

## Appendix 9.1: Technical Ornithology Appendix



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**An Càrr Dubh Wind Farm**

EIAR

Appendix 9.1: Technical Ornithological Appendix



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## 1 INTRODUCTION

- 1.1.1 This Appendix has been prepared to accompany **Chapter 9: Ornithology** of the An Càrr Dubh Wind Farm (the Proposed Development) Environmental Impact Assessment Report (EIAR).
- 1.1.2 It presents detailed methodologies and results of ornithology desk studies and field surveys, which have been undertaken to inform the design and assessment of the Proposed Development in relation to ornithological features.
- 1.1.3 It should be read with reference to the following Figures of the EIAR:
- **Figure 9.1: Ornithological Statutory Designated Sites;**
  - **Figure 9.3: Vantage Point (VP) Survey Plan;**
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  - **Figure 9.7a: Moorland Breeding Bird Survey Results – Year 1;**
  - **Figure 9.7b: Moorland Breeding Bird Survey Results – Year 2; and,**
  - **Figure 9.7c: Moorland Breeding Bird Survey Results – Access Track 2022.**
- 1.1.4 Only common bird species names are referred to within the main text of this Appendix. **Annex 1** of this Appendix provides a summary of all bird species referred to herein, within **Chapter 9** of the EIAR and all other associated Appendices and Figures. Both common and species names together with a summary of their conservation status as relevant is provided.
- 1.1.5 The estimation of collision mortality risks using the NatureScot Collision Risk Model (CRM) (SNH, 2000<sup>1</sup> and Band *et al.*, 2007<sup>2</sup>) analysis is provided separately in **Appendix 9.2: Collision Mortality Risks** of the EIAR.

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<sup>1</sup> SNH (2000) Windfarms and Birds - Calculating a theoretical collision risk assuming no avoiding action. SNH Guidance Note.

<sup>2</sup> Band, W., Madders, M. and Whitfield, D.P. (2007). Developing field and analytical methods to assess avian collision risk at wind farms. In: de Lucas, M., Janss, G.F.E. and Ferrer, M. (Eds.) *Birds and Wind Farms: Risk Assessment and Mitigation*, pp. 259-275.

- 1.1.6 Information pertaining to the locations of sensitive breeding bird species, and which are considered confidential, is provided in confidential **Appendix 9.3: Confidential Ornithology Appendix** and the following confidential figures presented in support the EIAR:

- **Figure 9.2a: Existing Ornithological Records RSPB [Sensitive];**
- **Figure 9.2b: Existing Ornithological Records ARSG [Sensitive];**
- **Figure 9.5g: VP Flight Activity Target Species Results (White-tailed Eagle and Red-throated Diver) – Year 1 [Sensitive];**
- **Figure 9.5h: VP Flight Activity Target Species Results (White-tailed Eagle and Red-throated Diver) – Year 2 [Sensitive];**
- **Figure 9.5i: VP Flight Activity Target Species Results (White-tailed Eagle and Red-throated Diver) – Year 3 [Sensitive];**
- **Figure 9.6d: “At Collision Risk” Flight Activity (White-tailed Eagle and Red-throated Diver) – Year 1 [Sensitive];**
- **Figure 9.6e: “At Collision Risk” Flight Activity (White-tailed Eagle and Red-throated Diver) – Year 2 [Sensitive];**
- **Figure 9.6f: “At Collision Risk” Flight Activity (White-tailed Eagle and Red-throated Diver) – Year 3 [Sensitive];**
- **Figure 9.8: Breeding Annex 1/Schedule 1 Raptor and Owl Searches 2019, 2020 and 2021 [Sensitive];**
- **Figure 9.9: Breeding Black Grouse Survey Results 2019 [Sensitive];**
- **Figure 9.10: Breeding Diver Survey Results 2020 [Sensitive].**

- 1.1.7 Such information will not be made publicly available, but will be provided to the Scottish Government Energy Consents Unit (ECU), Argyll and Bute Council (ABC), NatureScot and the Royal Society for the Protection of Birds (RSPB) Scotland to inform their own appraisal of the Proposed Development.

- 1.1.8 Assessments of the potential for operational habitat losses (displacement) to golden eagles using the Golden Eagle Topographical (GET) Model (Fielding *et al.*, 2019<sup>3</sup>) are presented as confidential **Appendix 9.4: Golden Eagle Topographical (GET) Model Assessment** of the EIAR.

## 1.2 Site and Proposed Development Overview

- 1.2.1 The Site as shown by the red-line application boundary in **Figure 9.1**, is located approximately 1km west of Inverary, 2.5km east of Dalavich and 1.5km east of Loch Awe, Argyll and Bute, Scotland. Turbine 1 (T1) of the Proposed Development is the closest to Inveraray, located approximately 6km to the north-west, and T13 is the closest to Dalavich, approximately 4.5km to the east.

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<sup>3</sup> Fielding, A.H., Haworth, P.F., Anderson, D., Benn, S., Dennis, R., Weston, E. and Whitfield, D.P. (2019). A simple topographical model to predict Golden Eagle *Aquila chrysaetos* space use during dispersal. *International Journal of Avian Science*, **162** (2), pp. 400-415.

- 1.2.2 Beinn Bhreac-bheag is the highest mountain summit in the south of the Site. There are a number of waterbodies on-site, including Lochan Eilein Duibh in the north and Lochan Allt an Sgadain in the south.
- 1.2.3 The predominant habitats within the Site comprise of open bog and moorland habitat, with commercial forestry located adjacent to the south and south-western boundary. The Site falls entirely within Natural Heritage Zone (NHZ) 14 'Argyll West and Islands'.
- 1.2.4 The Site has previously been investigated for a possible wind energy development known as the Ardchonnell Wind Farm (Planning Ref. 13/028356/PP). The operational An Suidhe Wind Farm (Planning Ref. 05/01711/VARCON) is located to the South of the Site and the consented Blarghour Wind Farm (Planning Ref. 18/1216/S36) is located to the north of the Site<sup>4</sup>.
- 1.2.5 Of relevance to the consideration of impacts to ornithological features the Proposed Development comprises an array of 13 turbines of 180m tip height and 155m rotor diameter together with associated ancillary infrastructure and an access track from the A819.
- 1.2.6 The candidate turbine specification is based on a Siemens Gamesa 155 platform.
- 1.2.7 For the purposes of detailing ornithological field survey area and results within this Appendix and where relevant in **Appendix 9.3**, the Site is divided into a "turbine area" and "access track route", as shown in **Figure 9.4**.

