	13	B	30	390	
40001_VP_0003_a	24/10/2018	5	PRO	10:09	WS	5	B	60	300	Calling. Lost from view to east.
40001_VP_0004_a	24/10/2018	5	PRO	11:50	WE	1	B	105	105	Adult, mobbed by RN, disturbed HG roost and lost from view low outside of viewshed.
40001_VP_0004_b	24/10/2018	5	PRO	11:50	WE	1	A	15	15	
40001_VP_0005	24/10/2018	HH Roost 1	PRO	16:12	HH	1	A	45	45	Ringtail (probable female) flew low along ridge and lost from view to south.
40001_VP_0006	25/10/2018	4	PRO	09:06	GJ	2	B	90	180	Calling. Lost to view to southwest.
40001_VP_0007	25/10/2018	4	PRO	09:13	GJ	7	A	45	315	Flew from out of view, near loch.
40001_VP_0008_a	25/10/2018	4	PRO	09:14	ML	1	C	30	30	Mobbed RN then flew low and lost from view behind mound.

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0008_b	25/10/2018	4	PRO	09:14	ML	1	B	45	45	
40001_VP_0008_c	25/10/2018	4	PRO	09:14	ML	1	A	15	15	
40001_VP_0009_a	25/10/2018	4	PRO	09:58	GJ	6	B	30	180	Landed.
40001_VP_0009_b	25/10/2018	4	PRO	09:58	GJ	6	A	15	90	
40001_VP_0010_a	25/10/2018	4	PRO	10:09	GJ	3	B	30	90	Landed on/near loch.
40001_VP_0010_b	25/10/2018	4	PRO	10:09	GJ	3	A	15	45	
40001_VP_0011_a	26/10/2018	2	PRO	08:57	EA	1	A	15	15	Adult, mobbed by RN, then landed on hillside.
40001_VP_0011_b	26/10/2018	2	PRO	08:57	EA	1	B	30	30	
40001_VP_0011_c	26/10/2018	2	PRO	08:57	EA	1	A	30	30	
40001_VP_0012	26/10/2018	2	PRO	09:00	EA	1	A	15	15	Same bird as 0011, lost from view over ridge. Sat on ridge for 3 mins mobbed by RN before it took flight.
40001_VP_0013_a	31/10/2018	8	PRO	10:05	GD	4	A	15	60	3 males and 1 female/imm, off from loch and flew south and out of view.
40001_VP_0013_b	31/10/2018	8	PRO	10:05	GD	4	B	15	60	

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0014_a	31/10/2018	8	PRO	11:45	GD	2	A	15	30	Female/imm birds, low from east (possibly from hidden on loch)
40001_VP_0014_b	31/10/2018	8	PRO	11:45	GD	2	B	30	60	
40001_VP_0014_c	31/10/2018	8	PRO	11:45	GD	2	A	15	30	Lost low towards Loch a Bhuna
40001_VP_0015_a	31/10/2018	8	PRO	12:16	EA	1	B	30	30	Distant and flying away, couldn't age, lost low against hills below skyline.
40001_VP_0015_b	31/10/2018	8	PRO	12:16	EA	1	A	15	15	
40001_VP_0016_a	31/10/2018	8	PRO	12:17	WE	1	A	30	30	Adult, mobbed by HG/RN/GBs, lost low.
40001_VP_0016_b	31/10/2018	8	PRO	12:17	WE	1	B	30	30	
40001_VP_0016_c	31/10/2018	8	PRO	12:17	WE	1	A	15	15	
40001_VP_0017	29/10/2018	HH Roost 1	PRO	15:18	HH	1	A	75	75	Adult male, lost low and behind VP.
40001_VP_0018	29/10/2018	HH Roost 1	PRO	15:48	HH	1	A	45	45	Adult male, landed close to/almost in south-western-most Juncus roosting area and lost from view.
40001_VP_0019	29/10/2018	HH Roost 1	PRO	16:43	HH	1	A	30	30	Ringtail, probable female, direct flight south over drop-off (possible additional roosting area on south of moor??).

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0020	02/11/2018	5	CBR	09:18	GJ	9	B	405	3645	Flew in from northeast until out of view.
40001_VP_0021	02/11/2018	5	CBR	09:59	PG	8	B	585	4680	Lost to view behind topography.
40001_VP_0022	02/11/2018	5	CBR	10:38	WE	1	B	255	255	Dark bird (not adult), lost to view behind hill.
40001_VP_0023	02/11/2018	5	CBR	11:08	EA	1	A	210	210	Adult soaring on wind along southern ridge of Beinn a Bhuna.
40001_VP_0024	02/11/2018	5	CBR	11:21	EA	1	B	150	150	Adult (same bird as 0023) soaring over southern ridge of Beinn a Bhuna before disappearing behind it.
40001_VP_0025	02/11/2018	5	CBR	11:25	EA	1	B	300	300	Adult (same bird as 0023/4) soaring over ridge of Beinn a Bhuna before flying south, out of view.
40001_VP_0026	03/11/2018	8	CBR	13:30	EA	1	B	1305	1305	Adult soaring over Tomanach Dubh until lost behind ridge. Possibly landed as RN seen to mob something out of view.
40001_VP_0027	03/11/2018	8	CBR	13:44	HH	1	A	135	135	Ringtail (female on size). Lost behind hill.
40001_VP_0028	03/11/2018	8	CBR	13:53	EA	1	B	105	105	Same bird as 0026. Drifted north, out of sight.
40001_VP_0029	03/11/2018	8	CBR	13:56	EA	1	B	210	210	Adult.
40001_VP_0030	03/11/2018	8	CBR	14:03	HH	1	A	120	120	Same bird as 0027. Lost behind hill.

