
Earraghail Renewable Energy Development
on behalf of ScottishPower Renewables
Appendix 9.1: Ornithology



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1 INTRODUCTION

- 1.1.1 This Technical Appendix has been prepared to accompany **Chapter 9** of the Environmental Impact Assessment (EIA) Report for ScottishPower Renewables' (SPR) Earraghail Renewable Energy Development (hereafter 'the proposed Development').
- 1.1.2 It presents detailed methodologies and results of ornithology desk studies and field surveys completed between 2019 and 2021 to inform the design and assessment of the proposed Development.
- 1.1.3 It should be read with reference to the following Figures, which are included within Volume 3 of the EIA Report:
- **Figure 9.1:** Ornithological Statutory Designated Sites for Nature Conservation;
 - **Figure 9.2:** Existing Ornithological Records;
 - **Figure 9.3a:** Vantage Point Flight Activity Survey Plan (Year 1);
 - **Figure 9.3b:** Vantage Point Flight Activity Survey Plan (Year 2);
 - **Figure 9.4:** Breeding Bird Survey Plan;
 - **Figure 9.5:** Prey Transects Plan;
 - **Figure 9.6a:** Target Species Flight Activity – Raptors and Owls (Year 1) ;
 - **Figure 9.6b:** Target Species Flight Activity – Other Species (Year 1);
 - **Figure 9.6c:** Target Species Flight Activity – Raptors and Owls (Year 2) ;
 - **Figure 9.6d:** Target Species Flight Activity – Other Species (Year 2);
 - **Figure 9.7:** Moorland Breeding Bird Survey Results;
 - **Confidential Figure 9.2.1:** Existing Ornithological Records;
 - **Confidential Figure 9.2.2:** Breeding Annex1/Schedule 1 Raptor and Owl Observations;
 - **Confidential Figure 9.2.3:** Breeding Diver Search Results;
 - **Confidential Figure 9.2.4:** Breeding Diver Focal Loch Watch Results; and,
 - **Confidential Figure 9.2.5:** Breeding Black Grouse Survey Results.
- 1.1.4 Only common bird species names are referred to within the main text of this Appendix. **Annex 1** provides a summary of all bird species referred to herein, within **Chapter 9** of the EIA Report and all other associated appendices and figures. Both common and species names are provided, together with a summary of their conservation status as relevant.
- 1.1.5 Information pertaining to the locations of sensitive breeding bird species, which is considered confidential, is provided in Confidential **Appendix 9.2** and associated figures (**Confidential Figures 9.2.1 to 9.2.5**). Such information will not be made publicly available but will be provided to the Scottish Government, NatureScot and the RSPB.

1.2 Site Overview

- 1.2.1 The Site, as shown by the application boundary in **Figures 9.1 to 9.7**, lies immediately south of Tarbert in the north of the Kintyre peninsula, in Argyll and Bute. The Site largely comprises commercial forestry plantation, interspersed with some areas of open hill ground, most notably around the summit of Doire Lèithe, and comprising a mixture of acid grassland, bog and heathland habitats. Existing forestry access tracks intersect the Site through much of its extent. The Site is intersected by a number of watercourses and supports several lochans; the larger of which include Loch na Machrach Bige and Loch na Machrach Moire.
- 1.2.2 The surrounding wider area includes similar commercial forestry plantations, and larger expanses of open moorland to the west.

1.3 Key Guidance

- 1.3.1 Ornithology survey methodologies and subsequent interpretation of results has made reference to the following key industry standard guidance:
- Brown, A.F. & Shepherd, K.B. (1993). *A method for censusing upland breeding waders*. Bird Study 40, 189-195.
 - SNH (2017). *Recommended bird survey methods to inform impact assessment of onshore wind farms*. Version 2. March 2017.
 - Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013). *Raptors: a field guide to survey and monitoring*. Third Edition. The Stationary Office, Edinburgh.
 - Gilbert, G., Gibbons, D.W. & Evans, J. (1998). *Bird monitoring methods*. A manual of techniques for key UK species. RSPB, Sandy, Bedfordshire.
 - Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D. & Win, I. (2021). The Status of our bird populations: the fifth *Birds of conservation concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN List assessment of extinction risk for Great Britain*. British Birds, 114, pp. 723-747.
 - SNH (2000). *Windfarms and Birds - Calculating a theoretical collision risk assuming no avoiding action*. SNH Guidance Note. Available at www.nature.scot/sites/default/files/2017-09/Guidance%20Note%20-%20Windfarms%20and%20birds%20-%20Calculating%20a%20theoretical%20collision%20risk%20assuming%20no%20avoiding%20action.pdf.
 - SNH (2018). *Assessing significance of impacts from onshore wind farm outwith designated areas*. Guidance. Version 2 – February 2018.
 - SNH (2016). *Assessing connectivity with Special Protection Areas (SPAs)*. Guidance. Version 3 – June 2016.

1.4 Target Species

- 1.4.1 Target species for survey were identified through desk study and consultation with NatureScot, on the basis of their known or likely presence, their likely sensitivity to the proposed Development and those which are afforded a higher level of legislative protection, which is in accordance with current NatureScot guidance (SNH, 2017 and 2018). Primarily, target species included those species listed on/as:

- Annex 1 of the EC Birds Directive (2009/147/EC);
- Schedule 1 of the Wildlife and Countryside Act 1981 (as amended); and,
- Red-listed Birds of Conservation Concern (Stanbury *et al.* 2021).

1.4.2 This has ensured inclusion of qualifying interests of designated sites for nature conservation (**Table 3.1**) and “Priority bird species for assessment when considering the development of onshore wind farms in Scotland” as per NatureScot guidance (SNH, 2018).

2 METHODOLOGY

2.1 Desk Study

2.1.1 In accordance with NatureScot guidance (SNH, 2017), a desk study was undertaken to ascertain a coarse overview of likely bird populations and designated sites in proximity to the proposed Development, in order to identify target species for survey and recording.

2.1.2 The desk study was also continued over the course of field surveys to provide updated context on field observations and ensure the scope of surveys remained appropriate to inform the design and assessment of the proposed Development.

2.1.3 The desk study has included a review of the following key sources summarised in **Table 2.1**.

2.1.4 Available EIA documentation (based on surveys carried out January 2014 to August 2019) for the Sheirdrim Renewable Energy Development (Planning Ref. 19/02424/S36) has been reviewed together with additional peer reviewed literature and industry guidance, referred to where relevant.

Table 2.1: Desk study key sources and information sought.

Key Source	Information Sought	Study Area
SNH Sitelink ¹	Proximity to statutory designated sites for nature conservation with qualifying ornithological interests.	Within 10 km of the Site boundary, extended to 20 km for internationally designated sites with migratory geese qualifying interests.
Argyll Biological Records Centre (ABReC) – <i>via the Highland Biological Recording Group (HBRG)</i>	Existing ornithological records and Non-statutory designated sites.	Within 2 km of the Site boundary.
Royal Society for the Protection of Birds (RSPB)	Existing ornithological records.	Within 2 km of the Site boundary for all species, extended to 6 km for eagle species.
Argyll Raptor Study Group (ARSG)	Existing records of breeding and roosting raptors and owls.	Within 2 km of the Site boundary for all species, extended to 6 km for eagle species.
Forestry and Land Scotland (FLS)	Existing ornithological records.	Within the Skipness and Corranbuie FLS landholdings.

¹ <https://sitelink.nature.scot/home> [Accessed June 2021].

2.2 Field Surveys

- 2.2.1 Detailed knowledge of bird populations, distributions and flight activity has been derived from field surveys undertaken between 2019 and 2021, in order to predict the potential effects of the proposed Development upon ornithological features.
- 2.2.2 The identification of target species and scope of surveys undertaken was informed through consultation with NatureScot, proximity to designated sites and existing knowledge of sensitive species as derived from desk study (all consultation is summarised in **Chapter 9** in Volume 2 the EIA Report).
- 2.2.3 Field surveyor knowledge and experience of bird - habitat associations has also informed and guided survey effort over the course of surveys.
- 2.2.4 It is common for proposed Development areas to change shape and size over the course of its evolution. Field surveys were accordingly adapted to account for any alteration in proposed Development areas. As such, the field surveys undertaken for the proposed Development comprise coverage of study areas required in accordance with NatureScot guidance (SNH, 2017) and the surrounding wider area.

Field Survey Personnel

- 2.2.5 All field surveys have been completed by experienced and professional ornithologists named in **Annex 3**; all of whom are all fully conversant in recognised bird survey methodologies for proposed wind turbine developments. Surveys between September 2019 and March 2020 were carried out by Gavia Environmental Ltd., with surveys from April 2020 carried out by Avian Ecology Ltd.

Methodologies

- 2.2.6 The following field surveys were completed between 2019 and 2021:
- Vantage Point (VP) flight activity surveys;
 - Moorland breeding bird surveys;
 - Annex 1/ Schedule 1 Breeding raptor and owl searches;
 - Breeding diver searches;
 - Breeding diver focal loch watches;
 - Breeding black grouse surveys; and,
 - Prey transects.
- 2.2.7 Surveys were undertaken in accordance with recommendations outlined within NatureScot guidance (SNH, 2017). Any deviations from guidance are detailed in **Sections 2.2.58 to 2.2.64**, with justification where appropriate, or limitations acknowledged.

VP Flight Activity Surveys

- 2.2.8 VP flight activity surveys were undertaken in September 2019 to November 2021 and provide coverage of two full breeding seasons, and two full non-breeding seasons.

VP Locations and Viewsheds

- 2.2.9 During Year 1 surveys six VP locations were utilised, as shown in **Figure 9.3a** and detailed within **Table 2.2**. During Year 2 surveys, four VP locations were used as shown in **Figure 9.3b** and detailed within **Table 2.3**.
- 2.2.10 VP locations and areas of visibility, used in Year 2, have provided comprehensive visual coverage of the VP study area required for the proposed Development in accordance with current NatureScot guidance (SNH, 2017); defined as a 500 m buffer around outermost proposed turbine locations. The change in VP locations between Year 1 and Year 2 was a reflection of the evolving turbine layout and through consultation with NatureScot regarding appropriate VP viewshed coverage (with reservations concerning coverage in Year 1 raised)². VP 2 was used in both Year 1 and Year 2, but in Year 2 VPs 1 and 4-6 were dropped, and VPs 7 and 11 were added. For VP 3 although the same location was used in Year 1 and 2, the orientation of the viewshed was different, and the VPs are respectively called VP3a and VP3b (note for September-November 2020 in Year 2 VP 3a was used, with VP 3b used from December 2020 onwards).
- 2.2.11 For the purpose of the assessment Year 1 VP surveys are defined as the period September 2019 to November 2020, with Year 2 VP surveys the period December 2020 to November 2021. Given the shortcomings with the VP viewshed coverage in Year 1, only Year 2 VP data is used for collision risk modelling.
- 2.2.12 Modelled areas of visibility within the 2 km viewsheds from each VP location are illustrated in **Figures 9.3a** and **9.3b**, respectively for Year 1 and Year 2 surveys.

Table 2.2: VP locations during Year 1 surveys.

VP	Grid Reference	Viewshed Orientation
1	NR 87530 65352	North-north-west.
2	NR 87592 65315	South-south-east.
3a	NR 90045 61699	South-south-east.
4	NR 89149 63511	South-west.
5	NR 89384 63597	South-east.
6	NR 87173 62554	East.

Table 2.3: VP locations during Year 2 surveys.

VP	Grid Reference	Viewshed Orientation
2	NR 87592 65315	South-south-east.
3b	NR 90045 61699	South-west.
7	NR 89175 61367	North-east.
11	NR 87863 63288	South.

² Consultation with NatureScot comprised scoping opinion on 2nd July 2020, and additional post scoping correspondence on 5th October 2020 and 29th January 2021, with all consultation by letter sent by email, with further details provided in **Chapter 9**.

Survey Effort

- 2.2.13 The total survey effort (hours) completed at each VP location in Year 1 between September 2019 and November (2020), and December 2020 to November 2021 (Year 2) is summarised in **Table 2.4**. Each VP survey session was up to three-hours in duration³.
- 2.2.14 Full details of all survey times, field surveyors used and weather conditions are presented in **Annex 3**.
- 2.2.15 In Year 1, VPs were carried out from six VPs (VP1-6) with a minimum of 72 hours per VP location typically completed (with fewer than 72 hours undertaken at only VP1 and VP6).
- 2.2.16 Survey effort in each year has typically exceeded the minimum of 72 hours per VP location divided between breeding (March to August inclusive) and non-breeding (September to February inclusive) seasons i.e. 36 hours breeding and 36 hours non-breeding, as per current NatureScot guidance (SNH, 2017). Note, the definition of 'breeding season' and 'non-breeding season' differs depending on the species present, with for example eagles having an extended breeding season starting in February (as per SNH, 2017) whereas other species commence breeding later.
- 2.2.17 Survey times were distributed throughout the day and were also completed in a range of weather conditions, but always conducive to survey and safe access.
- 2.2.18 In accordance with NatureScot guidance (SNH, 2017), flight lines were mapped for all target species passing through the VP viewshed. Details of species, number of birds, flight height in bands (at, below or above collision risk height), duration and direction were noted on standardised recording forms and field plans.
- 2.2.19 VP flight activity surveys commenced after a short period of "settling in", to ensure any potential disturbance to target species present within each viewshed had reasonably passed and surveyors were alert to survey following a traverse to each VP location.
- 2.2.20 Surveyors were stationary until the completion of watches at the VP locations and (when the VP surveys were carried out simultaneously) were in contact to ensure flight lines of target species where they were recorded, were not duplicated.

Table 2.4: VP flight activity survey effort summary.

VP	2019				2020											Year 1 Total
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
1	6	6	12	0	6	3	3	12	<i>No further survey undertaken.</i>							48
2	6	6	6	0	12	6	0	12	12	6	6	6	6	6	9	99
3a	6	6	11.5	0	6	6	1.5	3	18	6	6	6	6	6	9	97
4	6	6	6	4.5	5.5	6	2.5	6	18	6	6	6	6	3	12	99.5
5	6	6	6	0	10.5	3	4.5	6	18	6	6	6	6	3	12	99
6	0	14	6	0	12	3	1	3	12	6	6	6	6	3	12	90
VP	2020				2021											Year 2 Total
	Dec				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	
2	6				6	12	6	9	12	6	9	6	6	9	6	93
3b	6				6	12	6	12	9	9	6	6	6	9	6	93

³ One exception was a VP survey on 21/10/2019 which lasted 3.5hrs.

7	6	6	12	6	12	9	9	6	6	6	9	6	93
11	6	6	6	12	12	12	6	6	6	6	9	6	93

Target Species

- 2.2.21 Target species for recording included all Annex 1/Schedule 1 raptors, waders, divers, black grouse, owls, swans, geese and ducks (excluding mallard and feral waterfowl species) as observed during VP watches.
- 2.2.22 Target species included greylag goose. Greylag geese in Scotland comprise three populations:
- the Icelandic migratory population present between October and April, predominantly in Scotland and northern England;
 - the north-west Scotland remnant population, which predominantly occur within western Scotland and in mainland northern Scotland; and
 - the re-established (naturalised) introduced population, which is widespread throughout Britain and Ireland (Mitchell & Hearn, 2004).
- 2.2.23 The local passage and non-breeding populations between October and April are considered to potentially comprise part of the Icelandic migratory population.

Secondary Species

- 2.2.24 Secondary species were also noted in approximately fifteen minute summary intervals, with the number of birds present and general behaviour recorded in order to build an overall picture of activity. Fifteen minute periods were considered appropriate to ensure surveyors were fully alert to target species activity, which took priority during survey.
- 2.2.25 Secondary species are defined here as commoner raptors (e.g. buzzard, kestrel and sparrowhawk), all gulls, feral species and mallard, along with any large concentrations of Schedule 1 or Red-listed passerines as recorded during survey.

Collision Risk Mortality

- 2.2.26 For species for which there is sufficient (considered ≥ 3 flights) “at collision risk” flight activity data, collision risk mortality as a result of birds colliding with rotor blades will be assessed using the Collision Risk Models (CRMs) as detailed in Band *et al.* (2007).
- 2.2.27 CRM was accordingly undertaken for golden eagle and hen harrier in Year 2. Given the reservations regarding VP viewshed coverage in Year 1 (see **Field Survey Limitations** section), no CRM was undertaken on Year 1 survey data.

Moorland Breeding Bird Surveys

- 2.2.28 Moorland breeding bird surveys (MBBS) to inform the design and assessment of the proposed Development have been undertaken in 2020. MBBS was not undertaken in 2021 given the MBBS assemblage recorded in 2020 was very limited (see **Section 3.2**).
- 2.2.29 The study area has comprised coverage of the Site, extended to include accessible areas of open habitats within 500 m as shown in **Figure 9.4** and in accordance with current NatureScot guidance (SNH, 2017). Much of the Site is forested, and therefore unsuitable for open country species.
- 2.2.30 The methodology employed has followed the adapted Brown and Shepherd (1993) method for censusing upland breeding waders, based upon the recommendations set out in Calladine *et al.*

(2009) as recommended in NatureScot guidance applicable at the time of survey (SNH, 2017). The methodology is suitable for moorland and open country species including, waders, skuas, gulls and some wildfowl species however, incidental observations of any raptors, owls or notable passerines (i.e. Schedule 1 and BoCC red-listed) were also recorded.

- 2.2.31 A series of four staggered visits were completed during each survey year, between April and July.
- 2.2.32 During each survey visit a pre-determined route was walked through the study area, with all birds seen or heard, and their behaviours (e.g. displaying, carrying food etc.) mapped in the field, using standard British Trust for Ornithology notation.
- 2.2.33 All surveys were undertaken during daylight hours and in fine conditions conducive to survey. Survey effort is summarised in **Table 2.5**. Full details of all survey times, field surveyors used and weather conditions are presented in **Annex 3**.