### 1.3 Key Guidance

- 1.3.1 Ornithology survey methodologies and subsequent interpretation of results has made reference to the following key pieces of industry standard guidance, produced by NatureScot<sup>5</sup>:
- Windfarms and Birds - Calculating a theoretical collision risk assuming no avoiding action (SNH, 2000)<sup>6</sup>;
  - Assessing connectivity with Special Protection Areas (SPAs) (SNH, 2016a<sup>7</sup>);
  - Recommended bird survey methods to inform impact assessment of onshore wind farms (SNH, 2017<sup>8</sup>);
  - Assessing significance of impacts from onshore wind farm outwith designated areas (SNH, 2018a<sup>9</sup>).

## 2 DESK STUDY

- 2.1.1 A desk study has been undertaken to identify the proximity of the Site to designated sites for nature conservation with ornithological interests and existing ornithological records from within the Site and surrounding area.

<sup>4</sup> The Blarghour Wind Farm is the subject of a scoping request to the Scottish Government to increase the tip height of the consented turbines from 136.5m to 180m.

<sup>5</sup> Formerly Scottish Natural Heritage (SNH).

<sup>6</sup> SNH (2000). Windfarms and Birds - Calculating a theoretical collision risk assuming no avoiding action. Scottish Natural Heritage (SNH), Guidance.

<sup>7</sup> SNH (2016a). Assessing connectivity with Special Protection Areas (SPAs). Version 3 – June 2016. Scottish Natural Heritage (SNH), Guidance.

<sup>8</sup> SNH (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. Scottish Natural Heritage (SNH), Guidance.

<sup>9</sup> SNH (2018a). Assessing Significance of Impacts from Onshore Windfarms on Birds Outwith Designated Areas. Scottish Natural Heritage (SNH), Guidance.

- 2.1.2 The desk study has been used to inform the identification of target species and scope of ornithology field surveys, and subsequent assessment presented within **Chapter 9** of the EIAR.

## 2.2 Methodology

- 2.2.1 In accordance with NatureScot guidance (SNH, 2017), a desk study was undertaken to ascertain an overview of likely bird populations and designated sites in proximity to the Proposed Development, to identify target species applicable to the Site, and inform the requirements for field survey.
- 2.2.2 The desk comprised a review of key sources summarised in **Table 2.1**. Additional peer reviewed literature and industry guidance has also been reviewed and is referred to where relevant herein and within **Chapter 9** of the EIAR.

**Table 2.1: Desk study key sources and information sought.**

Key Source	Information Sought	Search Area
NatureScot's Sitelink <sup>10</sup>	Statutory designated sites for nature conservation with qualifying ornithological interests.	Within 10km of the site, extended to 20km for internationally designated sites with migratory geese qualifying interests.
Royal Society for Protection of Birds (RSPB)	Existing ornithological records.	10km from central grid reference within the Site (NN 02742 11911).
Argyll Raptor Study Group (ARSG)	Existing records of scarce breeding and roosting raptors and owls.	6km from central grid reference within the Site (NN 02742 11911).
Natural Research Projects (NRP)	Satellite telemetry data for two tagged golden eagles occupying separate golden eagle ranges which encompass the Site.	Data held for bird 816 associated with the G/LAE1B range and bird 582 associated with the G/LAE1 range.
Blarghour Wind Farm Environmental Statement (ES) Chapter 6	Existing ornithological records from baseline surveys for the consented wind farm, adjacent to the northern Site boundary.	Study Areas are shown on Figure 6.1 of the Blarghour Environmental Statement (ES).
Ardchonnell Wind Farm Environmental Statement (ES) Chapter 9	Existing ornithological records from baseline surveys for a previous wind farm application within the Site boundary.	Study Area encompassed the Site and species-specific survey buffers outwards from the Site boundary.

<sup>10</sup> <https://sitelink.nature.scot/home> (Accessed 4th October 2021).

## 2.3 Results

### Statutory Designated Sites for Nature Conservation

- 2.3.1 This section should be read with reference to **Figure 9.1** and **Table 2.2**, which detail statutory designated sites for nature conservation with ornithological interests located within 10km of the Site boundary (extended to 20km for sites with qualifying migratory goose interests).
- 2.3.2 In review of NatureScot's Sitelink, the Site does not form part of any statutory designated site for nature conservation with qualifying ornithological interests. The nearest such site and only such site located within 10km of the Site is the Glen Etive and Glen Fyne Special Protection Area (SPA), designated for its breeding golden eagle interests.
- 2.3.3 There are no internationally designated sites for migratory waterfowl located within 20km of the Site and the Site is not identified as being located within an important foraging area for geese associated with such sites (in review of Mitchell, 2012<sup>11</sup>).

**Table 2.2: Designated sites for nature conservation with ornithological qualifying interests (10km).**

Designated Site	Distance / Orientation	Ornithological Qualifying Interests
Glen Etive and Glen Fyne SPA	6.5km, north-east	Breeding golden eagle

### Existing Ornithological Records

- 2.3.4 This section provides a summary of existing ornithological records identified through desk study sources listed in **Table 2.1**. Only records of 'Priority Species for assessment when considering the development of onshore wind farms in Scotland' and 'Species with restricted ranges' as listed within Annex 1 of NatureScot guidance (SNH, 2018a) are considered in detail.

#### RSPB

- 2.3.5 In consultation, the RSPB held records for four relevant species, within the search area.
- 2.3.6 This consisted of records of white-tailed eagle (none of which were specified as breeding), black grouse (including records of lekking birds), black-throated diver (including possible and confirmed breeding), red-throated diver (including possible breeding) and common scoter (non-breeding records).
- 2.3.7 No records were returned from within the Site.
- 2.3.8 Records received have been marked as Sensitive or Restricted and therefore illustrated on **Figure 9.2a** and further detailed in **Appendix 9.3**.