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0031	05/11/2018	4	CBR	13:35	HH	1	A	105	105	Ringtail (female on size). Lost behind view, hunting.
40001_VP_0032	06/11/2018	4	CBR	10:58	EA	1	A	30	30	Adult flew from being perched on the ground and then lost from view behind trees.
40001_VP_0033_a	06/11/2018	4	CBR	11:07	EA	1	A	45	45	Adult flew east, out of sight.
40001_VP_0033_b	06/11/2018	4	CBR	11:07	EA	1	B	210	210	
40001_VP_0034	06/11/2018	3	CBR	13:43	EA	2	B	255	510	Adults flew along ridge and lost from view behind Meannan.
40001_VP_0035	06/11/2018	3	CBR	13:44	EA	1	B	60	60	Adult flying below ridge of Meannan and then lost over Airigh Garvaig valley.
40001_VP_0036	06/11/2018	3	CBR	13:58	EA	2	B	855	1710	Adults soaring on wind over crest of hills. Beinn Lite? Lost from view.
40001_VP_0037	06/11/2018	3	CBR	14:38	EA	2	C	540	1080	Flew high over valley until lost behind Meannan.
40001_VP_0038_a	07/11/2018	8	CBR	10:53	EA	1	B	255	255	Flew over Druim Gil Speireag before landing out of sight in dip.
40001_VP_0038_b	07/11/2018	8	CBR	10:53	EA	1	A	15	15	
40001_VP_0039	07/11/2018	5	CBR	12:45	WE	1	B	225	225	Adult.

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0040	07/11/2018	5	CBR	13:27	EA	1	B	255	255	Adult over Beinn a Bhuna, soaring, then lost over ridge.
40001_VP_0041_a	20/11/2018	HH Roost 1	PCL	14:50	HH	1	A	180	180	Ringtail. Landed.
40001_VP_0041_b	20/11/2018	HH Roost 1	PCL	14:50	HH	1	B	45	45	
40001_VP_0041_c	20/11/2018	HH Roost 1	PCL	14:50	HH	1	A	75	75	
40001_VP_0042	20/11/2018	HH Roost 1	PCL	15:08	HH	1	A	150	150	Same bird as 0041. Landed next to a second ringtail perched on tussock.
40001_VP_0043	20/11/2018	HH Roost 1	PCL	15:17	HH	1	A	360	360	Ringtail, lost amongst trees, quartering (one of 0041 or second perched bird).
40001_VP_0044	20/11/2018	HH Roost 1	PCL	15:35	HH	1	A	360	360	Adult male quartering amongst trees then over roost site. Lost from view in dip.
40001_VP_0045	20/11/2018	HH Roost 1	YBR	15:24	HH	1	A	210	210	Ringtail, hunting, then into roost. Same bird as 0043.
40001_VP_0046	20/11/2018	HH Roost 1	YBR	15:28	HH	1	A	30	30	Ringtail in to roost. Same bird as 0045.
40001_VP_0047_a	20/11/2018	HH Roost 1	YBR	15:39	HH	1	B	15	15	Male hunting then into roost. Same bird as 0044.
40001_VP_0047_b	20/11/2018	HH Roost 1	YBR	15:39	HH	1	A	45	45	

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0048	20/11/2018	HH Roost 1	YBR	15:41	HH	1	A	30	30	Male into roost. Same bird as 0047.
40001_VP_0049	20/11/2018	HH Roost 1	YBR	15:42	HH	1	A	60	60	Ringtail into roost (second ringtail in roost area).
40001_VP_0050	20/11/2018	HH Roost 1	YBR	15:44	HH	1	A	30	30	Male into roost. Same bird as 0047.
40001_VP_0051	20/11/2018	HH Roost 1	YBR	15:45	HH	1	A	30	30	Ringtail into roost (one of two earlier birds)
40001_VP_0052	20/11/2018	HH Roost 1	YBR	15:47	HH	2	A	105	210	Male and ringtail into roost (both birds into roost previously).
40001_VP_0053_a	20/11/2018	HH Roost 1	YBR	15:50	HH	1	B	30	30	Ringtail. Probable third ringtail - not seen to roost.
40001_VP_0053_b	20/11/2018	HH Roost 1	YBR	15:50	HH	1	A	30	30	
40001_VP_0053_c	20/11/2018	HH Roost 1	YBR	15:50	HH	1	B	255	255	
40001_VP_0054	20/11/2018	HH Roost 1	YBR	16:02	HH	2	A	60	120	Male and ringtail into roost (both birds into roost previously).
40001_VP_0055	21/11/2018	HH Roost 1	PCL	08:12	HH	1	A	60	60	Juvenile female out from roost area. Lost to view, low.
40001_VP_0056_a	21/11/2018	HH Roost 1	PCL	08:13	HH	1	A	15	15	Juvenile male out from roost area, loosely following 0055.

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0056_b	21/11/2018	HH Roost 1	PCL	08:13	HH	1	B	15	15	
40001_VP_0056_c	21/11/2018	HH Roost 1	PCL	08:13	HH	1	A	15	15	
40001_VP_0057	21/11/2018	HH Roost 1	YBR	14:09	HH	1	A	255	255	Female. Not seen to roost.
40001_VP_0058	21/11/2018	HH Roost 1	YBR	15:14	HH	1	A	120	120	Ringtail. Not seen to roost.
40001_VP_0059	21/11/2018	HH Roost 1	YBR	15:42	HH	1	A	135	135	Ringtail. Not seen to roost.
40001_VP_0060	21/11/2018	HH Roost 1	YBR	16:02	HH	1	A	30	30	Male into roost.
40001_VP_0061	21/11/2018	HH Roost 1	YBR	16:12	HH	1	A	30	30	Male, circling roost, then dropped in.
40001_VP_0062	21/11/2018	HH Roost 1	YBR	16:13	HH	1	A	30	30	Male, circling roost, then dropped in.
40001_VP_0063	21/11/2018	HH Roost 1	YBR	16:14	HH	1	A	300	300	Male left roost. Lost to view to north.
40001_VP_0064	21/11/2018	HH Roost 2	PCL	15:25	HH	1	A	180	180	Probable juvenile female.
40001_VP_0065	21/11/2018	HH Roost 2	PCL	15:30	HH	1	A	90	90	Adult male. Disappeared from view in same area as 0064 along burn.
40001_VP_0066	21/11/2018	HH Roost 2	PCL	16:01	HH	1	A	240	240	Two ringtails (possible juvenile male and juvenile female) dropped into rushes to roost.