Table 2.5: Moorland breeding bird survey effort.

Year	Visit	Date	Start Time (24hrs)	End Time (24hrs)
2020	1	30/04/2020	09:00	12:00
	2	21/05/2020	09:30	15:30
	3	16/06/2020	08:30	14:30
	4	08/07/2020	08:30	14:30

Annex 1/ Schedule 1 Breeding Raptor and Owl Searches

- 2.2.34 Breeding raptor and owl searches to inform the design and assessment of the proposed scheme were undertaken in 2020 and 2021 with reference to species-specific methodologies outlined in Hardey *et al.* (2013), as per NatureScot guidance (SNH, 2017).
- 2.2.35 Search visits were staggered across the core breeding season. Given the extent of the study area and terrain, searches were sometimes completed by a team of surveyors.
- 2.2.36 Survey effort is summarised in **Table 2.6**. Full details of all survey times, field surveyors used and weather conditions are presented in **Annex 3**.
- 2.2.37 The breeding raptor and owl study area has comprised coverage of the Site and areas out to at least 2 km for all raptor species, extended out to 6 km for breeding eagle species as shown in **Figure 9.4** and in accordance with current NatureScot guidance (SNH, 2017).
- 2.2.38 Search effort and areas have been informed through desk study records obtained from RSPB and the ARSG and through consultation with NatureScot.

Table 2.6: Breeding raptor and owl search effort summary.

Year	Visit	Date	Start Time (24hrs)	End Time (24hrs)
2020	1	27/04/2020	09:30	18:30
	2	05/05/2020	10:00	16:00
	3	14/05/2020	08:00	14:00
	4	10/06/2020	10:40	16:40
	5	16/06/2020	07:00	17:00
	6	23/07/2020	16:00	19:00
2021	1	17/03/2021	08:30	11:30

	2	26/03/2021	08:45	15:00
	3	19/04/2021	10:30	16:30
	4	15/05/2021	08:30	11:30
	5	21/05/2021	08:45	15:45
	6	25/05/2021	06:30	12:30
	7	28/05/2021	11:40	14:30
	8	30/06/2021	10:00	17:15
	9	22/07/2021	10:50	17:20

Breeding Diver Searches

- 2.2.39 Searches for breeding divers were undertaken between May and July 2020, and April and July 2021, at all suitable waterbodies within and out to a 1 km buffer of the Site (as shown in **Figure 9.4**), following species-specific survey methodologies detailed in Gilbert *et al.* (1998) as per NatureScot guidance (SNH, 2017).
- 2.2.40 Searches sought to establish breeding occupancy by red-throated and black-throated diver and to determine breeding outcomes where possible.
- 2.2.41 Survey effort is summarised in **Table 2.7**. Detailed survey effort including survey conditions are presented in **Annex 3**.

Table 2.7: Breeding diver search summary.

Year	Visit	Date	Start Time (24hrs)	End Time (24hrs)
2020	1	01/05/2020	05:00	08:00
	2	05/05/2020	11:00	14:00
	3	16/06/2020	08:30	14:30
	4	17/06/2020	12:00	18:00
	5	23/07/2020	12:30	15:30
2021	1	28/04/2021	10:15	13:15
	2	25/05/2021	14:30	17:30
	3	30/06/2021	18:00	20:15
	4	21/07/2021	08:00	11:00

Breeding Diver Focal Loch Watches

- 2.2.42 Where breeding occupancy was confirmed, focal watches overlooking occupied breeding lochans were undertaken to record incoming and outgoing flights of provisioning adult divers during the incubation and chick-rearing periods (July to August) in accordance with NatureScot guidance (SNH, 2017).
- 2.2.43 Watches were conducted from VP2 and VP4 used for VP Flight Activity Surveys (see **Confidential Figure 9.2.4**), given the limitations of establishing safe and discreet VPs within closer proximity to the occupied breeding lochans, and access restrictions outside the Site boundary.

- 2.2.44 Survey effort aimed to record a total of 20-30 incoming and outgoing flights, or sufficient activity to identify any regular flight patterns occurring over the Site, between occupied breeding lochans and foraging areas.
- 2.2.45 A total of 24 hours of targeted observation, were conducted from VP2 and VP4 in 2020, with 15 hours conducted from VP2 in 2021, as summarised in **Table 2.8**. This prioritised survey effort during the hours of dusk and dawn, when adult birds are likely to be most active. Detailed survey effort is presented in **Annex 3** and is in addition to VP flight activity survey effort.

Table 2.8: Breeding diver focal loch watch effort (hours) – Year 1 and Year 2.

VP	2020		Year 1	2021		Year 2
	Jul	Aug	Total	Jul	Aug	Total
2	6	6	12	3	12	15
4	6	6	12	-	-	-

Breeding Black Grouse Surveys

- 2.2.46 Searches for black grouse leks to inform the design and assessment of the proposed Development were undertaken in 2020 and 2021, with reference to species-specific methodologies outlined in Gilbert *et al.* (1998), as per NatureScot guidance (SNH, 2017).
- 2.2.47 In each survey year, two search visits, following a number of preparatory visits, were undertaken between the last week in March and mid-May to record peak numbers of lekking males within the study area.
- 2.2.48 During searches all areas of suitable habitat (e.g. open moorland, woodland edges and tracks) within the study area were visited at dawn. All black grouse observed were recorded, with leks more than 200 m apart treated as separate leks.
- 2.2.49 Survey effort is summarised in **Table 2.9**. Full details of all survey times, field surveyors used and weather conditions are presented in **Annex 3**.
- 2.2.50 The breeding black grouse search area has comprised the Site and accessible areas out to 1.5 km as shown in **Figure 9.4** and in accordance with NatureScot guidance (SNH, 2017).
- 2.2.51 Given the extent of the study area and timing, searches were generally undertaken by small teams of surveyors to ensure safety.

Table 2.9: Breeding black grouse search effort summary.

Year	Visit	Date	Start Time (24hrs)	End Time (24hrs)
2020	1	01/05/2020	05:00	08:15
	2	08/05/2020	05:00	08:30
2021	1	07/04/2021	05:40	08:40
	2	15/05/2021	04:15	07:15

Prey Transects

- 2.2.52 Prey transects to provide baseline information on the range and levels of prey items for golden eagle (and additional Annex 1/Schedule 1 breeding raptors and owls) were carried out to inform the appropriateness of habitat management proposals as part of mitigation and/or enhancement measures for the proposed Development.
- 2.2.53 Surveys were carried out in spring (March 2021) and summer (June 2021), to establish the presence of potential prey items for key species including small mammals (e.g. voles, rabbits and hares), large mammals (e.g. deer and livestock) reptiles, amphibians and birds. Evidence of prey included direct observation, and indirect evidence such as droppings, prints or rodent runs.
- 2.2.54 In order to survey representative habitats within (and adjoining) the Site, four 1 km transects selected using aerial maps, were walked with prey species evidence recorded in 20 x 50 m intervals, with the transects shown in **Figure 9.5**.
- 2.2.55 Survey effort is summarised in **Table 2.10**. Full details of all survey times, field surveyors used and weather conditions are presented in **Annex 3**.

Table 2.10: Prey transects survey summary.

Transect No.	Date	Start Time (24hrs)	End Time (24hrs)
1	04/03/2021	10:20	11:30
	08/06/2021	14:55	15:55
	29/08/2021	10:30	11:30
2	04/03/2021	12:00	13:00
	08/06/2021	13:25	14:30
	29/08/2021	11:45	12:45
3	04/03/2021	10:20	11:35
	08/06/2021	12:00	13:10
	29/08/2021	13:10	14:10
4	04/03/2021	12:40	13:50
	08/06/2021	10:20	11:40
	29/08/2021	14:40	15:40

Additional Surveys

- 2.2.56 The Site is not located in area of known importance for foraging migratory greylag or pink-footed geese (e.g. as per Mitchell, 2012), and is outwith any known important foraging sites on Kintyre for Greenland white-fronted geese. The broad habitats within the Site are also considered to be unsuitable for wintering and migrant foraging waterfowl. Feeding distribution surveys for geese and swans have therefore not been undertaken. Year 1 and 2 VP flight activity surveys did also not record overflying Greenland white-fronted geese or large frequent movements of other migratory waterfowl.
- 2.2.57 Surveys of woodland passerines, particularly in sites supporting commercial plantation woodland are not required in accordance with NatureScot guidance (SNH, 2017) and have not been undertaken. Observations of any notable species (incl. Schedule 1 species) were however noted during the MBBS and/or other ornithological surveys where observed.

Field Survey Limitations

- 2.2.58 The original site boundary considered during the Year 1 and Year 2 ornithology surveys was more extensive than the current application boundary, with the southern boundary extending out by approximately 1 km to include a larger area of commercial conifer plantation on-site. The original site boundary in the north of the Site extended out to a maximum of approximately 2 km to the west along the access route (although it did not extend as far as the western extreme of the access route), and the eastern extreme of the Site included Tarbert Wood Special Area of Conservation (SAC) and Tarbert to Skipness Coast Site of Special Scientific Interest (SSSI). The Site was reduced to the application boundary as shown in **Figures 9.1 to 9.7**, in June 2021, but the original site boundary is also shown as the shaded area for information on **Figure 9.4**.
- 2.2.59 All habitats within the original site boundary were accessible, with the exception of an exclusion zone in the eastern extreme of the Site⁴. The wider study areas used for the MBBS (500 m), Annex 1/ Schedule 1 Breeding Raptor and Owl Searches (2 km and 6 km), Breeding Diver Searches (1 km) and Breeding Black Grouse Searches (1.5 km) were surveyed from suitable locations within the original site boundary or public rights of way (PRoWs), scanning the study areas with the use of optics (telescope and binoculars). The study areas in Year 1 and Year 2 were consistent and these were based on the more extensive original site boundary (plus survey buffer). For the purposes of this assessment and interpretation bird records are presented and regarded in relation to the reduced, updated application boundary as shown in **Figures 9.1 to 9.7**.
- 2.2.60 MBBS were carried out 2020, but were not replicated in 2021 given it was determined that scheme design (turbines and infrastructure) would be predominantly concentrated in forestry and thus open habitats would be typically unaffected by the proposed Development.
- 2.2.61 Given the good visibility across the study area from the PRoWs this is not considered a limitation to the results obtained.
- 2.2.62 Plantation woodland habitats within the study area were surveyed by traversing tracks and clearings rather than walking directly through dense plantation habitat, due to logistical and health and safety considerations. The study area was appropriately covered from the accessible tracks and clearings and this is not therefore considered a limitation to the results obtained.
- 2.2.63 The VP viewshed coverage (in Year 2) covered all, except one turbine location, and much of the 500 m buffer around the outermost turbines. Slight gaps in VP viewshed coverage are often unavoidable particularly at sites with undulating topography and/or those with a high degree of forest cover. Consultation with NatureScot (see **Chapter 9** for further details) determined shortcomings with the VP viewshed coverage in Year 1. As such, the Year 1 VP survey data is considered as baseline information and to provide context, but it is not used to carry out CRM analysis.
- 2.2.64 Adverse weather conditions in February 2020 and subsequent restrictions in March and April 2020 due to the Covid-19 pandemic lockdown meant in March and April 2020 the number of hours of survey at some of the VPs was reduced. However, all efforts were made to address any deficit in VP hours in subsequent months (May 2020).
- 2.2.65 The Golden Eagle Topographical (GET) Model (see **Appendix 9.4**), is based on a previous turbine layout within the Site (which extended to 14-turbines). Given the results of the GET model are therefore based on a greater Proposed Development area, the results are considered 'worst-case scenario' and precautionary, although in the context of the scale at which GET modelling assesses effects on golden eagle, the reduced extent of the Proposed Development and any resulting

⁴ See Confidential **Appendix 9.2**.

reduction of effects on eagles, than those reported in the GET model, are considered inconsequential.

2.2.66 Substantial data is available and is considered acceptable to inform a planning decision.

3 RESULTS

3.1 Desk Study

Statutory Designated Sites for Nature Conservation

3.1.1 This section should be read with reference to **Figure 9.1**.

3.1.2 A review of NatureScot’s Sitelink identifies that the Site does not form part of any statutory designated site for nature conservation with ornithological qualifying interests.

3.1.3 **Table 3.1** summarises statutory designated sites with ornithological features of interest located within 10 km of the application boundary, extended to 20 km for internationally designated sites with migratory goose interests.

3.1.4 Distances specified within **Table 3.1** are taken from the application boundary to the designation boundary at its nearest point.

Table 3.1: Designated sites for nature conservation.

SPA – Special Protection Area; SSSI – Site of Special Scientific Interest.

Designated Site	Distance and Direction from Site	Ornithological Qualifying Interests
Knapdale Lochs SSSI	8.34 km, north-west	Black-throated diver (breeding).
Knapdale Lochs SPA	8.34 km, north-west	Black-throated diver (breeding).
Arran North Mountain SSSI	9.06 km, south	Breeding bird assemblage (including, golden plover, dunlin, hen harrier, raven, peregrine falcon, golden eagle, red-throated diver and ptarmigan).
Kintyre Goose Roosts SPA	14.49 km, south-west	Greenland white-fronted goose (non-breeding).
Kintyre Goose Roosts Ramsar	14.49 km, south-west	Greenland white-fronted goose (non-breeding).

Non-statutory Designated Sites for Nature Conservation

3.1.5 The data request submitted to the ABReC identifies that the Site does not form part of any non-statutory designated sites for nature conservation with ornithological interests.

3.1.6 In further review of non-statutory designated sites, the Site is also not located within 2 km of any such site with ornithological interests.

Existing Ornithological Records

ABReC

3.1.7 The data request submitted to the ABReC also sought existing ornithological records within the Site and a 2km buffer of the Site.

3.1.8 A record of peregrine falcon and oystercatcher were returned for the study area. Further record details are provided in **Annex 2**. Sensitive information concerning the peregrine falcon record is provided in **Appendix 9.2** and in **Confidential Figure 9.2.1**, with non-sensitive information presented in **Figure 9.2**.

RSPB

3.1.9 The data request submitted to the RSPB returned records of black grouse and white-tailed eagle for the study area.

3.1.10 Further record details are provided in **Annex 2**. Information pertaining to sensitive records of breeding black grouse and white-tailed eagle, which are considered confidential, is provided in **Appendix 9.2** and in **Confidential Figure 9.2.1**, with non-sensitive information presented in **Figure 9.2**.

ARSG

3.1.11 The data request submitted to the ARSG returned records of golden eagle and merlin for the study area. Further record details are provided in **Annex 2**.

3.1.12 Records of these protected breeding raptors are considered confidential and as such sensitive information are detailed within **Appendix 9.2** and in **Confidential Figure 9.2.1**.

3.1.13 No nest or roost records for any species were returned from within 2 km of the Site.

FLS

3.1.14 The data request submitted to the FLS returned records of hen harrier, osprey, short-eared owl, black grouse, red-throated diver and ptarmigan for the study area.

3.1.15 Further record details are provided in **Annex 2**. Information pertaining to sensitive records of breeding red-throated diver, black grouse and barn owl, which are considered confidential, is provided in **Appendix 9.2** and in **Confidential Figure 9.2.1**, with non-sensitive information presented in **Figure 9.2**.

Sheirdrim Renewable Energy Development

3.1.16 A summary of the main results from the ornithology surveys undertaken to support the Sheirdrim Renewable Energy Development EIA Report Chapter (SPR, 2019) are presented in **Table 3.2**.

3.1.17 The surveys which supported the Sheirdrim development were:

- MBBS carried out April to June 2014, 2015 and 2016;
- Scarce Breeding Bird Surveys carried out January to August 2014, February to August 2015, February to July 2016, April to August 2018, and April to August 2019;
- Black Grouse Surveys carried out April and May 2014, 2015 and 2016;
- VP Flight Activity Surveys carried out January 2014 to November 2016, and April to August 2019;
- Goose Focal Watches carried out January to April 2014, October 2014 to March 2015, October 2015 to March 2016, November 2016 to April 2017, and October 2017 to April 2018; and
- Winter Walkovers carried out January to March 2014, October 2014 to March 2015, September 2015 to March 2016, and January to March 2018.

Table 3.2: Survey results which supported the Sheirdrim Renewable Energy Development.

Species	Information
Whooper swan	13 flights.
Greenland white-fronted goose	Preferred roost during winter survey period was Loch Tamalabh, with infrequent roosting on Loch chorra-riabhaich, Loch nan Gad, Lochan a' chreimh and Dubh Loch.
Greylag goose	7 flights recorded.
Barnacle goose	1 flight only recorded.
Black grouse	2014 – 4 males lekking at 3 locations within 1.5 km of the Sheirdrim development. 2015 – 5 males lekking at 5 locations within 1.5 km of the Sheirdrim development. 2016 – 4 males lekking at 1 location within 1.5 km of the Sheirdrim development.
Red-throated diver	2014 – 1 pair with breeding attempt within 2 km the Sheirdrim development. 2015 – 2 pairs with breeding attempt within 2 km of the Sheirdrim development. 2018 – 4 pairs with breeding attempt within 2 km of the Sheirdrim development. 2019 - 3 pairs with breeding attempt within 2 km of the Sheirdrim development. Note, no successful breeding attempts were however recorded.
Black-throated diver	12 records - no evidence of breeding.
White-tailed eagle	3 records – no evidence of breeding.
Hen harrier	Evidence of breeding in 2014, 2015, 2018 and 2019, with definitive evidence of successful nesting in 2014 and 2019 (within 2 km of the Sheirdrim development.).
Goshawk	4 records – no evidence of breeding.
Golden eagle	Active breeding pair within 5 km of the Sheirdrim development, but flights recorded during survey not considered to be the breeding pair.
Osprey	14 records – no evidence of breeding.
Golden plover	Modest numbers of flights – no evidence of breeding.
Lapwing	2015 – nesting pair and another pair holding a territory.
Curlew	2015 – pair holding territory. 2019 – pair nested successfully.
Other wading species	Woodcock, snipe and jack snipe were recorded infrequently during winter.
Barn owl	1 nest site on periphery of the Sheirdrim development.
Short-eared owl	15 records – no evidence of breeding.
Merlin	2 records – no evidence of breeding.
Peregrine falcon	8 records – no evidence of breeding.