#### ARSG

- 2.3.9 In consultation, the ARSG held records for four scarce breeding raptors, within the search area.
- 2.3.10 Records comprised those of osprey, golden eagle, hen harrier and merlin. No breeding records were returned from within the Site, for any species.
- 2.3.11 No existing records of scarce breeding owls were returned.

<sup>11</sup> Mitchell, C. (2012). Mapping the distribution of feeding Pink-footed and Iceland Greylag Geese in Scotland. Wildfowl & Wetlands Trust (WWT) / Scottish Natural Heritage (SNH) Report, Slimbridge. 108pp.

- 2.3.12 Information regarding the breeding sites of these species is considered sensitive and as such are illustrated on **Figure 9.2b** and detailed further in **Appendix 9.3**.

#### Wind Farm EIA Documentation – Ardchonnell Wind Farm

- 2.3.13 A summary of ornithological surveys undertaken to support the previously investigated Ardchonnell Wind Farm within the western extent of the Site, is presented in **Table 2.3**.
- 2.3.14 It should be noted that detailed information relating to Annex 1 and/or Schedule 1 listed species is not publicly available.

**Table 2.3: Ornithology survey summary - Ardchonnell Wind Farm.**

Survey type	Dates	Results
Moorland breeding bird survey	Apr – July 2011 and 2012	• Two breeding curlew pair.
Breeding Annex 1/Schedule 1 raptor and owl searches	Mar – Aug 2011 and 2012	• One breeding osprey pair (bred successfully in both years).
Vantage Point (VP) flight activity surveys	Nov 2010 – Feb 2013	• Twelve species recorded, with the highest number of flights for golden eagle (180), osprey (14 flights), white-tailed eagle (13) and merlin (11 flights). All other species were recorded in <10 flights.
Black Grouse Surveys	Apr – May 2011 and 2012	• No black grouse leks recorded.
Breeding Diver Surveys	Apr – Aug 2011 and 2012	• Two breeding red-throated diver pairs (failed at incubation stage in both years).

#### Wind Farm EIA Documentation – Blarghour Wind Farm

- 2.3.15 A summary of the surveys undertaken to inform the design and assessment of the consented Blarghour Wind Farm, located adjacent to the northern Site boundary, is presented in **Table 2.4**.

**Table 2.4: Ornithology survey summary - Blarghour Wind Farm.**

Survey type	Dates	Results
Moorland breeding bird survey	Apr – July 2012 and 2014	• One breeding curlew pair, and between one and five breeding golden plover pairs. • Two black grouse leks (no targeted black grouse surveys undertaken).
Breeding Annex 1/Schedule 1 raptor and owl searches	Mar – Aug 2013 and 2014 (and 2015-2017 for targeted eagle searches)	• Two to three golden eagle territories within the study area.
Vantage Point (VP) flight activity surveys	Oct 2012 – Sept 2014	• Species recorded included red-throated diver, black grouse, curlew, merlin, hen harrier, peregrine, golden eagle and white-tailed eagle (unspecified number of flights).
Breeding Diver Surveys	Jun-Jul 2013 and Jul 2014	• Red-throated divers recorded as breeding, but given sensitive nature of the records no further details are provided.
(Winter) Walkover Surveys	Oct 2012 –	• No records of note.

Survey type	Dates	Results
	Mar 2014	

#### Golden Eagle Satellite Telemetry Data

2.3.16 Satellite telemetry data was obtained for two golden eagles (referred to as birds 816 and 582) associated with two separate golden eagle ranges which overlap the Site (referred to as G/LAE1B and G/LAE1 respectively) and which has been used to refine range boundaries for use in an assessment of habitat loss for golden eagles using the GET model.

2.3.17 Data was obtained for the following periods:

- Female bird 816;
  - 01<sup>st</sup> March 2017 to 15<sup>th</sup> September 2020;
  - 01<sup>st</sup> March to 31<sup>st</sup> August 2022;
- Female bird 582;
  - April 2021 to August 2022.

2.3.18 The information is considered sensitive and is restricted to **Appendix 9.4**.

## 3 FIELD SURVEYS

3.1.1 Detailed knowledge of bird populations, distributions and flight activity within and in proximity to the Site has been derived from field surveys undertaken between 2019 and 2022.

3.1.2 The identification of target species for survey and recording, and the scope of surveys undertaken has been informed through desk study and consultation with NatureScot (see Table 9.1 of **Chapter 9** of the EIAR). Field surveyor local knowledge and experience of bird habitat associations at comparable sites has also informed and guided survey effort over the course of surveys.

### 3.2 Target Species

3.2.1 Target species for survey and recording were identified through desk study sources (see above) and consultation with NatureScot (see Table 9.1 of **Chapter 9** of the EIAR), 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, and which is in accordance with current NatureScot guidance (SNH, 2017 and 2018a).

3.2.2 Primarily, target species included those species listed on/as:

- Annex 1 of NatureScot guidance (SNH, 2018a);
- Annex 1 of the 'Birds Directive' (Directive 2009/147/EC);
- Schedule 1 of the Wildlife and Countryside Act 1981 (as amended);
- Qualifying interests of designated sites (see **Table 2.2** above); and,
- Wetland birds, including geese, swans, ducks (excl. mallard), waders and waterfowl.

3.2.3 This has ensured inclusion of qualifying interests of designated sites for nature conservation (**Table 2.2**) and target species that should be considered in the design and assessment of onshore wind farm development in Scotland, in accordance with NatureScot guidance (SNH, 2018a).

## 3.3 Methodologies

3.3.1 The following ornithology field surveys have been completed:

- Vantage Point (VP) flight activity surveys (February 2019 – August 2021);
- Moorland breeding bird survey (MBBS) (2019, 2020 and 2022);
- Breeding Annex 1/Schedule 1 raptor and owl searches (2019, 2020 and 2021);
- Breeding woodland grouse searches (2019, 2020 and 2022); and
- Breeding diver searches (2019 and 2020).