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0067	22/11/2018	1	PCL	14:47	WE	1	B	75	75	Lost from view behind weather station.
40001_VP_0068_a	22/11/2018	1	PCL	15:36	GP	8	A	30	240	Left viewshed, calling.
40001_VP_0068_b	22/11/2018	1	PCL	15:36	GP	8	B	30	240	
40001_VP_0068_c	22/11/2018	1	PCL	15:36	GP	8	C	30	240	
40001_VP_0069	22/11/2018	1	PCL	15:59	HH	1	A	120	120	Adult male. Perched on slope since 15:44. Possibly flushed 0068. 'Stalked' 0070 but unsuccessful in attempt to catch one of them. Landed.
40001_VP_0070	22/11/2018	1	PCL	16:01	GP	6	A	15	90	Brief flight to evade 0069. Lost from view in valley.
40001_VP_0071_a	22/11/2018	1	PCL	16:08	HH	1	A	30	30	Same bird as 0069. Flew after being perched on hillock for 7 mins. Flew very purposefully towards known roost site. Lost from view over ridge.
40001_VP_0071_b	22/11/2018	1	PCL	16:08	HH	1	B	45	45	
40001_VP_0071_c	22/11/2018	1	PCL	16:08	HH	1	A	285	285	
40001_VP_0072	20/11/2018	2	YBR	11:14	ML	1	A	15	15	Male, hunting.
40001_VP_0073	18/11/2018	3	YBR	14:22	EA	1	B	210	210	Adult male, hunting.

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0074	22/11/2018	3	PCL	11:29	WE	1	B	75	75	Adult. Lost from view as bird dropped behind ridge.
40001_VP_0075	19/11/2018	5	PCL	11:08	HH	1	B	15	15	Ringtail, lost from view amongst trees.
40001_VP_0076	19/11/2018	5	PCL	11:09	HH	1	B	60	60	Same bird 0075. Probable female. Lost amongst trees after being mobbed by RN. Flushed passerines.
40001_VP_0077	19/11/2018	5	PCL	13:35	WE	1	B	60	60	Adult. Lost from view behind tree-lined ridge near met mast.
40001_VP_0078_a	19/11/2018	5	PCL	13:37	WE	1	B	30	30	Adult following 0077. Lost from view amongst trees near met mast.
40001_VP_0078_b	19/11/2018	5	PCL	13:37	WE	1	A	45	45	
40001_VP_0079	19/11/2018	5	PCL	14:16	HH	1	A	45	45	Adult male mobbed by RN. Lost from view amongst trees. Flight was outwith 2km viewshed.
40001_VP_0080_a	19/11/2018	5	PCL	15:59	HH	1	B	90	90	Ringtail. Hunting. Lost from view amongst trees. Changed flightpath slightly as it appeared to see observer. Poss. ringtail male.
40001_VP_0080_b	19/11/2018	5	PCL	15:59	HH	1	A	15	15	
40001_VP_0081	19/11/2018	5	PCL	16:11	HH	1	B	30	30	Ringtail with full crop. Flew outwith viewshed towards probable roost site (for a further 330 seconds).

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
										Lost from view in dip at 330 degree bearing from VP5; c2km away in second valley behind VP5.
40001_VP_0082	20/11/2018	8	PCL	10:24	GP	4	A	15	60	Flushed by BZ, called, then lost from view in dip.
40001_VP_0083	20/11/2018	8	PCL	10:45	EA	1	C	30	30	Outwith viewshed. Mobbed by RN. Lost from view against hill.
40001_VP_0084	20/11/2018	8	PCL	10:55	EA	2	C	180	360	Outwith viewshed. Mobbed by RN. Landed on hill top at 10:58.
40001_VP_0085	20/11/2018	8	PCL	10:07	EA	1	B	120	120	Outwith viewshed. Adult female landed next to much smaller male on Beinn nan Surrag.
40001_VP_0086	20/11/2018	8	PCL	10:45	EA	2	C	390	780	Outwith viewshed. Adult pair circling over nesting crags before diving back on to Beinn nan Surrag.
40001_VP_0087	20/11/2018	8	PCL	10:03	EA	1	B	330	330	Outwith viewshed. Adult male landed on Beinn nan Surrag.
40001_VP_0088_a	03/12/2018	1	PRO	13:33	WE	2	B	15	30	Interacting outwith viewshed, lost west of 6 turbine windfarm. Poor view couldn't age.
40001_VP_0088_b	03/12/2018	1	PRO	13:33	WE	2	A	30	60	
40001_VP_0088_c	03/12/2018	1	PRO	13:33	WE	2	B	30	60	

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0089	04/12/2018	3	PRO	13:33	HH	1	A	4	4	Brief view of ringtail.
40001_VP_0090_a	04/12/2018	3	PRO	13:54	WE	1	B	45	45	Sub-adult, landed on fencepost
40001_VP_0090_b	04/12/2018	3	PRO	13:54	WE	1	A	30	30	
40001_VP_0091	04/12/2018	3	PRO	14:05	HH	1	A	30	30	Ringtail, probably female, lost low behind hill.
40001_VP_0092_a	04/12/2018	3	PRO	14:32	WE	1	A	30	30	Same bird as 40001_VP_0090, took off from fencepost, flushed roosting gulls and landed out of view behind mound.
40001_VP_0092_b	04/12/2018	3	PRO	14:32	WE	1	B	45	45	
40001_VP_0092_c	04/12/2018	3	PRO	14:32	WE	1	A	30	30	
40001_VP_0093_a	04/12/2018	3	PRO	15:12	WE	1	A	30	30	Assumed to be same sub-adult bird as 40001_VP_0092, flushed all gulls off tip then lost to north while mobbed by RN.
40001_VP_0093_b	04/12/2018	3	PRO	15:12	WE	1	B	105	105	
40001_VP_0093_c	04/12/2018	3	PRO	15:12	WE	1	A	30	30	
40001_VP_0094_a	05/12/2018	2	PRO	09:16	EA	1	A	30	30	Adult, lost low to the east.