3.2 Field Surveys

VP Flight Activity Surveys

Target Species

- 3.2.1 Target Species flight activity recorded during the VP survey period from all VPs is summarised in **Table 3.3i** and **Table 3.3ii** for Year 1 and Year 2, respectively.
- 3.2.2 The total number of all flights, total number of birds recorded and the total flight time, from all VP locations combined is presented. This includes some flights which were detected outside of the VP study area and which are not at-risk of collision.
- 3.2.3 Detailed flight records are presented in **Annex 4**, which also indicates the total flight time for each species, including at-risk height. Flight lines for each species over the entire survey period are illustrated in **Figures 9.6a – 9.6d**.

Table 3.3i: Target species flight activity summary – Year 1.

Species	Total No. of Flights	Total No. of Birds	Total Flight Time (s) ⁵
Whooper swan	1	8	312
Greylag goose	3	29	10,993
Teal	2	4	124
Black grouse	1	1	8
Red-throated diver	50	70	13,407
Hen harrier	35	38	6,065
Golden eagle	46	54	8,310
Osprey	1	1	199
Golden plover	1	24	13,248
Jack snipe	1	1	42
Snipe	4	4	1,221
Short-eared owl	2	2	108
Merlin	1	1	71
Peregrine falcon	2	2	128

Table 3.3ii: Target species flight activity summary – Year 2.

Species	Total No. of Flights	Total No. of Birds	Total Flight Time (s) ⁵
Whooper swan	1	1	204
Greylag goose	2	4	178
Black grouse	1	1	21
Red-throated diver	10	17	1,915
Grey heron	1	1	26

⁵ Total time multiplied by the number of birds.

Hen harrier	44	48	4,714
Golden eagle	76	81	22,291
White-tailed eagle	1	1	204
Honey buzzard	2	2	403
Merlin	2	2	180

Secondary Species

3.2.4 Low levels of activity of the following secondary species were also recorded across the survey period:

- Mallard;
- Sparrowhawk;
- Buzzard;
- Great black-backed gull;
- Common gull;
- Herring gull;
- Kestrel; and
- Raven;

Moorland Breeding Bird Surveys

3.2.5 The MBBS undertaken in 2020 recorded a limited range of open moorland breeding species (teal, snipe and common gull), with much of the study area comprising closed canopy coniferous woodland.

3.2.6 Common crossbill listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) was also established as breeding within woodland habitats of the study area.

3.2.7 A summary of breeding territory numbers of target species recorded within the study area is summarised in **Table 3.4**, and approximate locations of these breeding territories are illustrated in **Figure 9.7**.

Table 3.4: Breeding territories recorded during the MBBS.

Species	No. of Territories
	2020
Teal	1
Snipe	1
Common gull	1

Annex 1 / Schedule 1 Breeding Raptor and Owl Searches

- 3.2.8 Four species of Annex 1/ Schedule 1 raptor and a single Annex 1 species of owl were recorded during breeding raptor and owl searches undertaken in 2020 and 2021, consisting of golden eagle, hen harrier, peregrine falcon, merlin and short-eared owl.
- 3.2.9 An adult merlin carrying prey was recorded during VP flight activity surveys in April 2020, but no further records of merlin, or evidence of merlin breeding, was recorded during the surveys.
- 3.2.10 One peregrine falcon flight was recorded in June 2020, with another flight of an immature peregrine in March 2021. No evidence of breeding was recorded in either breeding season.
- 3.2.11 A summary of breeding territory numbers for raptors and owls recorded within the study area is presented in **Table 3.5**, and given the sensitivity of the information further details are provided in **Appendix 9.2** and in **Confidential Figure 9.2.2**.

Table 3.5: Breeding territories recorded during the breeding raptor and owl searches.

Species	No. of Territories	
	2020	2021
Short-eared owl	1	0
Hen harrier	1	0
Golden eagle	0	1

Breeding Diver Searches

- 3.2.12 Breeding diver searches undertaken in 2020 recorded six pairs of red-throated divers within the study area, of which three pairs at least nested.
- 3.2.13 Breeding diver searches undertaken in 2021 recorded three pairs of red-throated divers within the study area, of which one pair at least nested.
- 3.2.14 No observations of black-throated divers were recorded during 2020 or 2021 surveys.
- 3.2.15 Given the sensitivity of the information, further details of breeding divers are provided in **Appendix 9.2** and in **Confidential Figure 9.2.3**.

Breeding Diver Focal Breeding Loch Watches

- 3.2.16 Focal watches over occupied red-throated diver breeding lochans in 2020 recorded a total of 24 red-throated diver flights.
- 3.2.17 Focal watches over occupied red-throated diver breeding lochans in 2021 recorded a total of 12 red-throated diver flights.
- 3.2.18 Given the sensitivity of the information, further details of diver flight activity associated with breeding lochans are provided in **Appendix 9.2** and in **Confidential Figure 9.2.4**.

Breeding Black Grouse Surveys

- 3.2.19 Searches for black grouse leks in 2020 and 2021 recorded a total of 11 lek sites within the study area, each supporting between one and three males. The peak total number of males recorded within the study area during any one survey was eight males, and four females.

- 3.2.20 Not all lek sites were found to be in use over consecutive survey visits, with the study area considered to support a number of mobile lek sites supporting a small population of males.
- 3.2.21 Given the sensitivity of the information, further details are provided in **Appendix 9.2** and in **Confidential Figure 9.2.5**.

Prey Transects

- 3.2.22 The main habitat type in transects 1 and 2 was heather moorland, and in transects 3 and 4 the dominant habitats were conifer plantation with some heather moorland.
- 3.2.23 Potential prey for golden eagles recorded during the spring 2021 (March) prey transects, consisted of deer, red grouse, voles, sheep and fox, with deer consistently the most abundant prey type in all transects.
- 3.2.24 In the summer 2021 (June) prey transects, voles were the most abundant prey type in transects 1 and 2 (heather moorland), with deer the most abundant prey type in transects 3 and 4 (plantation and heather moorland).
- 3.2.25 In the autumn 2021 (August) prey transects, deer was the most abundant prey type in transects 1, 2 and 4, with voles the most abundant prey type in transect 3.
- 3.2.26 **Table 3.6** summarises the results of the prey transects and the value is the relative abundance of each prey type (which is the number of 50 m sections where the specific prey was recorded divided by 20, which is the number of 50 m sections in the transect).

Table 3.6: Prey transects results.

Prey Type	March 2021				June 2021				August 2021			
	Transect Number				Transect Number				Transect Number			
	1	2	3	4	1	2	3	4	1	2	3	4
Deer	1.00	1.00	0.95	0.90	0.30	0.50	0.70	0.45	0.40	0.45	0.40	0.65
Red grouse	0.35	0.20	0	0	0.50	0.55	0	0	0	0	0.20	0.15
Voles	0.55	0.60	0.45	0.65	0.85	0.95	0.50	0.40	0.25	0.25	0.45	0.30
Sheep	0.20	0.60	0	0	0	0	0	0	0	0	0	0
Fox	0.05	0	0.15	0.20	0.10	0.25	0.10	0.10	0	0	0.05	0
Meadow pipit	0	0	0	0	0.45	0.15	0.05	0.10	0.10	0.05	0.15	0.20
Common frog	0	0	0	0	0.10	0.15	0	0	0	0	0	0

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ANNEX 1 – BIRD SPECIES SUMMARY

Table A1.1 provides a list of bird species referred to within **Chapter 9** and associated appendices of Earraghail Renewable Energy Development EIA Report. Both common and species names are presented along with a summary of each species relevant conservation status using the following abbreviations:

- Annex 1 - species listed on Annex 1 of the Birds Directive;
- Schedule 1, 1A, A1 - species listed on Schedule 1, Schedule 1A or Schedule A1 of the Wildlife and Countryside Act 1981 (as amended);
- BoCC - BoCCs as listed by leading bird conservation organisations in the UK, including the RSPB and BTO. Red and Amber categories are given (Stanbury *et al.*, 2021);
- SBL - species listed on the Scottish Biodiversity List; and
- LBAP – bird species selected for action in the Argyll and Bute Local Biodiversity Action Plan (2015-2020)⁶.

Table A1.1: Summary of bird species.

Common Name	Species Name	Conservation Status
Whooper swan	<i>Cygnus cygnus</i>	Annex 1, BoCC – Amber, SBL
Greenland white-fronted goose	<i>Anser albifrons</i>	Annex 1, BoCC – Red, LBAP
Greylag goose	<i>Anser anser</i>	S1 ⁷ , BoCC – Amber
Barnacle goose	<i>Branta leucopsis</i>	Annex 1, BoCC – Amber, SBL, LBAP
Teal	<i>Anas crecca</i>	BoCC – Amber
Mallard	<i>Anas platyrhynchos</i>	BoCC – Amber
Red grouse	<i>Lagopus lagopus</i>	SBL, LBAP
Ptarmigan	<i>Lagopus muta</i>	BoCC – Red
Black grouse	<i>Tetrao tetrix</i>	Annex 1, BoCC – Red, SBL, LBAP
Red-throated diver	<i>Gavia stellata</i>	Annex 1, S1, SBL, LBAP
Black-throated diver	<i>Gavia arctica</i>	Annex 1, S1, BoCC – Amber, SBL, LBAP
Grey heron	<i>Ardea cinerea</i>	-
White-tailed eagle	<i>Haliaeetus albicilla</i>	Annex 1, S1, S1A, SA1, BoCC – Amber, SBL, LBAP
Hen harrier	<i>Circus cyaneus</i>	Annex 1, S1, S1A, BoCC – Red, SBL, LBAP
Goshawk	<i>Accipiter gentilis</i>	Annex 1, S1
Sparrowhawk	<i>Accipiter nisus</i>	BoCC – Amber
Buzzard	<i>Buteo buteo</i>	-
Honey buzzard	<i>Pernis apivorus</i>	Annex 1, S1, BoCC – Amber, SBL
Golden eagle	<i>Aquila chrysaetos</i>	Annex 1, S1, S1A, SA1, SBL, LBAP

⁶ <https://www.argyll-bute.gov.uk/sites/default/files/Unknown/AandB%20BAP%20Draft.pdf> [Accessed July 2021].

⁷ In Outer Hebrides, Caithness and Sutherland and Wester Ross only.

Common Name	Species Name	Conservation Status
Osprey	<i>Pandion haliaetus</i>	Annex 1, S1, BoCC – Amber, SBL, LBAP
Oystercatcher	<i>Haematopus ostralegus</i>	BoCC – Amber
Golden plover	<i>Pluvialis apricaria</i>	Annex 1, SBL, LBAP
Lapwing	<i>Vanellus vanellus</i>	BoCC – Red, SBL, LBAP
Curlew	<i>Numenius arquata</i>	BoCC – Red, SBL, LBAP
Dunlin	<i>Calidris alpina</i>	BoCC – Red, SBL, LBAP
Jack snipe	<i>Lymnocyptes minimus</i>	-
Woodcock	<i>Scolopax rusticola</i>	BoCC – Red, SBL
Snipe	<i>Gallinago gallinago</i>	BoCC – Amber
Great black-backed gull	<i>Larus marinus</i>	BoCC – Amber
Common gull	<i>Larus canus</i>	BoCC – Amber
Herring gull	<i>Larus argentatus</i>	BoCC – Red, SBL, LBAP
Barn owl	<i>Tyto alba</i>	S1, SBL
Short-eared owl	<i>Asio flammeus</i>	Annex 1, BoCC – Amber, SBL, LBAP
Kestrel	<i>Falco tinnunculus</i>	BoCC – Amber, SBL
Merlin	<i>Falco columbarius</i>	Annex 1, S1, BoCC – Amber, SBL, LBAP
Peregrine falcon	<i>Falco peregrinus</i>	Annex 1, S1, SBL, LBAP
Raven	<i>Corvus corax</i>	-
Common crossbill	<i>Loxia curvirostra</i>	S1, SBL

ANNEX 2 – EXISTING ORNITHOLOGICAL RECORDS

Table A2.1 provides a summary of existing ornithological records returned by ABReC within 2 km radius of the Site. Only records from within the last 10 years are considered (since 2010). Only species regarded as target species are included within **Table A2.1**.

Information regarding nest sites for sensitive species (Schedule 1 species and black grouse leks) considered in this Annex 2, is summarised in Confidential **Appendix 9.2** and Confidential **Figure 9.2.1**.

Table A2.1: Summary of existing ornithological records (ABReC).

Species	No. of Records	Date Range	Summary
Oystercatcher	1	2017	Recorded at NR 9812 6512.
Peregrine falcon	1	2017	Assumed nest site.

Table A2.2 provides a summary of existing ornithological records returned by RSPB within 2 km radius of the Site (extended to 6 km for eagles). Only records from within the last 10 years are considered (since 2010). Only species regarded as target species are included within **Table A2-2**.

Table A2.2: Summary of existing ornithological records (RSPB).

Species	No. of Records	Date Range	Summary
Black grouse	18	2010 - 2018	Records from five lek locations.
White-tailed eagle	1	2010	Non-breeding bird (satellite tag fix) at NR9272.

Table A2.3 provides a summary of existing ornithological records returned by ARSG within 2 km radius of the Site (extended to 6 km for eagles). Only records from within the last 10 years are considered (since 2010). Only species regarded as target species are included within **Table A2-3**.

Table A2.3: Summary of existing ornithological records (ARSG).

Species	No. of Records	Date Range	Summary
Golden eagle	6	2014 - 2019	Principal, former and alternative nest sites.
Merlin	6	1981 - 2010	Former nest sites.

Table A2.4 provides a summary of existing ornithological records returned by FLS within Skipness and Corranbuie forest areas. Only records from within the last 10 years are considered (since 2010). Only species regarded as target species are included within **Table A2-4**.

Table A2.4: Summary of existing ornithological records (FLS).

Species	No. of Records	Date Range	Summary
Black grouse	6	2014 - 2015	Including three lek sites.

Species	No. of Records	Date Range	Summary
Red-throated diver	2	2012	Includes a mating pair.
Barn owl	1	Not provided	Nest barrel.
Golden eagle	2	2012	Includes a nest site.
Osprey	1	2012	An adult in flight at NR 8540 6587.

ANNEX 3 – ORNITHOLOGY FIELD SURVEY EFFORT

The following codes are used to record weather conditions within **Tables A3-1 to A3-7**:

Wind Speed		Rain		Cloud Cover	
Calm	0	None	0	Out of 8	
Light air	1	Drizzle/mist	1		
Light breeze	2	Light showers	2	Frost	
Gentle breeze	3	Heavy showers	3	None	0
Moderate breeze	4	Heavy rain	4	Ground	1
Fresh breeze	5			All day	2
Strong breeze	6	Visibility			
Moderate gale	7	Poor	0	Snow	
Fresh gale	8	<1km	1	None	0
Strong gale	9	>1km	2	On site	1
Whole gale	10			High ground	2
Storm	11	Cloud Height			
		<150m	0		
Wind Direction		150-500m	1		
16 point compass		>500m	2		

Field surveys were undertaken by the following named surveyors:

Gavia Environmental Ltd. (September 2019 to March 2020):

A. Taylor (AT), K. Mackinnon (KM), E. Dillon (ED), D. Morrison (DM) and C. Laing (CL). Note, no names were provided for the abbreviated surveyor 'WS', 'Jch' and 'DB'.

Avian Ecology Ltd. (April 2020 to November 2021):

A. Russel (AR), C. Griffin (CG), G. Palmer (GP), M. Wood (MW), G. Haskins (GH), R. Thewlis (RT), G. Dunbar (GD), A. MacNab (AJM) and S. MacDonald (SM).

Table A3.1i: VP Flight Activity Survey Effort – September 2019 to November 2020 (Year 1).