3.3.2 All surveys were undertaken in accordance with recommendations outlined within current NatureScot guidance (SNH, 2017), and as agreed through consultation with NatureScot (see Table 9.1 of **Chapter 9** of the EIAR).

3.3.3 Full details of consultations are provided within **Chapter 9** of the EIAR.

3.3.4 All field surveys have been completed by experienced and professional ornithologists named in **Annex 2** of this Appendix; all of whom are all fully conversant in recognised bird survey methodologies for proposed wind farm developments in Scotland.

#### VP Flight Activity Surveys

3.3.5 VP flight activity surveys were undertaken between February 2019 and August 2021, providing coverage of three consecutive breeding seasons and two non-breeding seasons.

#### VP Locations and Viewsheds

3.3.6 The VP survey area, in accordance with NatureScot guidance (SNH, 2017), is defined as a 500m buffer around outermost turbine locations for the Proposed Development.

3.3.7 Four vantage points (VPA – VPD) were used between February 2019 and January 2020 (Year 1) to provide maximum coverage of the VP survey area. Between February 2020 and August 2021 an additional VP location was included (VPE), to provide further visual coverage of the western extent of the survey area, following consultation with NatureScot (see Table 9.1 of **Chapter 9** of the EIAR).

3.3.8 All five VP locations and the VP survey are presented within **Table 3.1** and illustrated in **Figure 9.3** of the EIAR.

3.3.9 Ground-truthed modelled areas of visibility within the 2km viewsheds from each VP location are illustrated in **Figure 9.3**.

**Table 3.1: VP locations.**

VP	Grid reference	Orientation
A	NN 00794 11307	South-east
B	NN 02770 10143	South-south-east

VP	Grid reference	Orientation
C	NN 02754 10424	North-east
D	NN 03423 12908	South-west
E	NN 01234 11957	North-west

VP Survey Effort

- 3.3.10 The total survey effort (hours) completed at each VP between February 2019 and August 2021 is summarised in **Tables 3.2 – 3.4**. Full details of all survey times, field surveyors and weather conditions are presented in **Annex 2** of this Appendix.
- 3.3.11 In all survey years, survey effort exceeded the minimum recommended requirement of 72 hours per VP per year in accordance with NatureScot guidance (SNH, 2017). Survey effort was weighted towards the golden eagle breeding season (February to August) and which also includes the breeding season of additional target species identified for survey and recording.
- 3.3.12 Survey times were dispersed throughout the day and were also completed in a range of weather conditions, but always conducive to survey and safe access.
- 3.3.13 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.
- 3.3.14 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.
- 3.3.15 In accordance with current guidance (SNH, 2017), flight lines were mapped for all target species passing through the VP survey area. 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.
- 3.3.16 Height bands (HT) were used in the field to record target species activity at, below or above collision risk height for subsequent use in the calculation of collision mortality risks based on the candidate turbine specification.

**Table 3.2: VP flight activity survey effort summary (hours) - 2019/2020 (Year 1).**

VP	2019												2020	Total Hrs
	Breeding season								Non-breeding season					
	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan		
A	9	9	6	9	9	12	9	6	6	6	6	6	6	93
B	9	6	9	9	15	9	9	6	6	6	3	2	89	
C	9	6	3	6	13	19	9	6	6	6	3	4	90	
D	0	18	9	9	3	15	9	6	6	6	6	0	87	

**Table 3.3: VP flight activity survey effort summary (hours) – 2020/2021 (Year 2).**

VP	2020												2021	Total Hrs
	Breeding season								Non-breeding season					
	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan		

	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	
A	9	9	9	9	9	9	9	6	6	6	6	3	90
B	9	15	9	9	9	9	9	9	3	6	6	6	99
C	3	15	9	9	9	9	9	9	3	6	6	6	93
D	18	9	9	9	9	6	12	9	3	6	6	3	99
E	0	18	9	9	9	9	9	9	3	6	6	6	93

**Table 3.4: VP flight activity survey effort summary (hours) – 2021 (Year 3).**

VP	Breeding season								Total Hrs
	Feb	Mar	Apr	May	Jun	Jul	Aug		
A	12	9	9	9	9	9	9	9	66
B	9	9	9	9	9	9	9	9	63
C	9	9	9	9	9	9	9	9	63
D	12	9	9	9	9	9	9	9	66
E	9	9	9	9	9	9	9	9	63

Secondary Species

- 3.3.17 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.
- 3.3.18 Secondary species are defined here as commoner raptors (e.g. buzzard, kestrel and sparrowhawk), all gulls, raven, feral species and mallard, along with any large concentrations of Schedule 1 or Red-listed<sup>12</sup> passerines as recorded during survey.

**Moorland Breeding Bird Surveys**

- 3.3.19 Moorland breeding bird surveys (MBBSs) were undertaken in 2019 (Year 1), 2020 (Year 2) providing survey coverage of the western extent of the Site and of interest for turbine locations, extended to include accessible areas of open habitats within 500m as shown in **Figure 9.4**.
- 3.3.20 In 2022, an updated MBBS was undertaken along the access track component of the Site to ensure spatial coverage of the Proposed Development in accordance with NatureScot guidance (SNH, 2017). The survey area comprised coverage of the access track route extended to include accessible areas of open habitats within 500m as shown in **Figure 9.4**.
- 3.3.21 The methodology employed during each survey year followed the Brown and Shepherd (1993)<sup>13</sup> method for censusing upland breeding waders, based upon the recommendations set out in Calladine *et al.* (2009)<sup>14</sup> as per current guidance (SNH, 2017). The methodology is suitable for moorland and open country species including, waders, skuas, gulls and some wildfowl species

<sup>12</sup> Eaton *et al.* (2015) appropriate at the time of survey and updated with Stanbury *et al.* (2021).

<sup>13</sup> Brown, A.F. & Shepherd, K.B. (1993). A method for censusing upland breeding waders. *Bird Study*, **40**, pp. 189-195.