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0094_b	05/12/2018	2	PRO	09:16	EA	1	B	45	45	
40001_VP_0094_c	05/12/2018	2	PRO	09:16	EA	1	A	30	30	
40001_VP_0095	05/12/2018	2	PRO	10:14	EA	1	A	5	5	Brief view of adult, lost low in swale.
40001_VP_0096	05/12/2018	2	PRO	12:05	EA	1	A	30	30	Adult, low direct flight, lost to west of VP behind hill.
40001_VP_0097	05/12/2018	HH Roost 1	YBR	15:56	HH	1	A	75	75	Ringtail into roost.
40001_VP_0098	05/12/2018	HH Roost 1	YBR	15:58	HH	1	A	105	105	Male into roost.
40001_VP_0099	05/12/2018	HH Roost 2	PRO	15:54	HH	1	A	45	45	Ringtail, lost from view in valley to east.
40001_VP_0100	05/12/2018	HH Roost 2	PRO	16:15	HH	1	A	45	45	Adult male, in very low light flew over Juncus-lined stream then dropped into roost further south in Juncus filled peat hag.
40001_VP_0101	06/12/2018	HH Roost 1	YBR	15:31	HH	1	A	45	45	Ringtail landed.
40001_VP_0102	06/12/2018	HH Roost 2	PRO	15:05	HH	1	A	30	30	Ringtail, fast direct downwind flight, lost to east in valley.
40001_VP_0103_a	06/12/2018	HH Roost 2	PRO	15:26	HH	1	A	105	105	Adult male hunting along stream-line.

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0103_b	06/12/2018	HH Roost 2	PRO	15:26	HH	1	B	30	30	Brief soaring flight from adult male.
40001_VP_0103_c	06/12/2018	HH Roost 2	PRO	15:26	HH	1	A	15	15	Lost from view to east.
40001_VP_0104	07/12/2018	3	YBR	14:12	HH	1	A	90	90	Male hunting.
40001_VP_0105	08/12/2018	3	YBR	10:46	HH	1	A	45	45	Male hunting.
40001_VP_0106	08/12/2018	3	YBR	10:56	ML	1	A	75	75	Male hunting, briefly onto fencepost, mobbed by gulls.
40001_VP_0107	09/12/2018	4	YBR	15:30	HH	1	A	255	255	Adult female hunting.
40001_VP_0108	17/12/2018	5	EDO	14:56	HH	1	A	135	135	Adult male, hunting.
40001_VP_0109	17/12/2018	8	EDO	10:38	GD	1	A	75	75	Landed in Loch to south
40001_VP_0110_a	18/12/2018	HH Roost 1	NRO	15:09	HH	1	A	30	30	Female, straight flight
40001_VP_0110_b	18/12/2018	HH Roost 1	NRO	15:09	HH	1	B	15	15	picked up height over hillside and lost due to contours
40001_VP_0111	18/12/2018	HH Roost 2	EDO	14:12	HH	1	A	105	105	Adult male hunting, landed
40001_VP_0112	18/12/2018	HH Roost 2	EDO	14:14	HH	1	A	300	300	Same bird continued hunting

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0113	19/12/2018	1	EDO	09:28	EA	1	A	405	405	Hunting
40001_VP_0114_a	19/12/2018	1	EDO	09:39	WE	1	B	30	30	Adult
40001_VP_0114_b	19/12/2018	1	EDO	09:39	WE	1	A	60	60	Landed out of view
40001_VP_0115	19/12/2018	5	NRO	09:45	WE	1	B	60	60	Adult from SW slow flight into viewshed, turned and landed behind VP out of viewshed
40001_VP_0116_a	19/12/2018	5	NRO	09:48	WE	1	B	30	30	Same bird as above, returned into view alongside a second bird
40001_VP_0116_b	19/12/2018	5	NRO	09:48	WE	1	A	10	10	lower flight interaction with second bird
40001_VP_0116_c	19/12/2018	5	NRO	09:48	WE	1	B	30	30	gained height and left to SW
40001_VP_0117_a	19/12/2018	5	NRO	09:48	WE	1	B	30	30	Second adult flew in with previous bird
40001_VP_0117_b	19/12/2018	5	NRO	09:48	WE	1	A	10	10	low flight tussling with other adult
40001_VP_0117_c	19/12/2018	5	NRO	09:48	WE	1	B	30	30	gained height and exited SW
40001_VP_0118	19/12/2018	5	NRO	10:44	WE	1	B	60	60	Facing wind, slow flight and lost behind trees. Adult.