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
17/09/2019	2	AT	10:30	13:30	3	4/4/5	NW/NW/NW	0/0/0	7/6/5	1/1/1	2/2/2	0/0/0	0/0/0
17/09/2019	2	AT	14:00	17:00	3	5/4/5	NW/NW/NW	0/0/0	4/5/7	1/1/1	2/2/2	0/0/0	0/0/0
17/09/2019	3a	WS	10:30	13:30	3	2/1/3	WNW/WNW/NW	0/0/0	4/5/4	2/2/2	2/2/2	0/0/0	0/0/0
17/09/2019	3a	WS	14:00	17:00	3	3/2/1	NW/WNW/WNW	0/0/0	4/6/4	2/2/2	2/2/2	0/0/0	0/0/0
17/09/2019	5	DB	10:30	13:30	3	2/4/3	NW/NW/NW	0/0/0	5/4/3	2/2/2	2/2/2	0/0/0	0/0/0
17/09/2019	5	DB	14:00	17:00	3	3/2/2	NW/NW/NW	0/0/0	3/5/6	2/2/2	2/2/2	0/0/0	0/0/0
18/09/2019	1	WS	11:20	14:20	3	4/4/4	W/W/W	1/1/0	8/8/8	2/1/0	2/1/1	0/0/0	0/0/0
18/09/2019	1	WS	14:50	17:50	3	3/3/2	W/W/W	1/1/1	8/8/8	0/0/0	1/0/0	0/0/0	0/0/0
18/09/2019	4	AT	11:45	14:45	3	5/5/5	WSW/WSW/WSW	1/1/1	8/8/8	0/0/0	0/1/1	0/0/0	0/0/0
18/09/2019	4	AT	15:15	18:15	3	5/4/5	WSW/WSW/WSW	2/1/1	8/8/8	0/0/0	1/1/0	0/0/0	0/0/0
02/10/2019	6	KM	10:00	13:00	3	2/5/5	SW/SW/SW	0/0/0	1/2/2	2/2/2	2/2/2	1/0/0	0/0/0
02/10/2019	6	KM	13:00	16:30	3.5	5/3/3/-	SW/SW/SW/-	0/0/0/-	3/3/3/-	2/2/2/-	2/2/2/-	0/0/0/-	0/0/0/-
02/10/2019	6	KM	17:00	18:30	1.5	2/2	SW/SW	0/0	3/3	2/2	2/2	0/0	0/0
14/10/2019	1	DM	10:30	13:30	3	3/3/3	SE/SE/SE	0/0/0	8/7/7	0/0/1	2/2/2	0/0/0	0/0/0
14/10/2019	1	DM	14:00	17:00	3	2/3/3	SE/SE/SE	1/1/0	7/8/7	1/1/1	2/2/2	0/0/0	0/0/0
14/10/2019	5	ED	10:15	13:15	3	2/3/3	N/N/N	0/0/1	7/7/7	1/2/2	1/2/2	0/0/0	0/0/0
14/10/2019	5	ED	13:45	16:45	3	2/2/2	N/N/N	2/1/1	7/7/7	2/2/2	2/2/2	0/0/0	0/0/0
14/10/2019	6	JCh	10:30	13:30	3	3/3/3	SE/SE/SE	0/0/0	8/8/8	1/1/2	1/2/2	0/0/0	0/0/0
14/10/2019	6	JCh	14:00	17:00	3	2/0/3	SE/SE/ESE	0/1/1	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
15/10/2019	2	ED	09:40	12:40	3	5/5/5	SE/SE/SE	0/0/0	8/1/1	0/1/2	0/1/2	0/0/0	0/0/0
15/10/2019	2	ED	13:15	16:15	3	4/4/2	SE/SE/SE	0/0/0	3/2/3	2/2/2	2/2/2	0/0/0	0/0/0
15/10/2019	3a	JCh	10:00	13:00	3	1/2/3	SE/SE/SE	0/0/0	7/6/4	1/2/2	1/2/2	0/0/0	0/0/0
15/10/2019	3a	JCh	13:30	16:30	3	3/3/4	SE/SE/SE	0/0/0	2/4/6	2/2/2	2/2/2	0/0/0	0/0/0
15/10/2019	4	DM	10:00	13:00	3	4/6/6	SE/SE/SE	0/0/0	8/8/4	0/0/2	1/2/2	0/0/0	0/0/0
15/10/2019	4	DM	13:30	16:30	3	6/6/6	SE/SE/SE	0/0/0	4/4/6	2/2/2	2/2/2	0/0/0	0/0/0
04/11/2019	1	ED	10:45	13:35	3	2/2/2	NE/NE/NE	2/3/4	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
04/11/2019	1	ED	14:15	17:15	3	3/2/2	NE/NE/NE	2/2/2	7/7/7	1/2/2	2/2/2	0/0/0	0/0/0
04/11/2019	4	CL	11:00	14:00	3	4/5/6	NW/NW/NW	2/2/2	8/8/8	2/2/1	2/2/2	0/0/0	0/0/0

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
04/11/2019	4	CL	14:30	17:30	3	2/1/1	NW/NW/NW	1/0/0	7/6/6	2/2/2	1/2/2	0/0/0	0/0/0
04/11/2019	6	AT	10:30	13:30	3	4/4/4	NE/NE/NE	2/3/2	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
04/11/2019	6	AT	14:00	17:00	3	4/4/4	NE/NE/NE	0/0/0	8/8/7	1/1/1	2/2/2	0/0/0	0/0/0
05/11/2019	2	CL	09:30	12:30	3	0/0/1	-/-/N	0/0/0	0/0/2	0/0/2	2/2/2	0/0/0	0/0/0
05/11/2019	2	CL	13:00	16:00	3	0/0/0	-/-/-	0/0/1	0/2/6	2/2/2	2/2/1	0/0/0	0/0/0
05/11/2019	3a	ED	10:00	13:00	3	0/0/0	-/-/-	0/0/0	1/4/6	2/2/2	2/2/2	0/0/0	0/0/0
05/11/2019	3a	ED	13:30	16:30	3	0/0/0	-/-/-	0/0/1	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
05/11/2019	5	DM	10:00	13:00	3	1/1/1	N/N/N	0/0/0	2/6/6	2/2/2	2/2/2	0/0/0	0/0/0
05/11/2019	5	DM	13:30	16:30	3	0/1/1	N/N/N	0/1/1	7/8/8	2/1/1	2/2/2	0/0/0	0/0/0
09/11/2019	1	DM	09:30	12:30	3	4/4/3	NNW/NNW/NNW	0/0/0	2/2/2	2/2/2	2/2/2	1/0/0	0/0/0
09/11/2019	1	DM	13:00	16:00	3	4/2/2	NNW/NNW/NNW	1/0/0	2/2/2	2/2/2	2/2/2	0/0/0	0/0/0
09/11/2019	3a	ED	09:45	12:45	3	2/1/1	N/N/N	0/0/0	1/1/1	2/2/2	2/2/2	0/0/0	0/0/0
09/11/2019	3a	ED	13:15	15:45	2.5	3/1/-	N/N/-	1/0/-	5/4/-	1/2/-	2/2/-	0/0/-	0/0/-
09/12/2019	4	CL	10:00	13:00	3	3/5/5	N/N/N	0/0/0	1/1/1	2/2/2	2/2/2	0/0/0	0/0/0
09/12/2019	4	CL	13:30	15:00	1.5	4/4	N/N	0/0/0	6/1	2/2	2/2	0/0	0/0
20/01/2020	1	ED	10:30	13:30	3	4/5/5	W/W/W	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
20/01/2020	1	ED	14:00	17:00	3	4/5/4	W/W/W	1/1/1	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
20/01/2020	3a	CL	10:30	13:30	3	3/3/2	SSW/SSW	0/0/0	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
20/01/2020	3a	CL	14:00	17:00	3	3/2/2	SSW/SSW	1/0/1	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
20/01/2020	4	DM	10:30	13:30	3	5/4/4	SSW/SSW/SSW	1/1/0	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
20/01/2020	4	DM	14:00	16:30	2.5	4/4/-	SSW/SSW/-	1/1/-	8/8/-	1/1/-	2/2/-	0/0/-	0/0/-
21/01/2020	2	DM	09:30	12:30	3	4/4/5	NW/NW/NW	1/1/1	8/8/8	1/1/0	1/1/0	0/0/0	0/0/0
21/01/2020	2	DM	13:30	16:00	3	5/5/4	NW/NW/NW	1/1/1	8/8/8	0/0/0	0/0/0	0/0/0	0/0/0
21/01/2020	5	CL	10:00	13:00	3	6/5/5	NNW/NNW/NNW	1/1/1	8/8/8	0/0/0	0/0/0	0/0/0	0/0/0
21/01/2020	5	CL	13:30	15:30	2	5/5	NNW/NNW	1/1	8/8	0/0	0/0	0/0	0/0
21/01/2020	6	ED	09:30	12:30	3	2/1/1	N/N/N	2/2/1	8/8/8	0/0/0	0/0/0	0/0/0	0/0/0
21/01/2020	6	ED	13:00	16:00	3	2/2/2	N/N/N	1/3/2	8/8/8	0/0/0	0/0/0	0/0/0	0/0/0
22/01/2020	2	DM	09:30	12:30	3	5/5/6	WSW/WSW/WSW	1/1/0	8/8/8	1/1/1	0/0/0	0/0/0	0/0/0
22/01/2020	2	DM	13:00	16:00	3	5/5/5	WSW/WSW/WSW	0/0/0	8/8/8	1/1/1	0/0/0	0/0/0	0/0/0

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
22/01/2020	5	CL	09:30	12:30	3	5/5/5	W/W/W	1/1/1	8/8/8	0/0/0	0/0/0	0/0/0	0/0/0
22/01/2020	5	CL	13:00	15:30	2.5	5/5/-	W/W/-	1/1/-	8/8/-	0/0/0	0/0/-	0/0/-	0/0/-
22/01/2020	6	AT	09:30	12:30	3	4/4/3	W/W/W	1/1/1	8/8/8	0/0/0	0/0/0	0/0/0	0/0/0
22/01/2020	6	AT	12:30	15:30	3	4/4/-	W/W/-	1/1/-	8/8/-	0/0/-	0/0/-	0/0/-	0/0/-
10/02/2020	2	DM	11:00	14:00	3	6/7/6	W/W/W	1/1/1	7/7/7	1/1/1	1/2/2	2/2/2	1/1/1
10/02/2020	5	CL	11:00	14:00	3	7/7/6	W/W/W	2/2/2	6/6/7	2/2/2	2/2/1	0/0/0	1/1/1
10/02/2020	6	ED	11:00	14:00	3	7/7/6	W/W/W	2/2/2	8/8/8	2/2/2	1/2/1	0/0/0	1/1/1
11/02/2020	1	DM	14:30	17:30	3	7/7/7	W/W/W	0/1/0	6/6/6	1/1/1	1/1/1	2/2/2	1/1/1
11/02/2020	2	DM	11:00	14:00	3	7/7/7	W/W/W	2/1/1	8/8/8	1/1/1	1/2/2	2/2/2	1/1/1
11/02/2020	3a	CL	10:30	13:30	3	7/7/7	SE/SE/SE	2/2/2	8/8/8	2/2/2	2/2/1	2/2/2	1/1/1
11/02/2020	3a	CL	14:00	17:00	3	7/7/7	SE/SE/SE	2/2/2	8/8/8	2/2/2	1/2/2	2/2/2	1/1/1
11/02/2020	4	ED	10:30	13:30	3	7/7/7	SE/SE/SE	2/2/2	8/8/8	2/2/2	2/2/1	2/2/2	1/1/1
11/02/2020	4	ED	14:00	17:00	3	7/7/7	SE/SE/SE	2.2.2	8/8/8	2/2/2	1/2/2	2/2/2	1/1/1
02/03/2020	1	ED	10:30	13:30	3	5/8/8	E/E/E	1/0/0	8/5/4	1/2/2	2/2/2	1/1/0	1/1/1
02/03/2020	3a	ED	14:10	15:40	1.5	6/6	E/E/E	0/0	5/5	2/2	2/2	0/0	1/1
02/03/2020	4	DM	15:30	18:00	2.5	7/7/7	SW/SW/SW	0/2/0	5/6/5	1/1/1	2/2/2	1/1/1	2/2/2
02/03/2020	5	DM	10:45	15:15	3	6/7/6	SW/SW/SW	0/0/0	7/7/6	1/1/1	2/2/2	1/1/1	1/2/2
02/03/2020	5	DM	13:45	15:15	1.5	6/-	SW/-	0/-	6/-	1/-	2/-	1/-	2/-
02/03/2020	6	ED	16:15	17:15	1	4	E	1	6	2	2	0	1
28/04/2020	1	CG	10:30	13:30	3	3/2/3	E/E/E	0/0/0	3/2/2	2/2/2	2/2/2	0/0/0	0/0/0
28/04/2020	1	AR	14:00	17:00	3	4/4/4	SE/SE/SSE	0/0/0	5/4/6	2/2/2	2/2/2	0/0/0	0/0/0
28/04/2020	2	AR	10:30	13:30	3	4/4/4	E/NE/NE	0/0/0	4/4/5	2/2/2	2/2/2	0/0/0	0/0/0
28/04/2020	2	CG	14:00	17:00	3	3/3/3	E/E/E	0/0/0	4/6/6	2/2/2	2/2/2	0/0/0	0/0/0
28/04/2020	3a	CG	17:30	20:30	3	1/1/1	E/E/E	0/0/0	5/4/7	2/2/2	2/2/2	0/0/0	0/0/0
28/04/2020	6	AR	17:30	20:30	3	3/2/0	SSE/SSE/S	0/0/0	6/6/5	2/2/2	2/2/2	0/0/0	0/0/0
29/04/2020	4	CG	10:30	13:30	3	3/3/3	E/E/E	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
29/04/2020	4	AR	14:00	17:00	3	4/4/4	SE/SE/SSE	0/1/2	7/7/8	2/2/1	2/2/1	0/0/0	0/0/0
29/04/2020	5	CG	14:00	17:00	3	4/4/4	SE/SE/SE	1/1/0	7/7/8	2/2/1	2/2/1	0/0/0	0/0/0
29/04/2020	5	AR	10:30	13:30	3	4/4/4	SE/SE/SE	0/0/2	6/6/7	2/2/2	2/2/2	0/0/0	0/0/0

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
30/04/2020	1	AR	12:50	15:50	3	3/3/3	E/E/E	0/0/2	6/7/7	2/2/2	2/2/2	0/0/0	0/0/0
30/04/2020	1	CG	16:20	19:20	3	2/2/2	N/N/N	1/0/0	8/8/7	2/2/2	1/2/2	0/0/0	0/0/0
30/04/2020	2	CG	12:50	15:50	3	2/2/2	N/N/NE	0/0/0	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
30/04/2020	2	AR	16:20	19:20	3	3/4/3	NE/NE/E	2/0/0	7/7/7	2/2/2	2/2/2	0/0/0	0/0/0
01/05/2020	4	AR	09:20	12:20	3	3/4/4	W/W/W	1/0/2	6/6/8	2/2/1	2/2/2	0/0/0	0/0/0
01/05/2020	4	CG	12:50	15:50	3	2/2/2	W/W/W	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
01/05/2020	5	CG	09:20	12:20	3	2/2/2	E/E/E	0/0/1	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
01/05/2020	5	AR	12:50	15:50	3	4/3/4	SW/SW/SW	0/1/1	7/7/5	2/2/2	2/2/2	0/0/0	0/0/0
08/05/2020	3a	CG	09:00	12:00	3	1/2/1	S/W/N	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
08/05/2020	3a	CG	12:30	15:30	3	2/2/2	SW/S/SW	0/0/0	8/6/5	2/2/2	2/2/2	0/0/0	0/0/0
08/05/2020	6	AR	09:00	12:00	3	2/3/3	WNW/W/W	0/0/0	7/7/6	2/2/2	2/2/2	0/0/0	0/0/0
08/05/2020	6	AR	12:30	15:30	3	3/4/4	W/NW/NW	0/0/0	6/5/5	2/2/2	2/2/2	0/0/0	0/0/0
13/05/2020	2	AR	09:00	12:00	3	3/2/2	E/E/E	0/0/0	5/4/2	2/2/2	2/2/2	1/0/0	0/0/0
13/05/2020	2	AR	12:30	15:30	3	2/3/2	E/E/E	0/0/0	2/3/3	2/2/2	2/2/2	0/0/0	0/0/0
13/05/2020	3a	CG	09:00	12:00	3	2/1/1	E/E/E	0/0/0	4/3/3	2/2/2	2/2/2	0/0/0	0/0/0
13/05/2020	3a	CG	12:30	15:30	3	1/2/1	SE/SW/S	0/0/0	2/2/3	2/2/2	2/2/2	0/0/0	0/0/0
14/05/2020	5	CG	08:30	11:30	3	3/3/2	W/WNW/NW	1/1/0	8/8/8	2/2/2	1/2/2	0/0/0	0/0/0
14/05/2020	5	CG	12:00	15:00	3	3/3/3	NW/NW/NW	0/0/0	6/8/4	2/2/2	2/2/2	0/0/0	0/0/0
19/05/2020	3a	CG	09:45	12:45	3	3/3/3	W/W/W	0/0/1	7/7/8	2/2/1	2/2/1	0/0/0	0/0/0
19/05/2020	3a	CG	13:15	16:15	3	3/3/3	W/W/W	1/1/0	8/8/8	0/0/1	1/1/1	0/0/0	0/0/0
19/05/2020	5	AR	09:30	12:30	3	3/4/4	SW/SSW/SSW	1/1/1	5/7/8	2/1/1	2/2/2	0/0/0	0/0/0
19/05/2020	5	AR	13:00	16:00	3	4/4/3	SSW/SW/SW	1/1/1	8/8/7	1/1/2	1/1/2	0/0/0	0/0/0
25/05/2020	2	AR	11:30	14:30	3	4/2/2	SW/SW/WSW	0/0/0	5/4/6	2/2/2	2/2/2	0/0/0	0/0/0
25/05/2020	2	AR	08:00	11:00	3	3/3/4	SW/SW/SW	0/0/0	6/6/5	2/2/2	2/2/2	0/0/0	0/0/0
25/05/2020	4	CG	07:45	10:45	3	2/3/4	S/S/S	0/0/0	4/1/8	0/2/2	1/2/2	0/0/0	0/0/0
25/05/2020	4	CG	11:15	14:15	3	4/4/4	S/S/S	0/0/0	5/7/8	2/2/2	0/0/0	0/0/0	0/0/0
27/05/2020	4	AR	09:30	12:30	3	3/3/1	SE/SSE/E	0/0/0	3/2/2	2/2/2	2/2/2	0/0/0	0/0/0
27/05/2020	4	AR	13:00	16:00	3	2/3/2	E/E/E	0/0/0	2/1/1	2/2/2	2/2/2	0/0/0	0/0/0
31/05/2020	6	CG	07:00	10:00	3	3/3/4	E/E/E	0/0/0	0/1/0	-2/2	2/2/2	0/0/0	0/0/0