<sup>14</sup> Calladine, J., Garner, G., Wernham, C. & Thiel, A. (2009). The influence of survey frequency on population estimates of moorland breeding birds. *Bird Study*, **56** (3), pp. 381-388.



however, incidental observations of any raptors, owls or notable passerines (i.e. Schedule 1 and BoCC red-listed) may also be recorded.

- 3.3.22 A series of four staggered visits were completed between April and July in all survey years.
- 3.3.23 During each survey visit a pre-determined route was walked through the survey area, with all birds seen or heard, and their behaviours (e.g. displaying, carrying food etc.) were mapped in the field.
- 3.3.24 All survey visits were undertaken during daylight hours and in fine conditions conducive to survey. Survey effort is summarised in **Tables 3.5 to Table 3.7**. Full details of all survey times, field surveyors used and weather conditions are presented in **Annex 2** of this Appendix. Given the size of the MBBS survey area, survey visits were typically undertaken by a small team of surveyors and/or over consecutive days.

**Table 3.5: MBBS effort - 2019 (Year 1).**

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)
1	23/04/2019	08:30	15:30
	24/04/2019	08:00	12:45
2	29/05/2019	08:30	18:00
3	27/06/2019	07:20	14:30
4	25/07/2019	08:30	17:45

**Table 3.6: MBBS effort – 2020 (Year 2).**

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)
1	22/04/2020	08:30	14:30
	24/04/2020	09:00	15:00
2	11/05/2020	08:30	15:00
	12/05/2020	08:30	14:30
3	11/06/2020	08:30	14:30
	12/06/2020	08:30	14:30
4	12/07/2020	08:30	15:30
	21/07/2020	08:30	14:30

**Table 3.7: MBBS effort – 2022 (Year 3).**

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)
1	29/04/2022	09:15	13:55
2	16/05/2022	08:00	14:00
3	18/06/2022	08:00	14:00
4	22/07/2022	08:00	12:20

#### **Breeding Annex 1/Schedule 1 Raptor and Owl Searches**

- 3.3.25 Searches for breeding Annex 1/Schedule 1 raptors and owls were undertaken during the core breeding season between February and August in 2019 (Year 1), 2020 (Year 2) and 2021 (Year 3),

with reference to species-specific methodologies outlined in Hardey *et al.* (2013)<sup>15</sup> in accordance with NatureScot guidance (SNH, 2017).

- 3.3.26 Survey effort is summarised in **Tables 3.8 – 3.10**. Full details of all survey times, field surveyors and weather conditions are presented in **Annex 2** of this Appendix.
- 3.3.27 The survey area comprised coverage of the western extent of the Site and, where access allowed, areas out to 2km, extended to 6km for eagles, as shown **Figure 9.4**.
- 3.3.28 Survey visits involved a combination of walkovers and stationary observations, with particular focus on suitable breeding habitat and/or features for target raptor and owl species. Given the extent of the survey area, survey visits were typically undertaken by a small team of surveyors and/or over consecutive days.

**Table 3.8: Breeding raptor and owl search effort summary 2019 (Year 1).**

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)
1	27/02/2019	08:00	18:10
2	01/03/2019	07:20	15:00
3	05/03/2019	12:00	18:20
4	08/03/2019	06:30	09:30
5	25/03/2019	09:00	16:15
6	28/03/2019	08:30	11:30
7	26/04/2019	10:30	13:30
8	08/05/2019	09:15	15:15
9	13/06/2019	16:05	19:05
10	26/06/2019	10:15	17:00
11	30/06/2019	09:30	15:30
12	02/07/2019	12:00	18:00
13	23/07/2019	16:30	19:30
14	25/07/2019	08:30	17:30
15	27/07/2019	10:20	16:30

**Table 3.9: Breeding raptor and owl search effort summary 2020 (Year 2).**

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)
1	13/02/2020	10:00	16:00
2	19/02/2020	07:30	10:30
3	20/02/2020	12:30	15:30
4	26/02/2020	10:00	16:10
5	05/03/2020	09:45	15:45

<sup>15</sup> Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D. (2013). *Raptors: a field guide to survey and monitoring. 3rd Edition*. The Stationery Office, Edinburgh.

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)
6	13/03/2020	08:30	15:30
7	23/04/2020	09:50	15:50
8	25/04/2020	09:00	15:00
9	06/05/2020	10:00	16:00
10	26/05/2020	10:30	16:30
11	19/06/2020	10:00	16:00
12	25/06/2020	06:15	16:15
13	02/07/2020	09:40	12:40
14	20/07/2020	07:45	13:45
15	29/07/2020	10:15	17:15

**Table 3.10: Breeding raptor and owl search effort summary 2023 (Year 3).**

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)
1	09/02/2021	09:00	15:00
2	17/02/2021	09:00	15:00
3	25/02/2021	08:20	18:00
4	02/03/2021	14:00	17:00
5	16/03/2021	08:30	11:30
6	18/03/2021	08:00	11:00
7	21/03/2021	08:55	12:00
8	27/03/2021	09:00	15:30
9	09/04/2021	07:50	13:50
10	14/04/2021	10:00	16:00
11	26/04/2021	09:45	15:45
12	14/05/2021	06:30	12:30
13	24/05/2021	09:30	15:30
14	02/06/2021	10:00	16:00
15	17/06/2021	16:30	19:30
16	21/06/2021	09:45	15:45
17	26/06/2021	08:00	11:00
18	01/07/2021	14:00	17:00
19	22/07/2021	08:30	14:30
20	28/07/2021	11:55	17:55
21	31/07/2021	09:00	12:00
22	18/08/2021	12:30	18:30