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0119	19/12/2018	5	NRO	10:44	WE	1	B	75	75	In with previous bird, held position in wind for longer than exited view behind hills to south
40001_VP_0120	19/12/2018	5	NRO	12:13	EA	1	B	45	45	Adult drifted in from behind VP, turned south and floated over ridge out of view
40001_VP_0121_a	19/12/2018	HH Roost 1	NRO	15:07	HH	1	A	15	15	Adult Female over mound behind roost
40001_VP_0121_b	19/12/2018	HH Roost 1	NRO	15:07	HH	1	B	30	30	gained height and curved southeast
40001_VP_0121_c	19/12/2018	HH Roost 1	NRO	15:07	HH	1	A	15	15	lost behind trees/ridge
40001_VP_0122_a	19/12/2018	HH Roost 1	NRO	15:32	HH	1	B	15	15	Slim ringtail (likely male) dropped down from near road
40001_VP_0122_b	19/12/2018	HH Roost 1	NRO	15:32	HH	1	A	30	30	curved past both roosting areas, followed similar line out of view as previous bird
40001_VP_0123_a	19/12/2018	HH Roost 1	NRO	15:38	HH	1	B	45	45	Grey male appeared over trees near turbine, hovered over hillock and rifted over slope
40001_VP_0123_b	19/12/2018	HH Roost 1	NRO	15:38	HH	1	A	30	30	Lowered and landed near strip of pale grass, remained until 15:55 but lost during next bird observation
40001_VP_0124	19/12/2018	HH Roost 1	NRO	15:55	HH	1	A	30	30	Adult male in from NNW low and straight into middle of main roost

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0125	29/01/2019	8	NRO	10:58	HH	1	A	40	40	Ringtail female from East towards VP, turned out of viewshed behind VP
40001_VP_0126_a	29/01/2019	HH Roost 2	NRO	16:23	HH	1	A	15	15	Ringtail (likely male) from south
40001_VP_0126_b	29/01/2019	HH Roost 2	NRO	16:23	HH	1	B	15	15	turned east/north east and gained height
40001_VP_0126_c	29/01/2019	HH Roost 2	NRO	16:23	HH	1	A	5	5	lowered and lost towards 3x turbines
40001_VP_0127	29/01/2019	HH Roost 2	NRO	16:45	HH	1	B	75	75	adult male high and slow from west-east towards 3x turbines, lost against cloud
40001_VP_0128	30/01/2019	8	NRO	13:04	EA	1	B	70	70	adult, slow curve around Druim Speireag and lost NW over plantation
40001_VP_0129	30/01/2019	HH Roost 2	NRO	16:52	HH	1	A	20	20	Ringtail barely visible along hill crest, SW to NE towards 3x turbines
40001_VP_0130_a	31/01/2019	8	NRO	10:01	EA	1	B	135	135	Adult straight through VP
40001_VP_0130_b	31/01/2019	8	NRO	10:01	EA	1	A	20	20	Lowered and landed on mound (alongside a second adult EA)
40001_VP_0131	31/01/2019	8	NRO	10:43	EA	1	A	35	35	Same bird flushed by a deer, low flight to fencepost
40001_VP_0132	31/01/2019	8	NRO	10:43	EA	1	A	35	35	Second bird flushed by deer, low flight to fencepost

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0133	25/01/2019	1	YBR	14:20	WE	1	B	195	195	adult male
40001_VP_0134	25/01/2019	1	YBR	14:46	EA	1	B	135	135	adult male
40001_VP_0135_a	28/01/2019	3	YBR	09:46	HH	1	B	15	15	Male hunting
40001_VP_0135_b	28/01/2019	3	YBR	09:46	HH	1	A	90	90	male hunting
40001_VP_0136	29/01/2019	HH Roost 1	YBR	16:48	HH	1	A	75	75	Ringtail Male
40001_VP_0137	29/01/2019	HH Roost 1	YBR	16:49	HH	1	A	45	45	Ringtail Male into roost
40001_VP_0138_a	29/01/2019	HH Roost 1	YBR	16:49	HH	1	B	30	30	Adult male over mound
40001_VP_0138_b	29/01/2019	HH Roost 1	YBR	16:49	HH	1	A	165	165	into roost
40001_VP_0139	30/01/2019	2	YBR	10:46	EA	1	B	270	540	adult pair hunting and displaying
40001_VP_0140	30/01/2019	HH Roost 1	YBR	16:33	HH	1	A	120	120	adult male into roost
40001_VP_0141	31/01/2019	1	YBR	10:10	EA	1	B	255	255	adult
40001_VP_0142	31/01/2019	1	YBR	10:20	EA	1	B	165	165	adult
40001_VP_0143	31/01/2019	1	YBR	11:14	EA	2	B	135	270	adult pair

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0144	14/01/2019	2	PRO	12:49	HH	1	A	15	15	Rintail, lost behind hill
40001_VP_0145	15/01/2019	5	PRO	09:40	GJ	6	B	30	180	Lost in gloom well out of viewshed
40001_VP_0146	15/01/2019	5	PRO	09:54	HH	1	A	30	30	Ringtail, looked bulky enough for female on structure but poor light. Lost low heading NW around Beinn Greidaig
40001_VP_0147_a	16/01/2019	3	PRO	14:27	HH	1	A	30	30	Ringtail, female on structure
40001_VP_0147_b	16/01/2019	3	PRO	14:27	HH	1	B	30	30	high over road
40001_VP_0147_c	16/01/2019	3	PRO	14:27	HH	1	A	15	15	lost low in plantation
40001_VP_0148_a	17/01/2019	8	PRO	14:49	EA	1	B	90	90	out of vP viewshed. Couldn't age
40001_VP_0148_b	17/01/2019	8	PRO	14:49	EA	1	C	90	90	soaring flight
40001_VP_0148_c	17/01/2019	8	PRO	14:49	EA	1	B	60	60	just behind old VP6/link road
40001_VP_0149_a	11/02/2019	8	YBR	14:54	HH	1	A	30	30	adult male hunting
40001_VP_0149_b	11/02/2019	8	YBR	14:54	HH	1	B	45	45	
40001_VP_0149_c	11/02/2019	8	YBR	14:54	HH	1	A	165	165	
40001_VP_0150	12/02/2019	3	YBR	16:21	HH	1	A	195	195	adult male hunting