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
31/05/2020	6	CG	10:30	13:30	3	4/3/3	E/E/E	0/0/0	2/1/1	2/2/2	2/2/2	0/0/0	0/0/0
08/06/2020	2	AR	12:40	15:40	3	0/1/1	-/N/NNE	0/1/1	4/6/6	2/2/2	2/2/2	0/0/0	0/0/0
08/06/2020	2	AR	16:10	19:10	3	2/3/3	NNW/NNW/NW	0/0/0	7/7/6	2/2/2	2/2/2	0/0/0	0/0/0
08/06/2020	3a	CG	12:40	15:40	3	2/2/2	0/0/0	5/5/6	2/2/2	2/2/2	0/0/0	0/0/0	0/0/0
08/06/2020	3a	CG	16:10	19:10	3	1/2/2	SE/W/W	0/0/0	7/7/7	2/2/2	2/2/2	0/0/0	0/0/0
10/06/2020	5	CG	11:00	14:00	3	0/2/2	-/E/E	0/0/0	4/6/6	2/2/2	2/2/2	0/0/0	0/0/0
10/06/2020	5	CG	14:30	17:30	3	2/2/2	E/E/E	0/0/0	5/2/5	2/2/2	2/2/2	0/0/0	0/0/0
17/06/2020	6	CG	12:45	15:45	3	3/2/2	E/E/E	0/0/0	7/7/6	2/2/2	2/2/2	0/0/0	0/0/0
17/06/2020	6	CG	16:15	19:15	3	1/1/1	NE/NE/ENE	0/0/0	4/3/3	2/2/2	2/2/2	0/0/0	0/0/0
24/06/2020	4	AR	11:00	14:00	3	3/2/2	E/E/E	1/0/1	7/5/4	1/2/2	2/2/2	0/0/0	0/0/0
24/06/2020	4	AR	14:30	17:30	3	2/2/3	E/E/E	0/0/0	2/4/4	2/2/2	2/2/2	0/0/0	0/0/0
09/07/2020	3a	CG	11:00	14:00	3	1/1/1	NW/NW/NW	0/0/0	8/7/5	2/2/2	2/2/2	0/0/0	0/0/0
09/07/2020	3a	CG	14:30	17:30	3	2/2/2	NW/W/W	1/0/0	7/8/8	2/2/2	0/0/0	0/0/0	0/0/0
09/07/2020	6	AR	11:00	14:00	3	3/2/3	NW/NW/WNW	0/0/0	6/6/6	2/2/2	2/2/2	0/0/0	0/0/0
09/07/2020	6	AR	14:30	17:30	3	3/2/2	WNW/NW/NW	1/1/0	7/7/8	2/2/1	2/2/2	0/0/0	0/0/0
23/07/2020	2	AR	09:00	12:00	3	3/3/3	SW/SW/SW	0/0/0	5/6/8	2/2/1	2/2/1	0/0/0	0/0/0
23/07/2020	4	CG	17:00	20:00	3	2/2/2	W/WNW/W	0/0/0	8/7/4	2/2/2	2/2/2	0/0/0	0/0/0
23/07/2020	5	CG	10:00	13:00	3	2/1/1	WNW/WNW/WNW	1/1/1	8/8/8	1/1/2	2/1/2	0/0/0	0/0/0
23/07/2020	5	CG	13:30	16:30	3	1/3/1	WNW/WNW/WNW	1/1/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
24/07/2020	2	CG	08:10	11:10	3	1/1/1	NW/SW/SE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
24/07/2020	4	AR	08:10	11:10	3	2/1/1	SW/SW/SW	0/0/0	2/2/3	2/2/2	2/2/2	0/0/0	0/0/0
12/08/2020	3a	GP	10:10	13:10	3	2/2/2	N/N/NNW	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
12/08/2020	3a	GP	13:40	16:40	3	1/1/1	NNW/E/NNW	0/0/0	8/6/6	2/2/2	2/2/2	0/0/0	0/0/0
12/08/2020	6	AR	10:15	13:15	3	3/2/2	SW/SW/SW	0/0/0	3/5/5	2/2/2	2/2/2	0/0/0	0/0/0
12/08/2020	6	AR	13:50	16:50	3	2/3/2	SW/SW/SW	0/0/0	4/4/1	2/2/2	2/2/2	0/0/0	0/0/0
18/08/2020	2	GP	10:05	13:05	3	3/3/3	E/E/ESE	0/0/0	8/8/8	1/1/2	1/1/2	0/0/0	0/0/0
18/08/2020	2	GP	13:35	16:35	3	2/2/2	ESE/SE/SSE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
18/08/2020	4	AR	10:20	13:20	3	3/3/2	SW/SSW/SSW	0/0/0	6/5/5	1/2/2	1/2/2	0/0/0	0/0/0
18/08/2020	4	AR	13:50	16:50	3	2/1/1	SSW/SSW/SSW	0/0/0	8/6/6	2/2/2	2/2/2	0/0/0	0/0/0

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
19/08/2020	5	AR	09:30	12:30	3	2/2/3	SW/SW/SW	1/0/0	8/7/7	1/1/2	1/2/2	0/0/0	0/0/0
19/08/2020	5	AR	13:00	16:00	3	3/3/3	SW/SSW/SW	0/0/0	6/6/5	2/2/2	2/2/2	0/0/0	0/0/0
14/09/2020	2	CG	11:45	14:45	3	2/2/2	SW/SW/SW	0/0/0	6/7/8	1/1/1	1/2/2	0/0/0	0/0/0
14/09/2020	2	CG	15:15	18:15	3	2/2/1	SW/SW/SW	0/0/0	3/7/6	2/2/2	2/2/2	0/0/0	0/0/0
14/09/2020	4	MW	11:45	14:45	3	3/3/3	SE/SE/SE	0/0/0	7/7/4	2/1/2	2/2/2	0/0/0	0/0/0
14/09/2020	4	MW	15:15	18:15	3	2/1/2	SE/SE/SE	0/0/0	5/8/8	2/2/1	2/2/2	0/0/0	0/0/0
17/09/2020	3a	GP	07:00	10:00	3	3/3/2	E/E/E	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
17/09/2020	3a	GP	10:30	13:30	3	2/2/2	E/ENE/E	0/0/0	8/5/2	2/2/2	2/2/2	0/0/0	0/0/0
17/09/2020	6	MW	06:55	09:55	3	1/1/2	E/E/E	0/0/0	7/7/8	2/2/2	2/2/2	0/0/0	0/0/0
17/09/2020	6	MW	10:25	13:25	3	2/1/2	E/E/E	0/0/0	7/8/5	2/2/2	2/2/2	0/0/0	0/0/0
25/09/2020	5	MW	06:45	09:45	3	1/2/3	NE/NE/NE	0/0/0	0/0/0	-/-/-	2/2/2	1/0/0	0/0/0
25/09/2020	5	MW	10:15	13:15	3	3/2/3	NE/NE/NE	0/0/0	1/4/6	2/2/2	2/2/2	0/0/0	0/0/0
26/10/2020	3a	CG	07:30	10:30	3	3/3/3	W/W/W	2/0/1	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
26/10/2020	3a	CG	11:00	14:00	3	2/2/2	W/W/W	1/1/0	7/6/7	2/2/2	2/2/2	0/0/0	0/0/0
27/10/2020	6	CG	08:00	11:00	3	2/2/2	SW/S/SE	1/1/1	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
28/10/2020	2	CG	10:30	13:30	3	2/3/3	SW/SW/SW	0/1/2	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
28/10/2020	2	CG	14:00	17:00	3	3/3/3	SW/SW/SW	0/0/0	7/6/6	2/2/2	2/2/2	0/0/0	0/0/0
30/10/2020	4	CG	12:30	15:30	3	3/3/2	SW/SW/SW	1/0/1	4/5/6	2/2/2	2/2/2	0/0/0	0/0/0
30/10/2020	5	CG	09:00	12:00	3	3/3/3	SW/SW/SW	0/1/1	2/5/6	2/2/2	2/2/2	0/0/0	0/0/0
01/11/2020	6	CG	09:00	12:00	3	1/2/3	S/S/S	1/0/0	8/8/6	2/2/2	2/2/2	0/0/0	0/0/0
01/11/2020	6	CG	12:30	15:30	3	3/3/3	S/S/S	0/1/0	6/8/8	2/2/2	2/2/2	0/0/0	0/0/0
02/11/2020	4	CG	09:30	12:30	3	3/3/3	SW/SW/SW	0/1/0	6/6/8	2/2/2	2/2/2	0/0/0	0/0/0
02/11/2020	5	CG	13:00	16:00	3	2/2/2	SW/W/W	0/0/1	5/4/6	2/2/2	2/2/2	0/0/0	0/0/0
03/11/2020	3a	CG	10:00	13:00	3	2/2/2	W/W/SW	1/1/1	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
03/11/2020	3a	CG	13:30	16:30	3	2/1/1	SW/SW/SW	0/1/0	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
04/11/2020	4	MW	08:50	11:50	3	3/3/3	NW/NW/NW	1/2/2	6/7/6	1/1/1	2/2/2	0/0/0	0/0/0
04/11/2020	4	MW	12:20	15:20	3	3/3/3	NW/NW/NW	2/0/0	7/7/7	1/1/2	2/2/2	0/0/0	0/0/0
04/11/2020	5	CG	09:30	12:30	3	2/1/1	W/W/W	1/1/0	6/6/5	2/2/2	2/2/2	0/0/0	0/0/0
04/11/2020	5	CG	13:00	16:00	3	2/1/1	W/W/W	0/1/0	3/6/6	2/2/2	2/2/2	0/0/0	0/0/0

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
05/11/2020	3a	CG	13:00	16:00	3	2/2/2	SW/SW/SW	0/1/0	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
12/11/2020	2	MW	07:30	10:30	3	3/3/4	SW/S/S	2/0/0	8/4/6	1/2/2	2/2/2	0/0/0	0/0/0
12/11/2020	2	MW	11:00	14:00	3	4/4/4	S/S/S	0/0/0	7/8/8	2/2/1	2/2/2	0/0/0	0/0/0
12/11/2020	6	CG	07:50	10:50	3	1/1/2	S/S/S	0/0/0	8/4/7	2/2/2	2/2/2	0/0/0	0/0/0
12/11/2020	6	CG	11:20	14:20	3	2/3/3	S/S/S	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
13/11/2020	4	CG	11:30	14:30	3	3/3/3	SW/SW/SW	0/0/0	7/7/7	2/2/2	2/2/2	0/0/0	0/0/0
13/11/2020	5	MW	11:30	14:30	3	3/3/3	S/S/S	0/0/0	7/6/4	2/2/2	2/2/2	0/0/0	0/0/0
25/11/2020	2	MW	11:05	14:05	3	3/3/3	SW/SW/SW	2/0/2	7/6/7	1/1/1	2/2/2	0/0/0	0/0/0

Table A3.1ii: VP Flight Activity Survey Effort – December 2020 to November 2021 (Year 2).

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
09/12/2020	2	AR	09:00	12:00	3	3/3/4	SW/SW/SW	0/1/1	7/8/8	2/1/1	2/2/1	0/0/0	0/0/0
09/12/2020	2	AR	12:30	15:30	3	4/4/4	SW/SW/SW	0/0/1	7/6/7	2/1/1	2/2/1	0/0/0	0/0/0
18/12/2020	3b	MW	09:25	12:25	3	4/4/4	SW/SW/SW	1/0/1	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
18/12/2020	3b	MW	12:55	15:55	3	4/2/3	SW/SW/SW	2/1/0	8/8/8	1/2/1	2/2/2	0/0/0	0/0/0
21/12/2020	7	AR	09:45	12:45	3	3/3/3	S/S/S	1/1/1	8/8/8	2/1/1	2/2/2	0/0/0	0/0/0
21/12/2020	7	AR	13:15	16:15	3	3/3/3	SSW/SSW/SW	1/1/1	7/8/8	2/1/2	2/2/2	0/0/0	0/0/0
21/12/2020	11	MW	09:40	12:40	3	1/1/2	S/S/S	1/2/1	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
21/12/2020	11	MW	13:10	16:10	3	2/3/3	S/SW/WSW	1/2/1	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
20/01/2021	3b	MW	09:20	12:20	3	1/1/2	SW/SW/SW	0/0/0	3/4/5	2/2/2	2/2/2	1/1/1	0/0/0
20/01/2021	3b	MW	12:50	15:50	3	1/2/2	WSW/WSW/WSW	0/0/0	6/6/6	2/2/2	2/2/2	0/0/0	0/0/0
24/01/2021	2	AR	09:10	12:10	3	0/1/1	-/W/SSW	0/0/0	3/4/3	1/2/2	1/2/2	2/2/2	2/2/2
24/01/2021	2	AR	12:40	15:40	3	1/3/3	SSW/SSW/SSW	0/0/0	2/2/4	2/2/2	2/2/2	2/2/2	2/2/2
24/01/2021	7	MW	08:35	11:35	3	0/0/0	-/-/-	0/0/0	3/2/2	2/2/2	2/2/2	2/2/2	1/1/1
24/01/2021	7	MW	12:05	15:05	3	0/0/0	-/-/-	0/0/0	1/1/1	2/2/2	2/2/2	2/2/2	1/1/1
27/01/2021	11	MW	10:45	13:45	3	1/1/1	W/W/W	0/1/1	8/7/7	1/1/1	2/2/2	0/0/0	1/1/1
27/01/2021	11	MW	14:15	17:15	3	0/1/2	-/E/E	0/0/1	8/8/8	1/1/1	2/2/2	0/0/0	1/1/1
10/02/2021	2	MW	08:05	11:05	3	1/2/3	NE/NE/NE	0/0/0	4/4/3	2/2/2	2/2/2	2/2/2	1/1/1

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
10/02/2021	2	MW	11:35	14:35	3	3/3/3	NE/NE/NE	0/0/0	2/1/1	2/2/2	2/2/2	2/2/2	1/1/1
10/02/2021	7	SM	08:20	11:20	3	3/3/3	NE/ENE/E	0/0/0	7/7/5	2/2/2	2/2/2	2/2/2	1/1/1
10/02/2021	7	SM	11:50	14:50	3	3/3/3	E/E/E	0/0/0	2/2/1	2/2/2	2/2/2	2/2/2	1/1/1
21/02/2021	3b	CG	10:30	13:30	3	4/3/3	SE/SE/S	0/0/0	3/4/5	2/2/2	2/2/2	0/0/0	0/0/0
21/02/2021	3b	CG	14:00	17:00	3	3/4/3	S/S/S	0/0/0	5/2/1	2/2/2	2/2/2	0/0/0	0/0/0
22/02/2021	11	GP	09:30	12:30	3	4/3/4	SSW/S/SSW	0/0/0	2/4/1	2/2/2	2/2/2	0/0/0	0/0/0
22/02/2021	11	GP	13:00	16:00	3	5/4/4	S/SSW/S	0/0/0	2/1/0	2/2/2	2/2/2	0/0/0	0/0/0
25/02/2021	2	GP	10:50	13:50	3	5/5/5	W/WSW/WSW	0/0/0	8/7/4	2/2/2	2/2/2	0/0/0	0/0/0
25/02/2021	2	GP	14:20	17:20	3	4/4/4	W/W/W	0/0/0	4/5/3	2/2/2	2/2/2	0/0/0	0/0/0
25/02/2021	7	CG	11:00	14:00	3	2/2/2	E/SE/E	0/0/0	3/5/7	2/2/2	2/2/2	0/0/0	0/0/0
25/02/2021	7	CG	14:30	17:30	3	1/1/2	E/E/E	0/0/0	6/2/4	2/2/2	2/2/2	0/0/0	0/0/0
26/02/2021	3b	GP	09:30	12:30	3	2/2/2	SSW/SSW/SSW	0/0/0	7/4/6	2/2/2	2/2/2	0/0/0	0/0/0
26/02/2021	3b	GP	13:00	16:00	3	3/3/3	S/S/S	0/0/0	6/5/3	2/2/2	2/2/2	0/0/0	0/0/0
01/03/2021	11	GP	09:15	12:15	3	2/2/2	E/ESE/ESE	0/0/0	0/0/0	2/2/2	2/2/2	0/0/0	0/0/0
01/03/2021	11	GP	12:45	15:45	3	2/2/2	ENE/E/E	0/0/0	0/0/0	2/2/2	2/2/2	0/0/0	0/0/0
10/03/2021	3b	MW	06:30	09:30	3	1/2/3	SW/SW/SW	0/0/0	8/8/6	2/2/2	2/2/2	0/0/0	0/0/0
10/03/2021	3b	MW	10:00	13:00	3	0/2/3	SW/SW/SW	0/2/3	7/8/8	2/2/1	2/2/2	0/0/0	0/0/0
10/03/2021	11	CG	10:05	13:05	3	3/3/4	SW/S/S	0/1/1	6/8/8	2/2/1	2/2/1	0/0/0	0/0/0
10/03/2021	11	CG	06:35	09:35	3	3/3/3	SW/SW/SW	0/0/0	8/8/6	2/2/2	2/2/2	0/0/0	0/0/0
12/03/2021	7	MW	07:20	10:20	3	3/4/3	W/W/W	2/2/0	7/7/6	1/1/2	2/2/2	0/0/0	1/1/0
12/03/2021	7	MW	10:50	13:50	3	3/3/3	W/W/W	0/0/2	6/6/6	2/2/1	2/2/2	0/0/0	0/0/0
17/03/2021	2	CG	12:00	15:00	3	2/2/3	NW/NW/NW	0/0/0	2/6/6	2/2/2	2/2/2	0/0/0	0/0/0
17/03/2021	2	CG	15:30	18:30	3	3/2/1	NW/NW/NW	0/0/0	8/7/7	2/2/2	2/2/2	0/0/0	0/0/0
07/04/2021	3b	MW	08:40	11:40	3	2/3/3	NW/NW/NW	0/0/0	5/4/5	2/2/2	2/2/2	0/0/0	0/0/0
07/04/2021	3b	MW	12:10	15:10	3	3/3/3	NW/NW/NW	0/0/0	6/7/8	2/2/2	2/2/2	0/0/0	0/0/0
07/04/2021	11	GD	08:40	11:40	3	2/3/3	W/W/W	0/0/0	5/4/3	2/2/2	2/2/2	1/1/0	0/0/0
07/04/2021	11	GD	12:10	15:10	3	3/3/3	SW/SW/SW	0/2/0	6/6/8	2/2/2	2/2/2	0/0/0	0/0/0
19/04/2021	2	GH	06:30	09:30	3	5/4/4	SSW/S/S	0/0/0	7/8/8	1/2/2	2/2/2	0/0/0	0/0/0