### **Breeding Black Grouse Survey**

- 3.3.29 In accordance with NatureScot guidance (SNH, 2017), searches for lekking black grouse were undertaken in 2019 (Year 1) and 2020 (Year 2) providing survey coverage of all suitable habitats (e.g. open moorland, woodland edges and tracks) within, and out to 1.5km (as access permissions allowed) as shown in **Figure 9.4**.
- 3.3.30 In 2022 (Year 3) updated searches were undertaken along the access track component of the Site to ensure spatial coverage of the Proposed Development in accordance with NatureScot guidance (SNH, 2017). The survey area comprised coverage of suitable habitats within the access track route component of the Site, and out to 1.5km (as access permissions allowed) to include suitable as shown in **Figure 9.5**.
- 3.3.31 Searches in each survey year consisted of a series of survey visits to search for lekking breeding black grouse, between late-March and late-April. all suitable habitats (e.g. open moorland, woodland edges and tracks) in accordance with current NatureScot guidance (SNH, 2017).
- 3.3.32 Survey effort is summarised in **Tables 3.10** to **Table 3.12**. Full details of all survey times, field surveyors and weather conditions are presented in **Annex 2** of this Appendix. Given the size of the breeding woodland grouse survey area, survey visits were typically undertaken by a small team of surveyors and/or over consecutive days.
- 3.3.33 It should be noted that survey attempts in late-April and early May 2022 were aborted due to poor weather impeding safe access to the survey area during the hours of darkness prior to dawn however, on the basis of previous survey results, desk study information and presence of suitable habitats the potential for lekking black grouse is well established.

**Table 3.10: Breeding black grouse survey effort summary 2019 (Year 1).**

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)
1	27/03/2019	05:15	08:15
2	29/03/2019	05:15	08:15
3	29/03/2019	05:15	08:15
4	25/04/2019	05:00	08:00
5	25/04/2019	05:00	08:00

**Table 3.11: Breeding black grouse survey effort summary 2020 (Year 2).**

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)
1	20/03/2020	05:50	08:50
2	26/03/2020	05:30	08:30
3	24/04/2020	05:20	08:20
4	26/04/2020	05:30	08:45

**Table 3.12: Breeding black grouse survey effort - access track (2022).**

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)
1	16/05/2022	04:30	07:30

#### Breeding Diver Survey

- 3.3.34 In accordance with current NatureScot guidance (SNH, 2017), and following the species-specific methodologies outlined in Gilbert *et al.* (1998), searches for breeding divers were undertaken in 2019 (Year 1) and 2020 (Year 2).
- 3.3.35 The breeding diver survey area comprised suitable waterbodies within the western extent of the Site, and out to 1km as shown on **Figure 9.4**.
- 3.3.36 Survey effort is summarised in **Table 3.12 and Table 3.13**. Full details of all survey times, field surveyors and weather conditions are presented in **Annex 2** of this Appendix.
- 3.3.37 No additional suitable waterbodies are presented in the eastern extent of the Site, supporting the access track route (or within 1km) and as such updated surveys in 2022 were not updated, with desk study records and Year 1 and Year 2 data considered to adequately establish the presence of breeding divers within proximity to the Site.

**Table 3.12: Breeding diver survey effort summary 2019 (Year 1).**

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)
1	04/06/2019	08:00	09:00
2	06/06/2019	12:40	18:40
3	13/06/2019	15:55	19:05
4	23/07/2019	09:55	15:55

**Table 3.13: Breeding diver survey effort summary 2020 (Year 2).**

Visit	Date	Start Time (24hrs)	Finish Time (24hrs)
1	02/06/2020	08:00	14:00
2	03/06/2020	17:30	21:00
3	28/07/2020	17:00	20:00
4	30/07/2020	08:00	14:00
5	04/09/2020	09:00	15:00

#### Breeding Diver Focal Loch Watches

- 3.3.38 In the event that evidence of breeding divers are identified within survey areas, NatureScot guidance (SNH, 2017) recommends the undertaking of additional focal breeding loch watches (from targeted VP locations) overlooking confirmed breeding lochs/lochans. These focal watches are designed to establish flight paths of adult divers commuting between foraging and nesting locations.
- 3.3.39 Due to existing visual coverage of the VP survey area by VP flight activity surveys (and therefore proposed turbine locations) relative to the locations of breeding lochans and direction of flight by adult divers, sufficient survey to establish potential diver flight paths was undertaken without the requirement for additional focal loch watches.

- 3.3.40 Increased VP flight activity survey effort was afforded during the breeding bird season, with survey times dispersed throughout the day, including the hours of dawn and dusk, when diver foraging flight activity is typically more frequent.

## 3.4 Results

### VP Flight Activity Surveys

#### Target Species

- 3.4.1 Target species flight activity recorded during the VP survey period (February 2019 to August 2021) from all VPs combined is summarised in **Table 3.14**. With the exception of flights for red-throated diver and white-tailed eagle, flight lines for each species over the entire survey period are illustrated in **Figures 9.5a-9.5f**.
- 3.4.2 Red-throated diver flight lines are presented in **Figures 9.5g-9.5i** due to the potential flight activity patterns to identify breeding and/or roosting sites.
- 3.4.3 The total number of all flights, total number of birds recorded and the total recorded flight time, from all VP locations, over the entire survey duration combined is presented in **Table 3.14**.
- 3.4.4 This includes some flights which were detected outside of the VP survey area and/or below or above collision risk height which are not 'at collision risk' for the Proposed Development.
- 3.4.5 Detailed flight records are presented in **Annex 3** of this Appendix, which also indicates the total flight time for each species below, at and above the turbine rotor swept area.

**Table 3.14: Target species flight activity summary (all flights).**

Species	Total No. of Flights	Total No. of Birds	Total Flight Time (secs) <sup>16</sup>
Greylag goose	3	25	4,848
Whooper swan	4	31	2,982
Goosander	3	8	419
Lapwing	3	5	312
Golden plover	7	11	271
Curlew	5	11	1,282
Dunlin	1	2	62
Woodcock	1	1	34
Snipe	2	32	235
Redshank	2	13	995
Greenshank	1	1	60
Red-throated diver	26	34	3,380
Grey heron	7	8	356
Osprey	23	25	5,222
Golden eagle	138	157	32,514

<sup>16</sup> Total time multiplied by the number of birds.

Species	Total No. of Flights	Total No. of Birds	Total Flight Time (secs) <sup>16</sup>
Hen harrier	39	39	3,844
Red kite	1	1	120
White-tailed eagle	170	193	45,386
Merlin	16	16	765
Peregrine	3	3	264

#### Secondary Species

3.4.6 Flight activity of the following secondary species were also recorded:

- Canada goose;
- Mallard;
- Sparrowhawk;
- Buzzard;
- Kestrel;
- Common gull;
- Herring gull;
- Lesser black-backed gull; and
- Raven.