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0151_a	16/02/2019	5	EDO	12:31	EA	1	A	60	60	flew over
40001_VP_0151_b	16/02/2019	5	EDO	12:31	EA	1	B	15	15	
40001_VP_0151_c	16/02/2019	5	EDO	12:31	EA	1	A	30	30	
40001_VP_0151_d	16/02/2019	5	EDO	12:31	EA	1	B	15	15	
40001_VP_0151_e	16/02/2019	5	EDO	12:31	EA	1	A	30	30	
40001_VP_0152_a	16/02/2019	5	EDO	12:31	EA	1	A	45	45	flew over
40001_VP_0152_b	16/02/2019	5	EDO	12:31	EA	1	B	15	15	
40001_VP_0152_c	16/02/2019	5	EDO	12:31	EA	1	A	30	30	
40001_VP_0153_a	16/02/2019	5	EDO	12:38	EA	1	B	15	15	Hunting
40001_VP_0153_b	16/02/2019	5	EDO	12:38	EA	1	C	30	30	
40001_VP_0153_c	16/02/2019	5	EDO	12:38	EA	1	B	45	45	
40001_VP_0153_d	16/02/2019	5	EDO	12:38	EA	1	A	45	45	
40001_VP_0153_e	16/02/2019	5	EDO	12:38	EA	1	B	15	15	
40001_VP_0153_f	16/02/2019	5	EDO	12:38	EA	1	A	15	15	
40001_VP_0154	17/02/2019	2	EDO	11:08	WE	1	A	15	15	flew over
40001_VP_0155_a	17/02/2019	2	EDO	11:09	EA	1	A	60	60	flew over
40001_VP_0155_b	17/02/2019	2	EDO	11:09	EA	1	B	30	30	

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0155_c	17/02/2019	2	EDO	11:09	EA	1	A	45	45	
40001_VP_0155_d	17/02/2019	2	EDO	11:09	EA	1	B	15	15	
40001_VP_0155_e	17/02/2019	2	EDO	11:09	EA	1	A	15	15	
40001_VP_0156_a	17/02/2019	8	YBR	11:46	EA	1	C	15	15	subadult
40001_VP_0156_b	17/02/2019	8	YBR	11:46	EA	1	B	195	195	
40001_VP_0157_a	18/02/2019	3	EDO	13:37	EA	1	A	75	75	Landed
40001_VP_0158_a	18/02/2019	3	EDO	13:58	HH	1	A	105	105	Hunting, landed through shower
40001_VP_0158_b	18/02/2019	3	EDO	14:02	HH	1	A	105	105	Hunting
40001_VP_0159_a	18/02/2019	3	EDO	14:44	EA	1	A	75	75	lost down out of sight
40001_VP_0160_a	19/02/2019	5	EDO	08:00	HH	1	A	60	60	young male, Hunting, landed and preening
40001_VP_0161_a	19/02/2019	5	EDO	08:03	HH	1	A	165	165	young male, Hunting
40001_VP_0162_a	19/02/2019	5	EDO	08:21	GJ	4	B	285	1140	
40001_VP_0163_a	19/02/2019	5	EDO	08:29	GJ	2	A	165	330	
40001_VP_0164_a	19/02/2019	8	EDO	15:01	HH	1	A	60	60	Male, hunting.
40001_VP_0165_a	19/02/2019	8	EDO	16:17	HH	1	B	75	75	male hunting then landed
40001_VP_0165_b	19/02/2019	8	EDO	16:17	HH	1	A	180	180	
40001_VP_0166_a	19/02/2019	8	EDO	16:32	HH	1	B	45	45	Ringtail. Lost behind ridge

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0166_b	19/02/2019	8	EDO	16:32	HH	1	A	90	90	
40001_VP_0167	20/02/2019	4	EDO	13:41	GJ	1	B	60	60	
40001_VP_0168	21/02/2019	2	EDO	15:36	EA	1	A	75	75	
40001_VP_0169	17/02/2019	HH Roost 1	YBR	17:15	HH	1	A	60	60	adult male
40001_VP_0170	17/02/2019	HH Roost 1	YBR	17:20	HH	1	A	30	30	adult male
40001_VP_0171_a	18/03/2019	HH Roost 1	YBR	18:32	HH	1	B	30	30	RT into roose
40001_VP_0171_b	18/03/2019	HH Roost 1	YBR	18:32	HH	1	A	60	60	
40001_VP_0172	18/03/2019	HH Roost 1	YBR	18:33	HH	1	A	60	60	adult male into roost
40001_VP_0173_a	18/03/2019	HH Roost 1	YBR	18:56	HH	1	A	15	15	RT into roost
40001_VP_0173_b	18/03/2019	HH Roost 1	YBR	18:56	HH	1	B	15	15	
40001_VP_0173_c	18/03/2019	HH Roost 1	YBR	18:56	HH	1	A	15	15	
40001_VP_0174	19/03/2019	HH Roost 1	YBR	05:44	HH	1	A	45	45	adult make
40001_VP_0175	19/03/2019	HH Roost 1	YBR	05:53	HH	1	A	90	90	RT
40001_VP_0176	19/03/2019	HH Roost 1	YBR	06:03	HH	1	A	60	60	RT
40001_VP_0177	19/03/2019	HH Roost 1	YBR	18:01	HH	1	A	30	30	adult male into roost
40001_VP_0178	19/03/2019	HH Roost 1	YBR	18:03	HH	1	A	60	60	RT into roost
40001_VP_0179	19/03/2019	HH Roost 1	YBR	18:04	HH	1	A	60	60	adult male into roost - same bird as 40001_VP_0177