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
19/04/2021	3b	CG	06:45	09:45	3	3/3/3	SE/SE/SE	0/0/0	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
19/04/2021	11	GH	10:30	13:30	3	4/5/5	S/SSW/SSW	0/0/0	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
19/04/2021	11	GH	14:00	17:00	3	4/4/4	SSW/SSW/SSW	0/0/0	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
21/04/2021	2	GH	08:00	11:00	3	4/4/3	ESE/ESE/ESE	0/0/0	4/3/2	2/2/2	2/2/2	0/0/0	0/0/0
21/04/2021	3b	CG	08:00	11:00	3	2/1/1	E/E/E	0/0/0	4/1/1	2/2/2	2/2/2	0/0/0	0/0/0
21/04/2021	7	GH	12:00	15:00	3	4/3/4	SE/SE/NNE	0/0/0	0/0/0	2/2/2	2/2/2	0/0/0	0/0/0
21/04/2021	7	GH	15:30	18:30	3	3/2/1	NNE/NNE/NNE	0/0/0	0/0/0	2/2/2	2/2/2	0/0/0	0/0/0
28/04/2021	2	GH	11:00	14:00	3	2/1/2	S/SE/ESE	0/1/0	6/8/7	2/2/2	2/2/2	0/0/0	0/0/0
28/04/2021	7	GH	14:50	17:50	3	2/0/0	S/S/S	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
28/04/2021	7	GH	18:20	21:20	3	1/2/0	N/NE/NE	1/0/0	8/3/5	2/2/2	2/2/2	0/0/0	0/0/0
15/05/2021	7	GH	08:20	11:20	3	3/2/2	E/E/E	1/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
21/05/2021	2	RT	08:45	11:45	3	4/4/3	NE/NE/ENE	0/0/0	8/7/7	2/2/2	2/2/2	0/0/0	0/0/0
21/05/2021	2	RT	12:15	15:15	3	4/5/4	ENE/ENE/ENE	0/0/0	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
21/05/2021	3b	GH	08:30	11:30	3	3/4/4	NW/NNW/NNW	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
21/05/2021	3b	GH	12:00	15:00	3	4/5/4	N/N/N	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
25/05/2021	2	RT	14:25	17:25	3	3/2/4	NE/NE/NE	0/0/1	4/3/6	2/2/2	2/2/2	0/0/0	0/0/0
25/05/2021	3b	GH	14:15	17:15	3	3/4/3	N/N/N	0/0/0	8/7/3	2/2/2	2/2/2	0/0/0	0/0/0
25/05/2021	7	GH	06:30	09:30	3	3/4/4	N/N/N	0/0/0	5/4/4	2/2/2	2/2/2	0/0/0	0/0/0
25/05/2021	7	GH	10:00	13:00	3	4/4/3	N/N/N	0/0/0	5/7/7	2/2/2	2/2/2	0/0/0	0/0/0
25/05/2021	11	RT	06:15	09:15	3	4/5/4	WNW/WNW/WNW	0/0/0	7/4/4	2/2/2	2/2/2	0/0/0	0/0/0
25/05/2021	11	RT	09:45	12:45	3	4/4/4	WNW/WNW/WNW	0/0/0	4/4/4	2/2/2	2/2/2	0/0/0	0/0/0
28/05/2021	2	RT	12:00	15:00	3	2/2/1	S/S/S	1/1/0	8/8/8	1/1/1	2/1/2	0/0/0	0/0/0
30/05/2021	11	GH	15:30	18:30	3	4/4/4	S/S/S	0/0/0	0/0/0	2/2/2	2/2/2	0/0/0	0/0/0
30/05/2021	11	GH	19:00	22:00	3	4/3/2	S/S/S	0/0/0	0/0/0	2/2/2	2/2/2	0/0/0	0/0/0
08/06/2021	7	CG	15:00	18:00	3	3/2/2	SW/SW/SW	0/0/0	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
08/06/2021	7	CG	18:30	21:30	3	2/2/2	S/S/SSW	1/0/1	8/8/8	1/1/1	2/2/1	0/0/0	0/0/0
15/06/2021	3b	CG	14:00	17:00	3	3/3/3	SSE/SSE/SSE	0/1/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
15/06/2021	2	MW	14:20	17:20	3	3/4/4	S/S/S	0/0/1	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
16/06/2021	3b	AJM	14:35	17:35	3	4/4/3	S/S/S	0/0/0	6/6/7	2/2/2	2/2/2	0/0/0	0/0/0

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
16/06/2021	2	AJM	18:05	21:05	3	4/3/3	S/S/S	0/0/0	6/7/7	2/2/2	2/2/2	0/0/0	0/0/0
17/06/2021	7	CG	13:00	16:00	3	3/2/2	SW/SW/SW	0/0/0	3/3/2	2/2/2	2/2/2	0/0/0	0/0/0
17/06/2021	3b	CG	16:30	19:30	3	3/3/3	SW/SW/WNW	0/0/0	3/6/3	2/2/2	2/2/2	0/0/0	0/0/0
29/06/2021	11	GP	11:40	14:40	3	3/3/4	WNW/W/W	0/0/0	1/2/2	2/2/2	2/2/2	0/0/0	0/0/0
29/06/2021	11	GP	15:10	18:10	3	4/3/4	NW/WNW/W	0/0/0	2/2/2	2/2/2	2/2/2	0/0/0	0/0/0
20/07/2021	2	GD	12:30	15:30	3	1/1/1	N/N/N	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
20/07/2021	2	GD	16:00	19:00	3	1/1/1	N/N/N	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
21/07/2021	2	GD	15:15	18:15	3	1/1/1	SE/SE/SE	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
20/07/2021	3	CG	12:30	15:30	3	2/1/1	WSW/WSW/SSE	0/0/0	1/1/1	2/2/2	2/2/2	0/0/0	0/0/0
20/07/2021	3	CG	16:00	19:00	3	2/2/1	S/WSW/WSW	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
21/07/2021	7	CG	11:40	14:40	3	1/1/2	E/SE/E	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
21/07/2021	7	CG	15:10	18:10	3	2/1/1	S/SE/SE	0/0/0	1/1/1	2/2/2	2/2/2	0/0/0	0/0/0
21/07/2021	11	GD	08:15	11:15	3	2/2/1	SE/SE/SE	0/0/0	8/8/2	1/2/2	1/2/2	0/0/0	0/0/0
21/07/2021	11	GD	11:45	14:45	3	2/1/1	SE/SE/SE	0/0/0	1/2/1	2/2/2	2/2/2	0/0/0	0/0/0
10/08/2021	2	AR	10:15	13:15	3	3/4/4	NW/NW/NW	0/0/0	7/8/7	2/2/2	2/2/2	0/0/0	0/0/0
10/08/2021	2	AR	13:45	16:45	3	4/4/4	W/SW/SW	0/0/0	7/7/7	2/2/2	2/2/2	0/0/0	0/0/0
10/08/2021	3	SM	10:20	13:20	3	2/2/2	W/NW/SE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
10/08/2021	3	SM	13:50	16:50	3	3/3/3	WSW/W/W	0/0/0	8/7/8	2/2/2	2/2/2	0/0/0	0/0/0
11/08/2021	7	AR	15:10	18:10	3	3/2/2	S/SW/SW	1/0/0	6/3/2	2/2/2	2/2/2	0/0/0	0/0/0
11/08/2021	7	AR	18:40	21:40	3	2/2/1	SW/SW/SW	0/0/0	3/6/6	2/2/2	2/2/2	0/0/0	0/0/0
11/08/2021	11	SM	15:10	18:10	3	4/4/4	WSW/WSW/W	2/0/0	8/7/5	1/2/2	1/2/2	0/0/0	0/0/0
11/08/2021	11	SM	18:40	21:40	3	4/3/3	W/W/W	0/0/0	4/1/1	2/2/2	2/2/2	0/0/0	0/0/0
28/09/2021	2	GP	09:45	12:45	3	4/3/3	SSW/SSW/SW	0/0/0	5/7/7	2/2/2	2/2/2	0/0/0	0/0/0
28/09/2021	2	GP	13:15	16:15	3	3/4/3	SW/SW/SW	0/0/0	6/6/5	2/2/2	2/2/2	0/0/0	0/0/0
28/09/2021	3	AJM	09:40	12:40	3	4/3/3	SSE/S/SSW	0/0/0	6/6/5	2/2/2	2/2/2	0/0/0	0/0/0
28/09/2021	3	AJM	13:10	16:10	3	3/3/3	SSW/S/S	0/0/0	5/4/5	2/2/2	2/2/2	0/0/0	0/0/0
27/09/2021	7	AJM	12:15	15:15	3	4/3/3	W/W/W	3/2/0	4/4/4	2/2/2	2/2/2	0/0/0	0/0/0
27/09/2021	7	AJM	15:45	18:45	3	4/3/2	W/W/W	0/0/0	4/3/4	2/2/2	2/2/2	0/0/0	0/0/0
27/09/2021	11	GP	12:00	15:00	3	5/5/5	W/W/W	3/2/3	8/6/7	2/2/2	2/2/2	0/0/0	0/0/0

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
27/09/2021	11	GP	15:30	18:30	3	5/5/5	W/W/W	0/0/0	3/2/4	2/2/2	2/2/2	0/0/0	0/0/0
05/10/2021	2	AJM	10:15	13:15	3	3/3/3	N/N/N	0/0/0	5/3/2	2/2/2	2/2/2	0/0/0	0/0/0
05/10/2021	2	AJM	13:45	16:45	3	3/3/3	N/N/N	0/0/0	2/3/4	2/2/2	2/2/2	0/0/0	0/0/0
12/10/2021	2	AJM	14:00	17:00	3	2/3/3	WNW/WNW/NW	0/0/1	7/7/8	2/2/1	2/2/1	0/0/0	0/0/0
05/10/2021	3	SM	10:20	13:20	3	3/3/3	N/N/NNW	0/0/0	2/1/1	2/2/2	2/2/2	0/0/0	0/0/0
05/10/2021	3	SM	13:50	16:50	3	4/4/4	NNW/NNW/NNW	0/0/0	2/3/3	2/2/2	2/2/2	0/0/0	0/0/0
13/10/2021	3	AJM	07:15	10:15	3	1/1/2	W/W/W	0/0/1	8/7/8	2/2/1	2/2/2	0/0/0	0/0/0
04/10/2021	7	SM	12:35	15:35	3	3/3/3	W/WSW/SW	0/0/3	8/8/8	2/2/1	2/2/2	0/0/0	0/0/0
04/10/2021	7	SM	16:05	19:05	3	3/2/2	WSW/SW/SW	3/2/0	8/6/3	1/2/2	2/2/2	0/0/0	0/0/0
12/10/2021	7	AJM	10:20	13:20	3	2/2/2	NW/WNW/WNW	0/0/0	7/6/6	1/2/2	2/2/2	0/0/0	0/0/0
04/10/2021	11	AJM	12:15	15:15	3	4/3/3	SW/SW/SSW	2/0/2	7/7/8	1/1/1	2/2/2	0/0/0	0/0/0
04/10/2021	11	AJM	15:45	18:45	3	4/3/2	SSW/SSW/SSW	2/0/0	8/6/3	2/2/2	2/2/2	0/0/0	0/0/0
13/10/2021	11	AJM	10:45	13:45	3	3/3/3	WNW/WNW/WNW	2/0/2	8/8/7	1/1/1	1/2/2	0/0/0	0/0/0
09/11/2021	2	MW	10:10	13:10	3	3/3/3	SW/SW/SW	0/0/0	6/7/7	2/2/2	2/2/2	0/0/0	0/0/0
09/11/2021	2	MW	13:40	16:40	3	3/4/3	SW/SW/SW	0/3/0	5/8/7	2/1/1	2/2/2	0/0/0	0/0/0
09/11/2021	3	SM	10:05	13:05	3	3/4/3	WSW/WSW/W	0/0/0	6/7/7	2/2/2	2/2/2	0/0/0	0/0/0
09/11/2021	3	SM	13:35	16:35	3	3/3/4	WSW/WSW/WSW	0/2/0	7/7/8	2/2/2	2/2/2	0/0/0	0/0/0
10/11/2021	7	MW	08:50	11:50	3	1/1/1	SW/WSW/SW	1/2/0	6/7/5	2/2/2	2/2/2	0/0/0	0/0/0
10/11/2021	7	MW	12:20	15:20	3	1/1/1	SW/SW/SW	0/0/0	5/5/6	2/2/2	2/2/2	0/0/0	0/0/0
10/11/2021	11	SM	09:00	12:00	3	3/3/3	WSW/WSW/SW	3/3/0	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
10/11/2021	11	SM	12:30	15:30	3	4/3/3	SW/SW/SW	0/0/0	6/7/8	2/2/2	2/2/2	0/0/0	0/0/0

Table A3.2: Moorland breeding bird survey effort – 2020.

Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
30/04/2020	CG	09:00	12:00	2/2/2	E/E/NE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
30/04/2020	AR	09:00	12:00	3/3/3	E/E/E	0/0/0	7/7/6	2/2/2	2/2/2	0/0/0	0/0/0
21/05/2020	AR	09:30	15:30	3/3/2/ 1/2/2	SE/SE/SSE/ SSE/SW/SW	0/0/0/ 0/0/0	5/3/2/ 1/2/3	1/2/2/ 2/2/2	2/2/2/ 2/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0

16/06/2020	AR	08:30	14:30	2/2/1/ 1/1/2	SW/SW/SW/ SW/SW/SW	0/0/0/ 0/0/0	7/6/4/ 2/2/2	2/2/2/ 2/2/2	2/2/2/ 2/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0
08/07/2020	AR	08:30	14:30	2/2/2/ 2/1/1	SW/SW/SW/ WSW/WSW/SW	0/0/0/ 0/0/0	4/4/3/ 5/4/5	2/2/2/ 2/2/2	2/2/2/ 2/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0

Table A3.3: Breeding Schedule 1/Annex 1 raptor and owl search effort – 2020 and 2021.

Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
27/04/2020	CG/AR	09:30	18:30	1/2/2/ 1/1/2/ 2/1/1	E/E/E/E/ E/E/E/E/E	0/0/0/ 0/0/0/ 0/0/0	1/2/2/ 3/2/2/ 3/2/1	2/2/2/ 2/2/2/ 2/2/2	2/2/2/ 2/2/2/ 2/2/2	0/0/0/ 0/0/0/ 0/0/0	0/0/0/ 0/0/0/ 0/0/0
05/05/2020	CG/AR	10:00	16:00	2/2/2/ 1/1/2	E/ESE/E/ E/E/ESE	0/0/0/ 0/0/0	3/5/3/ 2/2/3	2/2/2/ 2/2	2/2/2/ 2/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0
14/05/2020	AR	08:00	14:00	3/4/4/ 3/3/3	E/E/E/E/ E/E	0/1/1/ 0/0/0	5/7/6/ 4/5/4	2/1/2/ 2/2/2	2/1/2/ 2/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0
10/06/2020	AR	10:40	16:40	1/1/3/ 3/3/4	N/N/NNW/ NNW/NNW/S	1/1/0/ 0/0/1	8/6/5/ 4/4/7	2/2/2/ 2/2/2	2/2/2/ 2/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0
16/06/2020	CG	08:15	11:15	3/3/2	E/ESE/ESE	0/0/0	6/5/4	2/2/2	2/2/2	0/0/0	0/0/0
16/06/2020	AR	07:00	08:00	3	SW	0	7	2	2	0	0
16/06/2020	AR	15:00	17:00	1/1	SW/SW	0/0	2/3	2/2	2/2	0/0	0/0
23/07/2020	AR	16:00	19:00	3/3/2	SW/SW/SW	0/0/1	8/8/8	1/2/1	1/2/2	0/0/0	0/0/0
17/03/2021	CG	08:30	11:30	2/2/2	NW/NW/NW	0/0/0	3/3/4	2/2/2	2/2/2	0/0/0	0/0/0
26/03/2021	AR	09:00	15:00	3/3/3/ 4/3/3	SW/SW/SW/ SW/SW/SW	1/0/2/ 2/0/0	3/2/2/ 3/3/4	2/2/2/ 2/2/2	2/2/2/ 2/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0
26/03/2021	GP	08:45	15:00	4/4/4/ 4/4/4	SW/SW/SW/ SSS/SSW/SW	0/0/0/ 0/0/0	7/3/7/ 6/2/3	2/2/2/ 2/2/2	2/2/2/ 2/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0
19/04/2021	CG	10:30	16:30	3/3/3/ 2/3/3	S/SE/SE/ S/S/S	0/0/0/ 0/0/0	7/8/6/ 6/7/7	2/2/2/ 2/2/2	2/2/2/ 2/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0
15/05/2021	CG	08:30	11:30	2/1/2	E/E/E	0/0/0	8/8/8	1/2/2	2/2/2	0/0/0	0/0/0
21/05/2021	CG	08:45	15:45	4/3/4/ 4/4/3	NNW/NW/ NNW/NW/NW/N	0/0/0/ 0/0/0	8/8/8/ 8/8/8	2/2/2/ 2/2/2	2/2/2/ 2/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0
25/05/2021	CG	06:30	12:30	3/4/4/ 4/4/4	N/N/N/ N/N/N	0/0/0/ 0/0/0	5/6/6/ 5/7/7	2/2/2/ 2/2/2	2/2/2/ 2/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0
28/05/2021	GH	11:40	14:30	2/3/3	SE/SE/SE	0/1/1	8/8/8	2/2/1	2/2/1	0/0/0	0/0/0
30/06/2021	AR	11:15	17:15	3/2/3/	SW/SW/W/	0/0/0/	8/8/7/	1/1/2/	2/2/2/	0/0/0/	0/0/0/

Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
				3/3/3	W/W/W	0/0/0	5/5/5	2/2/2	2/2/2	0/0/0	0/0/0
30/06/2021	GP	10:00	16:00	1/2/1/ 2/1/2	E/SE/W/ESE/ SE/S	0/0/0/ 0/0/0	8/8/8/ 8/8/8	1/1/1/ 1/1/1	1/2/1/ 1/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0
22/07/2021	AJM	11:10	17:20	2/2/2/1/ 1/1	ENE/E/E/ENE/ENE/E	0/0/0/0/0/0	2/2/1/1/2/3	2/2/2/2/2/2	2/2/2/2/2/2	0/0/0/0/0/0	0/0/0/ 0/0/0
22/07/2021	GD	10:50	16:50	2/2/2/2/ 2/2	SE/SE/SE/SE/SE/SE	0/0/0/0/0/0	0/0/0/0/0/0	2/2/2/2/2/2	2/2/2/2/2/2	0/0/0/0/0/0	0/0/0/ 0/0/0

Table A3.4: Breeding diver search effort – 2020 and 2021.

Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
01/05/2020	AR	05:00	08:00	1/1/2	NW/WNW/WNW	0/0/0	5/5/6	2/2/2	2/2/2	0/0/0	0/0/0
05/05/2020	AR	11:00	14:00	3/2/3	SW/SW/SW	0/0/0	4/5/5	2/2/2	2/2/2	0/0/0	0/0/0
16/06/2020	AR	08:30	14:30	2/2/1/ 1/1/2	SW/SW/SW/ SW/SW/SW	0/0/0/ 0/0/0	7/6/4/ 2/2/2	2/2/2/ 2/2/2	2/2/2/ 2/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0
17/06/2020	AR	12:00	18:00	0/0/0/ 2/3/2	-/-/E/SE/SE	0/0/0/ 0/0/0	6/6/5/ 4/3/4	2/2/2/ 2/2/2	2/2/2/ 2/2/2	0/0/0/ 0/0/0	0/0/0/ 0/0/0
23/07/2020	AR	12:30	15:30	3/3/3	SW/SW/SW	1/1/0	6/7/6	1/1/1	1/1/1	0/0/0	0/0/0
28/04/2021	CG	10:15	13:15	2/2/1	SE/SE/ESE	0/1/0	4/7/7	2/2/2	2/2/2	0/0/0	0/0/0
25/05/2021	CG	14:30	17:30	3/4/4	N/N/N	0/0/0	8/8/4	2/2/2	2/2/2	0/0/0	0/0/0
30/06/2021	AR	18:00	20:15	2/1/1	W/W/W	0/0/0	5/5/6	2/2/2	2/2/2	0/0/0	0/0/0
30/06/2021	GP	18:00	19:30	2/2	NW/NW	0/0	4/4	2/2	2/2	0/0	0/0
21/07/2021	CG	08:00	11:00	2/1/1	E/E/E	0/0/0	4/0/0	1/2/2	1/2/2	0/0/0	0/0/0

Table A3.5: Breeding diver focal loch watch effort – 2020 and 2021.

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
17/07/2020	2	AR	19:30	22:20	3	2/2/3	NE/NE/NE	0/0/1	5/8/8	2/2/1	2/2/1	0/0/0	0/0/0
17/07/2020	4	CG	19:30	22:30	3	2/2/2	SW/SW/SW	0/0/0	5/7/7	2/2/2	2/2/2	0/0/0	0/0/0
24/07/2020	2	CG	04:40	07:40	3	2/1/1	NW/NW/NW	0/0/0	3/6/5	2/2/2	2/2/2	0/0/0	0/0/0
24/07/2020	4	AR	04:40	07:40	3	3/2/2	SW/SW/SW	0/0/0	2/2/2	2/2/2	2/2/2	0/0/0	0/0/0

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
26/08/2020	4	AR	14:30	17:30	3	1/1/1	S/SSW/SSW	1/1/0	2/3/2	2/2/2	2/2/2	0/0/0	0/0/0
26/08/2020	4	AR	18:00	21:00	3	1/1/2	SW/SSW/SW	1/0/0	2/3/2	2/2/1	2/2/2	0/0/0	0/0/0
26/08/2020	2	GP	14:30	17:30	3	2/2/2	WSW/WSW/W	0/2/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
26/08/2020	2	GP	18:00	21:00	3	2/2/2	W/SW/SSW	2/0/0	8/8/8	2/1/0	2/2/0	0/0/0	0/0/0
30/07/2021	2	CG	19:30	22:30	3	2/2/2	NW/W/W	0/0/0	8/8/8	2/1/1	2/2/2	0/0/0	0/0/0
01/08/2021	2	CG	04:30	07:30	3	2/1/1	ENE/ENE/NE	0/0/0	4/6/5	2/2/2	2/2/2	0/0/0	0/0/0
03/08/2021	2	CG	19:30	22:30	3	2/1/3	W/W/SW	0/0/0	4/6/3	2/2/2	2/2/2	0/0/0	0/0/0
28/08/2021	2	CG	15:00	18:00	3	2/2/2	W/W/W	0/0/0	7/4/1	2/2/2	2/2/2	0/0/0	0/0/0
28/08/2021	2	CG	18:30	21:30	3	2/2/1	W/W/W	0/0/0	1/4/5	2/2/1	2/2/1	0/0/0	0/0/0

Table A3.6: Breeding black grouse survey effort – 2020 and 2021.

Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
01/05/2020	CG	05:15	08:15	1/1/1	E/E/E	0/0/0	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
01/05/2020	AR	05:00	08:00	1/1/2	NW/WNW/WNW	0/0/0	5/5/6	2/2/2	2/2/2	0/0/0	0/0/0
08/05/2020	AR	05:00	08:00	2/3/2	NW/NW/NW	0/0/0	8/8/7	4/1/2	1/1/2	0/0/0	0/0/0
08/05/2020	CG	05:30	08:30	1/1/1	S/S/S	0/0/0	8/7/6	0/2/2	1/2/2	0/0/0	0/0/0
07/04/2021	MW	05:40	08:40	1/1/1	NW/NW/NW	0/0/0	4/3/4	2/2/2	2/2/2	1/1/1	0/0/0
07/04/2021	GD	05:40	08:40	1/1/1	W/W/W	0/1/0	7/4/6	2/2/2	2/2/2	1/1/1	0/0/0
15/05/2021	GH	04:15	07:15	1/1/1	ESE/ESE/ESE	0/0/0	8/8/8	1/1/1	1/1/1	0/0/0	0/0/0
15/05/2021	CG	04:15	07:15	2/2/2	E/E/E	0/1/0	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0

Table A3.7: Prey transect survey effort - 2021.

Date	Transect	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
04/03/2021	1	CG	10:20	11:30	2/2	SE/SE	0/0	8/8	2/2	2/2	0/0	0/0
04/03/2021	3	MW	10:20	11:35	1/3	E/E	0/0	7/8	2/2	2/2	0/0	0/0
04/03/2021	2	CG	12:00	13:00	3/3	E/E	0/0	8/8	2/2	2/2	0/0	0/0
04/03/2021	4	MW	12:40	13:50	3/2	E/E	0/0	8/6	2/2	2/2	0/0	0/0
08/06/2021	4	MW	10:20	11:40	3/3	S/S	0/0	8/8	1/1	1/1	0/0	0/0

Date	Transect	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
08/06/2021	3	MW	12:00	13:10	3/3	S/S	1/1	8/8	1/1	1/1	0/0	0/0
08/06/2021	2	MW	13:25	14:30	4/4	S/S	1/1	8/8	1/1	1/1	0/0	0/0
08/06/2021	1	MW	14:55	15:55	4/4	S/S	1/1	8/8	1/1	1/1	0/0	0/0
29/08/2021	1	CG	10:30	11:30	2/2	ESE/ESE	0/0	8/8	1/1	2/2	0/0	0/0
29/08/2021	2	CG	11:45	12:45	2/1	ESE/SE	0/0	8/8	2/2	2/2	0/0	0/0
29/08/2021	3	CG	13:10	14:10	1/1	SE/ESE	0/0	8/8	2/2	2/2	0/0	0/0
29/08/2021	4	CG	14:40	15:40	2/2	ESE/SE	0/0	8/8	2/2	2/2	0/0	0/0

ANNEX 4: VP FLIGHT ACTIVITY SURVEY – TARGET SPECIES FLIGHT RECORDS

The follow British Trust for Ornithology (BTO) species codes are used to denote target species within **Table A4.1** and/or **Table A4.2**:

BK: Black grouse; **EA:** Golden eagle; **WE:** White-tailed eagle; **HH:** Hen harrier; **RH:** Red-throated diver; **ML:** Merlin; **T.:** Teal; **SN:** Snipe; **PE:** Peregrine; **OP:** Osprey; **SE:** Short-eared owl; **HZ:** Honey buzzard; **GJ:** Greylag goose; **WS:** Whooper swan; **JS:** Jack snipe; **GP:** Golden plover; **H.:** Grey heron.

For the purposes of this Report, the duration of at-risk height flight activity is based on the following candidate turbine specification:

- Maximum tip height: 180 m.
- Maximum rotor diameter: 155 m.

Table A4.1: Target species flight records – Year 1 (September 2019 to November 2020).

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
17/09/2019	3a	EA	1	12:45	345	345	Too distant to sex or age.
15/10/2019	3a	EA	1	12:50	30	30	-
15/10/2019	3a	EA	2	14:05	90	90	-
15/10/2019	3a	EA	1	14:15	155	155	-
05/11/2019	2	HH	1	12:40	40	40	Male - adult - chased off by meadow pipits.
09/11/2019	1	EA	1	13:05	120	120	Juvenile.
09/11/2019	1	EA	1	13:40	75	75	Juvenile.
20/01/2020	4	HH	1	14:03	30	0	Male.
20/01/2020	1	HH	1	15:58	51	0	Male.
11/02/2020	4	HH	1	10:30	100	60	Male.
11/02/2020	3a	EA	1	11:07	180	90	Male, 2nd winter.
11/02/2020	3a	EA	1	11:15	120	90	2nd winter, sub-adult, male, displaying.
11/02/2020	3a	EA	1	11:15	120	30	2nd winter, sub-adult, female, displaying.
11/02/2020	3a	EA	1	11:45	240	240	Mobbed by raven, male dropped low.
11/02/2020	3a	EA	1	11:45	240	180	Mobbed by raven, female higher.
11/02/2020	3a	EA	1	13:27	120	105	Male, 2nd winter.
11/02/2020	3a	EA	1	13:27	120	120	Too distant to sex or age.
11/02/2020	3a	EA	2	13:31	84	84	Pair flying together.

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
11/02/2020	3a	EA	3	13:41	45	45	Pair mobbed by a larger EA.
11/02/2020	3a	EA	1	14:28	15	0	2nd winter EA.
11/02/2020	3a	EA	1	14:35	150	150	Soaring.
11/02/2020	4	HH	1	16:10	90	90	Male, likely same bird as recorded earlier in day.
28/04/2020	2	EA	1	10:44	249	225	Over Cruach Bhreac.
28/04/2020	1	EA	1	12:09	131	131	2nd calendar year female.
28/04/2020	1	EA	1	12:09	227	227	Adult male.
28/04/2020	2	EA	1	12:50	140	125	Adult male, forcing immature away.
28/04/2020	2	EA	1	12:50	140	125	2nd calendar year female being pushed away by male.
28/04/2020	2	HH	1	13:11	26	0	Male hunting.
28/04/2020	2	EA	1	13:26	193	193	Female over Cruach Bhreac.
28/04/2020	2	EA	1	15:15	13	0	Adult female.
28/04/2020	2	EA	1	15:17	63	63	Adult female.
28/04/2020	6	HH	1	18:07	98	0	Female hunting along forest edge.
28/04/2020	6	HH	1	18:46	68	0	Female hunting along forest edge.
29/04/2020	4	RH	1	11:41	997	975	Seemed to be paired with the bird on line below, dropped onto loch (Loch na Machrach Bige), as other four went off to sea.
29/04/2020	4	RH	1	11:41	988	988	Paired with bird from flight on line above, flew east out to sea with birds from 3 flights on lines below this one.
29/04/2020	4	RH	2	11:45	706	706	Joined birds from flights above, then flew east out to sea.
29/04/2020	4	RH	1	11:45	678	678	Seemed to be lone individual, flew around with bird from first flight, then flew east out to sea with birds of other flights.
29/04/2020	4	RH	2	11:54	382	382	Joined birds from flights above and flew east out to sea.
29/04/2020	4	RH	1	12:06	43	30	Dropped onto loch (Loch na Machrach Bige).
29/04/2020	4	RH	2	12:42	116	116	Flew over loch (Loch na Machrach Bige), pair

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
							on loch calling.
29/04/2020	4	RH	2	13:04	782	782	Circled over loch (Loch na Machrach Bige), pair on loch calling.
29/04/2020	4	RH	2	15:51	336	216	Took off from loch (Loch na Machrach Bige), flew out east to sea.
29/04/2020	4	RH	2	16:34	468	390	Landing on loch (Loch na Machrach Bige).
29/04/2020	4	RH	1	16:49	177	177	Flying over, pair on loch (Loch na Machrach Bige) calling.
30/04/2020	1	ML	1	13:36	71	60	Male carrying prey.
30/04/2020	2	EA	1	13:57	68	68	Adult male.
30/04/2020	2	RH	2	17:47	754	754	Calling before landing on loch (Feur Lochan).
30/04/2020	2	RH	1	18:56	218	210	Landing on Loch (Feur Lochan).
30/04/2020	2	RH	1	19:06	191	180	Flying south-west through the Site, over Cnoc A Bhaile-Shos.
01/05/2020	5	SN	1	09:50	282	270	Drumming and displaying to right of VP.
01/05/2020	5	SN	1	09:59	331	330	Drumming and displaying to right of VP.
01/05/2020	5	SN	1	10:11	497	495	Drumming and displaying to right of VP.
01/05/2020	4	T.	2	11:25	108	90	Moving between Loch na Machrach Bige and Loch na Machrach Moire (north-south).
01/05/2020	4	RH	2	11:48	562	532	From Loch na Machrach Bige, flew east out to sea.
01/05/2020	4	EA	1	12:07	510	390	Male hunting, between Fionn Phort on east coast, over central open area of Site, west to land at Cnoc a Bhaile-shios.
08/05/2020	6	EA	2	11:54	632	632	Pair hunting then soaring high to west of Site. Lost to view as they gained height and were obscured by low cloud.
08/05/2020	6	HH	1	14:47	428	315	Female hunting moorland to west of Site over Cruach Tarsuinn.
08/05/2020	6	PE	1	15:06	51	51	Passing through west.
13/05/2020	3a	HH	1	09:31	283	0	2nd calendar year male hunting over forestry clear-fell.