#### Collision Risk Mortality

3.4.7 Where sufficient “at collision risk” flight activity data has allowed, collision risk mortality as a result of birds colliding with rotor blades has been assessed using the NatureScot Collision Risk Model (CRM) as detailed in Band *et al.* (2007).

3.4.8 Flights recorded within “at collision risk” and which have been used within collision mortality risks estimates are illustrated in **Figures 9.6a-9.6c** and **Figures 9.6d** and **9.6f**.

3.4.9 Full details are provided in **Appendix 9.2**.

#### Moorland Breeding Bird Surveys

3.4.10 Surveys in 2019 (Year 1) and 2020 (Year 2) recorded a small number of breeding wader, waterfowl and gull territories within the survey area, as summarised in **Table 3.15** and illustrated in **Figures 9.7a** and **9.7b**.

**Table 3.15: MBBS breeding territories – 2019 (Year 1) and 2020 (Year 2).**

Species	No. of territories within the MBBS Survey Area	
	2019 (Year 1)	2020 (Year 2)
Mallard	2	0

Species	No. of territories within the MBBS Survey Area	
	2019 (Year 1)	2020 (Year 2)
Teal	3	1
Goosander	1	0
Lapwing	0	1
Golden plover	2	1
Curlew	4	5
Snipe	16	12
Common sandpiper	2	5
Common gull	1	1

3.4.11 During updated surveys (in 2022) along the access track component of the Site, surveys recorded a very small number of additional breeding wader territories within the survey area, as summarised in **Table 3.16** and illustrated in **Figure 9.7c**.

**Table 3.15: MBBS breeding territories – Access Track (2022).**

Species	No. of territories within the MBBS Survey Area (Access Track)
Golden plover	4
Snipe	3

#### Breeding Annex 1/ Schedule 1 Raptor and Owl Searches

3.4.12 Two active osprey nest sites were recorded within the survey area in 2019, 2020 and 2021 (Years 1-3), with the location of these nest sites presented in **Figure 9.8a**.

3.4.13 A white-tailed eagle roost site was recorded in the survey area in 2020 (Year 2), and a white-tailed eagle nest site (which failed) was recorded within the survey area in 2021 (Year 3), with these localities presented in **Figure 9.8**. No evidence of any nest or roost site was recorded in 2019 (Year 1), but given the high level of white-tailed eagle activity the Site was considered to be part of an establishing white-tailed eagle pairs’ territory in all survey years.

3.4.14 No golden eagle nest sites were recorded within the survey area during survey visits. However, the Site is identified as being located in its entirety within a single golden eagle range (referred to as G/LAE1B) and which was considered to be occupied over the course of survey (see **Appendix 9.4**).

3.4.15 Records of known golden eagle nest sites and approximate territory centres, including those for the G/LAE1B range (see EA2 in **Figure 9.2b**) within proximity to the Site were obtained through consultation with the ARSG. As such specific searches to confirm known nest occupancy of the G/LAE1B were not undertaken, to avoid the potential for unnecessary disturbance.

3.4.16 Further details are provided within **Appendix 9.4**.

3.4.17 A summary of Annex 1/Schedule breeding raptor and owl territories recorded during searches is provided in **Table 3.17**.

**Table 3.17: Annex 1/Schedule 1 raptor breeding territories 2019, 2020 and 2021.**

Species	No. of territories within the survey area		
	2019 (Year 1)	2020 (Year 2)	2021 (Year 3)

Species	No. of territories within the survey area		
	2019 (Year 1)	2020 (Year 2)	2021 (Year 3)
Osprey	2	2	2
Golden eagle	1	1	1
White-tailed eagle	1	1	1

#### **Breeding Black Grouse Surveys**

- 3.4.18 During searches, two black grouse lek sites were recorded in 2019 (Year 1) within the survey area.
- 3.4.19 No leks were recorded in 2020 (Year 2).
- 3.4.20 The lek sites in 2019 (Year 1) consisted of three males and one female, and two males, with their locations presented in **Figure 9.9**.
- 3.4.21 During updated surveys (in 2022) along the access track component of the Site, no lekking black grouse were recorded.

#### **Breeding Diver Searches**

- 3.4.22 During searches in 2019 (Year 1), a pair of red-throated divers were recorded at a lochan within the survey area, but there was no evidence that the pair bred. No focal watches were therefore undertaken in Year 1. One black-throated diver was recorded over-flying the Site, but did not use any waterbodies in the survey area.
- 3.4.23 During the searches in 2020 (Year 2), a pair of breeding red-throated divers were recorded at single lochan within the survey area and which fledged a single chick. Diver flights to and from the lochan were considered sufficiently covered from the existing VP locations used during the VP Flight Activity Surveys and therefore no additional VP locations were established.
- 3.4.24 The location of the breeding diver lochan recorded in Year 2 is presented in **Figure 9.10**, with further details presented in **Appendix 9.3**.

#### **Field Survey Limitations**

- 3.4.25 All habitats within the Site were directly accessible for survey. The wider survey areas used for the MBBS (500m), Annex 1/ Schedule 1 Breeding Raptor and Owl Searches (out to 6km), Breeding Black Grouse Searches (1.5km) and Breeding Diver Searches (1km) were surveyed from suitable locations within the Site and/or public rights of way (PROWs), scanning the survey areas with the use of optics (telescope and binoculars).
- 3.4.26 Given the good visibility across the survey area from the PROWs this is not considered a limitation to the field survey results obtained for the purposes of subsequent assessment.
- 3.4.27 Although there are no plantation woodland habitats within the Site, wooded habitats in the survey areas were surveyed by traversing tracks and clearings rather than walking directly through dense plantation habitat, due to logistical and health and safety considerations. Survey areas were appropriately covered from the accessible tracks and clearings and this is not therefore considered a limitation to the results obtained.
- 3.4.28 Four VP locations were used during VP flight activity surveys in Year 1 (February 2019 – January 2020). As the VP survey area was extended on account of proposed turbine locations, a fifth VP was added for Year 2 and Year 3 surveys. This ensured sufficient coverage of the VP survey area over the

course of scheme design. Hours at the VPs typically differed during each of the survey years. However, the number of hours at each VP exceeded the minimum VP hours required (in accordance with current guidance; SNH, 2017), particularly during breeding seasons for identified target species. Variations in survey effort at each VP is therefore not a limitation for the purposes of subsequent assessment.