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0180	20/03/2019	HH Roost 1	YBR	05:49	HH	1	A	45	45	RT
40001_VP_0181	20/03/2019	HH Roost 1	YBR	05:57	HH	1	A	30	30	adult male
40001_VP_0182	20/03/2019	HH Roost 1	YBR	06:16	HH	1	A	120	120	RT
40001_VP_0183	20/03/2019	HH Roost 2	NRO	06:55	HH	1	A	150	150	adult male hunting, caught something on hillside but continued over ridge
40001_VP_0184	15/03/2019	3	YBR	08:38	WS	4	B	135	540	adults
40001_VP_0185_a	16/03/2019	4	YBR	11:38	GJ	21	A	30	630	
40001_VP_0185_b	16/03/2019	4	YBR	11:38	GJ	21	B	15	315	
40001_VP_0186_a	16/03/2019	4	YBR	13:50	WE	1	B	45	45	subadult hunting mobbed by c.50 RN and HC
40001_VP_0186_b	16/03/2019	4	YBR	13:50	WE	1	A	30	30	
40001_VP_0186_c	16/03/2019	4	YBR	13:50	WE	1	B	15	15	
40001_VP_0186_d	16/03/2019	4	YBR	13:50	WE	1	A	15	15	
40001_VP_0186_e	16/03/2019	4	YBR	13:50	WE	1	B	15	15	
40001_VP_0186_f	16/03/2019	4	YBR	13:50	WE	1	A	15	15	
40001_VP_0187_a	16/03/2019	4	YBR	14:02	WE	1	A	15	15	
40001_VP_0187_b	16/03/2019	4	YBR	14:02	WE	1	B	15	15	
40001_VP_0188	17/03/2019	1	YBR	09:29	EA	1	B	270	270	adult hunting
40001_VP_0189	17/03/2019	3	YBR	17:05	T.	2	A	15	30	pair

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0190	18/03/2019	5	YBR	08:25	ML	1	A	60	60	adult male
40001_VP_0191	18/03/2019	5	YBR	09:12	EA	1	C	240	240	adult hunting
40001_VP_0192_a	18/03/2019	5	YBR	09:46	GJ	2	A	60	120	pair
40001_VP_0192_b	18/03/2019	5	YBR	09:46	GJ	2	B	30	60	
40001_VP_0193_a	18/03/2019	3	NRO	11:58	PE	1	C	15	15	lost in high circle
40001_VP_0193_b	18/03/2019	3	NRO	11:58	PE	1	D	30	30	
40001_VP_0194_a	18/03/2019	3	NRO	12:59	WE	1	C	120	120	adult
40001_VP_0194_b	18/03/2019	3	NRO	12:59	WE	1	D	120	120	
40001_VP_0194_c	18/03/2019	3	NRO	12:59	WE	1	C	270	270	
40001_VP_0195_a	18/03/2019	3	NRO	13:58	EA	1	D	45	45	adult, mobbed by 2RN - originally incidental 40001_FI_0032
40001_VP_0195_b	18/03/2019	3	NRO	13:58	EA	1	C	30	30	
40001_VP_0195_c	18/03/2019	3	NRO	13:58	EA	1	B	75	75	
40001_VP_0195_d	18/03/2019	3	NRO	13:58	EA	1	C	210	210	
40001_VP_0196	20/03/2019	5	NRO	11:58	WE	1	B	120	120	adult, lost to north
40001_VP_0197	20/03/2019	4	YBR	11:13	GJ	2	B	105	210	
40001_VP_0198_a	20/03/2019	4	YBR	12:24	GJ	2	A	30	60	
40001_VP_0198_b	20/03/2019	4	YBR	12:24	GJ	2	B	30	60	

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0198_c	20/03/2019	4	YBR	12:24	GJ	2	A	15	30	
40001_VP_0199	20/03/2019	4	YBR	12:52	HH	1	A	15	15	adult male hunting
40001_VP_0200	21/03/2019	8	NRO	08:02	BV	1	B	30	30	lost behind vp
40001_VP_0201	21/03/2019	8	NRO	08:19	BV	1	B	30	30	
40001_VP_0202	21/03/2019	8	NRO	08:32	GJ	1	A	30	30	
40001_VP_0203_a	21/03/2019	8	NRO	09:04	HH	1	A	30	30	hunting
40001_VP_0203_b	21/03/2019	8	NRO	09:04	HH	1	B	15	15	steep glide
40001_VP_0203_c	21/03/2019	8	NRO	09:04	HH	1	A	30	30	continued hunting
40001_VP_0204	21/03/2019	8	NRO	09:38	GJ	1	A	30	30	
40001_VP_0205	21/03/2019	8	NRO	09:38	GJ	2	A	45	90	
40001_VP_0206	21/03/2019	8	NRO	09:39	HH	2	A	180	360	pair flying together (male was perched on trees). Male lost, female flew down into hillside patch
40001_VP_0207_a	21/03/2019	2	NRO	15:35	EA	1	B	300	300	adult
40001_VP_0207_b	21/03/2019	2	NRO	15:35	EA	1	C	60	60	
40001_VP_0207_c	21/03/2019	2	NRO	15:35	EA	1	B	30	30	
40001_VP_0207_d	21/03/2019	2	NRO	15:35	EA	1	A	30	30	
40001_VP_0207_e	21/03/2019	2	NRO	15:35	EA	1	B	30	30	