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
13/05/2020	2	EA	1	10:17	314	255	Male hunting. Landed on Trig Point at Cnoc a Bhaile-shios.
13/05/2020	2	RH	1	10:34	113	90	Landing on lochan (Cruach Lagain).
13/05/2020	2	RH	1	10:49	168	153	Flew from lochan (Cruach Lagain). Headed towards sea, then north.
13/05/2020	2	BK	1	13:41	8	0	Female escaping peregrine predation.
13/05/2020	2	PE	1	13:41	77	30	Male hunting black grouse without success.
14/05/2020	5	EA	1	12:19	492	462	Adult male in flight, south east over site.
19/05/2020	5	RH	2	09:52	172	172	Pair (possibly from Loch na Machrach Bige) flying east out to sea.
19/05/2020	5	SN	1	10:19	111	75	Display flight, brief drumming.
19/05/2020	5	EA	2	15:51	532	532	Eagle pair. Around the coastal area of Lagganroaig.
25/05/2020	2	RH	1	08:27	79	45	Flying onto loch (Cruach Lagain) from sea.
25/05/2020	4	RH	2	08:41	36	36	Flew in from east, landed on loch (Loch na Machrach Bige).
25/05/2020	4	RH	2	09:34	442	412	Flew from loch (Loch na Machrach Bige), east out to sea.
25/05/2020	4	RH	1	09:45	296	296	Flew in from east, over loch (Loch na Machrach Bige), then continued west.
27/05/2020	4	EA	1	10:37	27	27	Male golden eagle feeding on female grouse species, likely black grouse. Mobbed by hooded crow before flying downhill towards coast. Landed on a small hill and spent a while preening.
27/05/2020	4	EA	1	11:15	182	150	Male flying to sit on Trig Point at Cnoc a Bhaile-shios.
27/05/2020	4	EA	1	11:51	93	60	Short flight around summit before returning to perch on Trig Point at Cnoc a Bhaile-shois.
27/05/2020	4	T.	2	14:28	16	0	Short flight by pair on Loch na Machrach Bige.
08/06/2020	2	HH	1	12:54	199	30	Male hunting moorland to north of Cruach Bhreac.
08/06/2020	2	HH	1	15:32	312	297	Male carrying prey from Cruach Lagain, north

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
							past VP.
08/06/2020	2	RH	1	15:38	77	62	Flying from Cruach Lagain, north out to sea.
08/06/2020	2	HH	1	16:41	277	30	Male hunting moorland to north of Cruach Bhreac.
08/06/2020	2	RH	1	16:47	94	49	Flying southwest towards breeding loch (Cruach Lagain).
08/06/2020	2	HH	1	17:43	218	218	Carrying prey, north-east.
10/06/2020	5	OP	1	11:31	199	120	Circling to north-east of the Site. Mobbed by common gull and two sparrowhawks.
10/06/2020	5	RH	1	11:45	75	75	Flew east to coast.
17/06/2020	6	EA	1	14:12	59	59	Adult male flying west through Site towards Cnoc a Bhaile-shois.
17/06/2020	6	SE	1	19:14	59	45	Hunting over moor to west of Cruach Tarsuinn.
24/06/2020	4	SE	1	11:12	49	30	Over plantation to south of Loch na Machrach Moire.
24/06/2020	4	RH	1	11:23	312	135	Flew in east from Sea, landing on Loch na Machrach Bige.
24/06/2020	4	RH	1	11:55	226	120	Flying around Loch (Loch na Machrach Bige).
24/06/2020	4	RH	1	12:17	111	111	Flying over red-throated diver pair, between Cruach Lagain and Loch na Machrach Bige.
24/06/2020	4	RH	1	13:23	94	60	Flew in east from sea calling, landing on Loch Na Machrach Moire.
24/06/2020	4	RH	1	13:23	65	30	Flew in east from sea calling, landing on Loch Na Machrach Bige.
24/06/2020	4	RH	1	13:27	37	30	Joining partner on Loch Na Machrach Bige (from Loch na Machrach Moire).
24/06/2020	4	RH	2	13:36	90	0	Moving to Loch na Machrach Moire.
24/06/2020	4	RH	2	13:40	98	0	Moving to Loch na Machrach Moire.
24/06/2020	4	RH	2	13:58	122	0	Moving to Loch na Machrach Bige.
24/06/2020	4	RH	1	14:51	178	135	From Loch na Machrach Bige, flying around Site, then back to loch.
24/06/2020	4	RH	2	15:28	188	150	From Loch na Machrach Bige, around Site, then

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
							out to sea east.
23/07/2020	2	HH	1	10:33	28	28	Juvenile being chased by juvenile kestrel, between Cruach Bhreach and Cruac Lagain.
23/07/2020	5	RH	2	11:27	76	76	Flying east out to sea.
23/07/2020	5	HH	1	11:46	52	30	Juvenile flying south-east through the Site.
23/07/2020	4	RH	1	17:46	9	0	Looked to be dropping off to land on lochan out of view.
23/07/2020	4	MA	1	18:07	39	0	Female flew around Loch na Machrach Bige.
23/07/2020	4	RH	1	19:33	90	75	Flew in from east from sea, landed on Loch na Machrach Bige.
24/07/2020	2	RH	1	08:20	117	117	Flew from loch (Cruach Lagain) north-east out to sea.
24/07/2020	2	RH	2	10:23	474	474	Appeared to fly from loch (Cnoc an Lochain) west out to sea.
24/07/2020	4	RH	1	08:17	108	90	East, from coast to Cruach Lagain.
24/07/2020	4	RH	3	08:26	1170	990	Flew off Loch Na Machrach Bige, circled Site then flew east to coast.
24/07/2020	4	RH	2	08:40	346	316	Flew off Loch Na Machrach Bige, then flew east to coast.
24/07/2020	4	RH	1	08:41	233	218	Flew off Loch Na Machrach Bige, circle Site then flew east to coast.
24/07/2020	4	RH	1	08:56	77	62	Leaving Cruach Lagain, flew east out to sea.
24/07/2020	2	RH	1	10:25	38	38	Appeared to fly from loch (Cnoc an Lochain) west out to sea.
24/07/2020	4	HH	2	11:09	188	0	Two juveniles chasing each other to the north of Loch na Machrach Bige.
12/08/2020	6	HH	1	10:54	191	191	Juvenile hunting over forestry to west of Loch na Machrach Moire.
12/08/2020	6	RH	1	12:08	12	12	Landed on track, likely from Cnoc an Lochain.
12/08/2020	6	HH	1	14:06	37	0	Male hunting meadow pipits, over moorland south of Doire Leithe.
12/08/2020	6	HH	1	16:13	400	370	Juvenile (female) passing over forestry, mobbing buzzard.

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
18/08/2020	2	HH	1	11:51	75	15	Female, flying north west through forest rides.
18/08/2020	2	EA	1	12:44	75	60	Unaged/unsexed flying from Cnon a Bhaile-shois, north-west through open area of site.
18/08/2020	4	RH	1	13:52	98	75	Flying in from east, onto Site, to Cruach Lagain.
18/08/2020	4	EA	1	14:04	319	244	3rd calendar year bird hunting over moorland.
18/08/2020	2	EA	1	15:43	30	30	In flight around Cnoc a Bhaile-shois.
18/08/2020	2	EA	1	15:44	90	90	In flight around Cnoc a Bhaile-shois.
18/08/2020	2	EA	2	15:48	720	720	Pair, in flight around Cnoc a Bhaile-shois.
18/08/2020	4	HH	2	15:19	356	236	Two juveniles chasing each other south of Doire Leithe.
18/08/2020	4	RH	1	15:43	88	88	Flew out east to sea, likely from Cruach Lagain.
19/08/2020	5	EA	1	14:31	24	0	3rd calendar year female, changing perch to Cruach Bhreac.
19/08/2020	5	EA	1	14:33	17	0	3rd calendar year female, changing perch to Cruach Lagain.
19/08/2020	5	EA	1	14:34	211	120	3rd calendar year female, hunting red grouse over moorland.
19/08/2020	5	EA	1	14:39	74	74	Flying east, south-east to sea.
14/09/2020	4	HH	1	14:07	1407	60	Male.
14/09/2020	2	HH	1	17:16	26	0	Juvenile, female.
17/09/2020	6	HH	1	07:56	21	21	Juvenile.
17/09/2020	6	HH	1	08:27	67	67	Juvenile.
17/09/2020	6	HH	2	08:35	26	0	Juveniles.
17/09/2020	6	GJ	10	08:35	170	170	-
17/09/2020	6	HH	1	12:13	54	54	-
25/09/2020	5	EA	1	08:58	130	130	-
25/09/2020	5	GJ	9	11:57	10413	10413	-
26/10/2020	3a	WS	8	09:10	312	312	-
02/11/2020	4	GJ	10	10:12	410	410	-
02/11/2020	4	GP	24	10:59	13248	4248	-
03/11/2020	3a	EA	2	12:59	306	246	Adult pair.

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
04/11/2020	5	HH	1	13:14	76	15	Hunting along tree-line.
04/11/2020	5	HH	1	14:29	363	0	Hunting over moorland.
04/11/2020	5	JS	1	14:33	42	30	Flushed by HH, then flew into heather.
12/11/2020	2	HH	1	07:46	117	0	Adult male.
12/11/2020	2	HH	1	08:14	146	0	-
12/11/2020	2	HH	1	08:50	93	0	Adult male.
12/11/2020	6	HH	1	10:23	36	0	-
25/11/2020	2	HH	1	13:31	86	0	-

Table A4.2: Target species flight records – Year 2 (December 2020 to November 2021).

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
09/12/2020	2	EA	1	13:21	264	234	Hunting.
21/12/2020	7	H.	1	14:38	26	15	Lost behind trees.
20/01/2021	3b	EA	1	12:02	186	165	Adult male.
24/01/2021	2	HH	1	13:28	38	30	Alarm calling, flew quickly across track.
27/01/2021	11	HH	2	13:16	64	0	-
10/02/2021	2	EA	1	13:15	25	0	-
10/02/2021	7	EA	1	09:41	33	33	-
10/02/2021	7	EA	1	10:12	186	186	Adult, soaring.
21/02/2021	3b	EA	1	10:38	174	174	Adult male.
22/02/2021	11	EA	1	13:26	30	30	Adult.
22/02/2021	11	HH	1	14:12	45	30	Adult male.
25/02/2021	2	EA	1	12:45	75	0	Adult male, mobbed by raven.
25/02/2021	7	EA	1	11:49	418	418	Adult male, display briefly over Cnoc Moine.
25/02/2021	7	EA	1	12:06	143	135	Adult male, landed, copulated.
25/02/2021	7	EA	1	12:08	9	0	Adult female, dropped in, copulated.
25/02/2021	7	EA	1	12:08	1942	1372	Adult male.
25/02/2021	7	EA	1	12:08	1693	1018	Adult male.
25/02/2021	7	EA	1	13:49	490	445	Adult male.
25/02/2021	7	EA	1	13:51	386	386	Adult male.

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
25/02/2021	7	EA	1	16:19	407	122	Displaying south of Cnoc Moine.
26/02/2021	3b	EA	2	10:35	180	180	Adult pair.
26/02/2021	3b	EA	1	11:39	105	105	1 st winter female.
01/03/2021	11	EA	1	10:20	90	75	Adult female, dropped in and landed, copulated.
01/03/2021	11	HH	1	13:01	120	75	Ringtail.
01/03/2021	11	EA	1	13:11	900	0	Adult female, dropped in and landed, copulated.
01/03/2021	11	HH	1	13:42	90	30	Adult male.
10/03/2021	3b	HH	1	07:58	22	0	-
10/03/2021	3b	EA	1	10:35	216	171	Adult male display.
10/03/2021	3b	HH	1	11:09	372	282	Male.
10/03/2021	3b	EA	1	11:16	305	305	Adult male, mobbed by buzzard.
10/03/2021	11	HH	1	07:51	54	30	-
12/03/2021	7	EA	1	09:02	374	374	Female.
12/03/2021	7	EA	1	10:54	735	630	Female.
12/03/2021	7	EA	1	10:58	76	31	Male.
12/03/2021	7	EA	1	12:16	186	141	2 nd year female.
12/03/2021	7	EA	1	12:23	190	175	Male.
12/03/2021	7	EA	1	12:30	151	121	Male.
12/03/2021	7	EA	1	12:46	365	260	Male, displaying.
12/03/2021	7	EA	1	12:50	128	23	Female following male.
12/03/2021	7	EA	1	13:03	515	65	Male.
12/03/2021	7	EA	1	13:08	69	69	Female.
17/03/2021	2	HH	1	13:02	29	0	Adult male.
17/03/2021	2	HH	1	13:06	38	0	Adult male.
17/03/2021	2	EA	1	13:07	216	216	-
17/03/2021	2	HH	1	14:58	458	0	Adult male hunting over moorland.
17/03/2021	2	HH	1	15:31	53	0	Female hunting.
17/03/2021	2	HH	1	15:32	5	0	Male seen briefly.

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
17/03/2021	2	HH	2	16:07	52	0	Both ringtails.
17/03/2021	2	HH	1	16:10	56	0	Ringtail.
07/04/2021	3b	EA	1	13:45	330	240	Adult male.
07/04/2021	11	HH	1	13:12	84	0	Female hunting.
19/04/2021	3b	HH	1	07:30	200	0	Adult male hunting.
19/04/2021	3b	EA	1	08:26	181	150	Adult male.
19/04/2021	11	RH	1	11:40	10	10	-
19/04/2021	11	HH	1	12:00	41	0	Male, dropped behind trees.
19/04/2021	11	HH	1	15:10	41	41	-
21/04/2021	2	HH	1	08:42	21	0	Adult male.
21/04/2021	2	HH	1	08:43	51	0	Same bird as flight above hunting.
21/04/2021	2	HH	1	09:28	79	0	Same bird as flight above hunting.
21/04/2021	7	HH	1	12:20	31	0	Adult male.
21/04/2021	7	ML	1	17:20	94	30	Adult male.
21/04/2021	7	ML	1	17:49	86	0	Adult male.
28/04/2021	7	HH	1	19:02	31	0	-
28/04/2021	7	HH	1	20:00	28	0	Carrying food, mobbed by raven.
28/04/2021	7	HH	1	20:08	223	178	Male adult, touched talons with female below in flight, then landed in tree.
28/04/2021	7	HH	1	20:08	211	166	Female interacting with male in flight.
21/05/2021	2	RH	1	14:46	93	93	-
25/05/2021	7	BK	1	09:00	21	0	Female.
25/05/2021	11	RH	3	06:19	105	105	-
25/05/2021	11	RH	2	06:39	44	44	-
25/05/2021	11	EA	1	11:31	35	35	-
30/05/2021	11	EA	1	16:14	214	214	Adult.
30/05/2021	11	EA	1	17:04	32	15	Adult, appeared to land on rocky outcrop.
30/05/2021	11	GJ	2	20:44	38	38	-
08/06/2021	7	EA	1	15:08	294	264	Adult male.
15/06/2021	2	HH	1	15:16	107	107	Male.

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
15/06/2021	2	HH	1	16:51	49	34	Female.
16/06/2021	2	HH	1	20:03	195	60	Adult male hunting.
16/06/2021	3b	EA	1	14:51	65	65	Adult female.
16/06/2021	3b	EA	1	14:51	1560	630	Adult male.
17/06/2021	7	EA	1	13:36	278	195	Adult male.
17/06/2021	7	EA	2	15:01	452	0	Adult male and female.
20/07/2021	3	EA	1	16:11	468	180	Adult female.
21/07/2021	11	RH	1	09:47	42	30	Calling bird flew towards lochan.
21/07/2021	11	HH	1	11:01	113	0	Juvenile hunting on moor in front of VP. Flew into forestry.
10/08/2021	2	RH	2	10:21	540	510	Flying over hillside above track. Landed, calling.
10/08/2021	2	RH	2	10:45	760	570	From lochan over hills above track then to sea.
10/08/2021	2	RH	2	10:49	220	150	Joined RH pair, headed to sea.
10/08/2021	2	HH	2	11:47	382	0	Hunting, flushed red grouse family.
10/08/2021	2	RH	2	12:55	74	30	Landing on lochan.
10/08/2021	2	RH	1	13:57	27	15	Flying east over hillside calling.
10/08/2021	2	EA	1	15:11	75	30	Spotted distantly over dip in the hill.
10/08/2021	2	HZ	1	15:14	235	190	Soaring before losing height. Lost from view behind lower slope of Cnoc Breac.
10/08/2021	3	EA	1	12:29	211	151	Adult, probable female.
10/08/2021	3	EA	1	13:55	307	262	Adult.
10/08/2021	3	EA	1	14:37	174	174	Unaged, unsexed.
10/08/2021	3	EA	1	14:59	510	240	Adult.
10/08/2021	3	HZ	1	15:08	168	168	Adult female. Possibly originated from forestry on north-west side of Cnoc na Meine.
10/08/2021	3	HH	1	15:42	166	0	Adult female, direct flight at slow pace.
11/08/2021	7	EA	1	16:16	400	325	Hunting over clear-fell and plantation.
28/09/2021	2	HH	1	12:24	50	0	Male hunting.
28/09/2021	3	EA	1	10:23	195	180	2nd calendar year female.
28/09/2021	3	EA	1	10:32	40	25	Same bird as above.

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
27/09/2021	7	EA	1	18:31	130	90	2nd calendar year bird, likely female.
27/09/2021	7	EA	1	18:39	40	0	-
05/10/2021	2	HH	1	11:07	190	45	Adult Male hunting.
05/10/2021	2	HH	2	16:06	90	0	2 ringtails.
05/10/2021	2	EA	1	16:16	250	175	Adult male.
05/10/2021	2	EA	1	16:42	60	45	Adult female
12/10/2021	2	EA	1	14:12	90	45	Adult female, joined by male.
12/10/2021	2	EA	1	14:53	115	85	Adult female.
12/10/2021	2	EA	1	15:02	140	125	-
05/10/2021	3	EA	1	10:35	20	0	Unaged/unsexed.
05/10/2021	3	EA	1	10:46	377	285	Adult, probable female.
05/10/2021	3	EA	1	11:36	192	165	Juvenile.
05/10/2021	3	EA	1	14:36	149	149	Unaged, probable male.
05/10/2021	3	EA	1	15:48	86	86	Adult male , joined by female.
05/10/2021	3	EA	1	15:49	73	58	Joined male above.
05/10/2021	3	EA	2	15:50	1124	660	Adult pair, mirrored flights.
05/10/2021	3	EA	1	16:12	347	165	Unaged, unsexed.
05/10/2021	3	EA	1	16:27	333	300	Immature, 2nd winter.
04/10/2021	7	WE	1	14:42	204	180	Immature bird.
04/10/2021	11	HH	1	16:46	55	0	Ringtail, probable adult female hunting.
09/11/2021	2	HH	1	14:08	234	0	Immature bird.
09/11/2021	2	HH	1	14:10	116	0	Immature bird.
09/11/2021	2	HH	1	14:38	27	0	Adult male.
09/11/2021	3	EA	2	10:29	366	366	Adult pair.
09/11/2021	3	EA	2	10:35	140	140	Presumed same pair as above.
09/11/2021	3	EA	1	10:36	162	117	1st bird from pair.
09/11/2021	3	EA	1	10:36	284	224	2nd bird from pair.
09/11/2021	3	HH	1	11:40	128	105	Ringtail.
09/11/2021	3	EA	1	13:51	124	60	Unaged.
10/11/2021	7	EA	1	13:00	153	75	Adult male.

Date	VP	Species	No. of Birds	Start Time	Total Flight Duration (s)	Duration At-Risk Height (s)	Notes
10/11/2021	7	GJ	2	15:09	140	140	-
10/11/2021	11	HH	1	09:11	82	0	Male.
10/11/2021	11	EA	1	13:03	114	114	Unaged.
10/11/2021	11	EA	1	14:06	339	339	Unaged.
10/11/2021	11	HH	1	15:07	102	0	Ringtail.
10/11/2021	11	HH	1	15:14	91	75	Ringtail.