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0207_f	21/03/2019	2	NRO	15:35	EA	1	A	45	45	low SW out of viewshed - continued on incidentals 40001_FI_0031
40001_VP_0208	25/03/2019	1	EDO	09:34	HH	1	A	210	210	female hunting
40001_VP_0209	25/03/2019	1	EDO	09:36	GP	2	A	15	30	
40001_VP_0210	25/03/2019	1	EDO	09:45	WS	24	A	255	6120	
40001_VP_0211	25/03/2019	1	EDO	10:07	GP	5	B	105	525	
40001_VP_0212	25/03/2019	1	EDO	10:14	EA	1	B	660	660	hunting, occasionally mobbed by GB
40001_VP_0213	25/03/2019	1	EDO	10:18	ML	1	B	15	15	male
40001_VP_0214_a	25/03/2019	1	EDO	10:37	GP	1	A	15	15	flushed
40001_VP_0214_b	25/03/2019	1	EDO	10:37	GP	1	B	30	30	
40001_VP_0214_c	25/03/2019	1	EDO	10:37	GP	1	A	15	15	
40001_VP_0215	25/03/2019	1	EDO	10:38	EA	1	A	60	60	
40001_VP_0216_a	25/03/2019	1	EDO	11:03	EA	1	B	375	375	hunting
40001_VP_0216_b	25/03/2019	1	EDO	11:03	EA	1	C	270	270	
40001_VP_0217_a	25/03/2019	2	PRO	13:01	EA	1	C	75	75	adult lost high to south
40001_VP_0217_b	25/03/2019	2	PRO	13:01	EA	1	D	90	90	
40001_VP_0218	25/03/2019	2	PRO	13:53	GJ	32	C	90	2880	lost north behind vp
40001_VP_0219_a	25/03/2019	2	PRO	14:10	EA	1	B	510	510	3CY with 3X RN, lost low

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0219_b	25/03/2019	2	PRO	14:10	EA	1	A	15	15	
40001_VP_0220	25/03/2019	2	PRO	14:10	EA	1	C	15	15	adult, lost south whilst following previous bird
40001_VP_0221_a	25/03/2019	2	PRO	14:21	EA	1	B	90	90	same bird as 40001_VP_0219_a
40001_VP_0221_b	25/03/2019	2	PRO	14:21	EA	1	A	30	30	lost low to west, mobbed by RN
40001_VP_0222	26/03/2019	8	PRO	10:49	GJ	1	B	60	60	downwind, lost NE
40001_VP_0223	26/03/2019	8	PRO	11:20	WS	1	B	45	45	downwind, lost NE
40001_VP_0224	26/03/2019	8	PRO	12:26	GP	1	A	15	15	calling and lost behind vp
40001_VP_0225_a	27/03/2019	1	PRO	11:24	HH	1	B	30	30	adult male
40001_VP_0225_b	27/03/2019	1	PRO	11:24	HH	1	A	30	30	spiral flight downwind
40001_VP_0225_c	27/03/2019	1	PRO	11:24	HH	1	B	60	60	
40001_VP_0225_d	27/03/2019	1	PRO	11:24	HH	1	A	15	15	lost east over mound
40001_VP_0226	27/03/2019	1	PRO	12:43	GP	1	A	15	15	calling, brief low flight
40001_VP_0227	27/03/2019	4	EDO	13:51	NX	1	A	30	30	lost behind hill
40001_VP_0228	27/03/2019	4	EDO	15:38	NX	1	A	30	30	
40001_VP_0229_a	28/03/2019	HH Roost 1	PRO	17:51	HH	1	B	15	15	Ringtail. Brief, lost south - not roosting
40001_VP_0229_b	28/03/2019	HH Roost 1	PRO	17:51	HH	1	A	15	15	
40001_VP_0230	28/03/2019	HH Roost 1	PRO	18:00	HH	1	A	30	30	Grey male 3CY lost south - not roosting

GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0231	25/03/2019	HH Roost 1	EDO	18:02	HH	1	A	45	45	Hunting, then landed in roost
40001_VP_0232	25/03/2019	HH Roost 1	EDO	18:02	HH	1	A	165	165	Hunting, flushed 40001_VP_0231
40001_VP_0233	25/03/2019	HH Roost 1	EDO	18:03	HH	1	A	45	45	same bird as 40001_VP_0231
40001_VP_0234	25/03/2019	HH Roost 1	EDO	18:31	HH	1	A	150	150	landed in roost
40001_VP_0235	25/03/2019	HH Roost 1	EDO	18:38	HH	1	A	30	30	back out of roost
40001_VP_0236	25/03/2019	HH Roost 1	EDO	18:58	HH	1	A	60	60	into roost
40001_VP_0237	26/03/2019	HH Roost 1	PRO	17:43	HH	1	A	45	45	adult male into roost
40001_VP_0238	26/03/2019	HH Roost 1	PRO	18:00	HH	1	A	30	30	ringtail into roost alongside previous male
40001_VP_0239_a	26/03/2019	HH Roost 1	PRO	18:00	HH	1	A	45	45	adult male, probably different to 40001_VP_0237
40001_VP_0239_b	26/03/2019	HH Roost 1	PRO	18:00	HH	1	B	60	60	mini skydance/playing in wind and rain
40001_VP_0239_c	26/03/2019	HH Roost 1	PRO	18:00	HH	1	A	15	15	
40001_VP_0240	26/03/2019	HH Roost 1	PRO	18:20	HH	1	A	30	30	ringtail female lost low towards other roosting area
40001_VP_0241_a	26/03/2019	HH Roost 1	PRO	18:47	HH	1	B	45	45	silhouette only as poor visibility, probably male, lost low towards vp3
40001_VP_0241_b	26/03/2019	HH Roost 1	PRO	18:47	HH	1	A	15	15	
40001_VP_0242	25/03/2019	HH Roost 2	PRO	17:39	HH	1	B	210	210	ringtail soaring flight lost to east. Possibly 1CY male
40001_VP_0243	25/03/2019	HH Roost 2	PRO	17:57	HH	1	A	165	165	adult male, low through valley and lost east near 3 turbines



GISID	Date	VP	Observer	Flight start time	Species	Count	Height Band	Seconds	Total Seconds	Notes
40001_VP_0244	27/03/2019	HH Roost 1	PRO	17:38	HH	1	A	15	15	Adult male, dropped into roost

wood.