- 3.4.29 Targeted focal loch watches of breeding diver lochs were not undertaken, as VP locations used during VP flight activity surveys provided sufficient coverage of the lochan to allow the recording of any diver flights from the lochan through the Site and therefore potentially “at collision risk” from proposed turbine locations.
- 3.4.30 No limitations to fielding survey data in establishing an accurate reflection of the distribution and levels of target species activity within appropriate surveys areas adopted, and required to inform a robust assessment of the potential effects of the Proposed Development are therefore identified.

## ANNEX 1: BIRD SPECIES SUMMARY

**Table A1:1** provides a list of bird species referred to within this Appendix, **Chapter 9** of the EIAR and all other associated Appendices and Figures.

Both common and species names are presented along with a summary of each species conservation status using the following abbreviations:

- Annex 1 - species listed on Annex 1 of the Birds Directive (2009/147/EC);
- 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 (Eaton *et al.*, 2015)<sup>17</sup>;
- 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)<sup>18</sup>.

**Table A1.1: Summary of bird species.**

Common Name	Species Name	Conservation Status
Canada goose	<i>Branta canadensis</i>	-
Greylag goose	<i>Anser anser</i>	S1 <sup>19</sup> , BoCC – Amber
Whooper swan	<i>Cygnus cygnus</i>	Annex 1, BoCC – Amber, SBL
Mallard	<i>Anas platyrhynchos</i>	BoCC – Amber
Teal	<i>Anas crecca</i>	BoCC – Amber
Goosander	<i>Mergus merganser</i>	-
Black grouse	<i>Tetrao tetrix</i>	Annex 1, BoCC – Red, SBL, LBAP
Lapwing	<i>Vanellus vanellus</i>	BoCC – Red, SBL, LBAP
Golden plover	<i>Pluvialis apricaria</i>	Annex 1, SBL, LBAP
Curlew	<i>Numenius arquata</i>	BoCC – Red, SBL, LBAP
Dunlin	<i>Calidris alpina</i>	BoCC – Amber, SBL, LBAP
Woodcock	<i>Scolopax rusticola</i>	BoCC – Red, SBL
Snipe	<i>Gallinago gallinago</i>	BoCC – Amber
Common sandpiper	<i>Actitis hypoleucos</i>	BoCC - Amber
Redshank	<i>Tringa tetanus</i>	BoCC – Amber, LBAP
Greenshank	<i>Tringa nebularia</i>	BoCC - Amber
Common gull	<i>Larus canus</i>	BoCC – Amber
Herring gull	<i>Larus argentatus</i>	BoCC – Red, SBL, LBAP

<sup>17</sup> Eaton M.A, Aebischer, N.J, Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. & Gregory, R.D. (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds*, 108, 708–746.

<sup>18</sup> <https://www.argyll-bute.gov.uk/sites/default/files/Unknown/AandB%20BAP%20Draft.pdf> [Accessed October 2021].

<sup>19</sup> In Outer Hebrides, Caithness and Sutherland and Wester Ross only.

Common Name	Species Name	Conservation Status
Lesser black-backed gull	<i>Larus fuscus</i>	BoCC – Amber
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>	-
Osprey	<i>Pandion haliaetus</i>	Annex 1, S1, BoCC – Amber, SBL, LBAP
Golden eagle	<i>Aquila chrysaetos</i>	Annex 1, S1, S1A, SA1, BoCC – Amber, SBL, LBAP
Sparrowhawk	<i>Accipiter nisus</i>	-
Hen harrier	<i>Circus cyaneus</i>	Annex 1, S1, S1A, BoCC – Red, SBL, LBAP
Red kite	<i>Milvus milvus</i>	Annex 1, S1, SBL
White-tailed eagle	<i>Haliaeetus albicilla</i>	Annex 1, S1, S1A, SA1, BoCC – Red, SBL, LBAP
Buzzard	<i>Buteo buteo</i>	-
Kestrel	<i>Falco tinnunculus</i>	BoCC – Amber, SBL
Merlin	<i>Falco columbarius</i>	Annex 1, S1, BoCC – Amber, SBL, LBAP
Peregrine	<i>Falco peregrinus</i>	Annex 1, S1, SBL, LBAP
Raven	<i>Corvus corax</i>	-

## ANNEX 2: ORNITHOLOGY FIELD SURVEY EFFORT

The following codes are used to record weather conditions within Tables A2.1 to A2.5:

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

The following field surveyors carried out the ornithology surveys: Mr A. McNab (AJM), Mr A. Little (AL), Mr P. Carroll (PC), Mr K. Little (KL), Mr M. Wood (MW), Mr R. Irvine (RI), Mr S. Macdonald (SM), Mr S. Piner (SP), Mr T. Lowe (TL), Mr D. Haywood (DH), Mr T. Bowman (TB), Mr G. Palmer (GP), Mr E. McLachlan (EM), Mr A. Russell (AR), Mr C. Griffin (CG), Mr P. Higginson (PH), Mr G. Dunbar (GD), Mr J. Sykes (JS), Mr G. Hawkins (GH) and Mr R. Thewlis (RT).

Table A2.1: VP flight activity survey effort (February 2019 – August 2021).

Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
27/02/2019	A	SP	08:00	11:00	3	1/0/2	SW/SW/SW	0/0/0	0/0/0	/-/	2/2/2	0/0/0	0/0/0
27/02/2019	A	SP	11:30	14:30	3	2/2/2	SW/SW/SW	0/0/0	2/3/3	2/2/2	2/2/2	0/0/0	0/0/0
27/02/2019	A	TL	15:10	18:10	3	2/2/1	W/W/WNW	0/0/0	6/8/8	2/2/2	2/2/2	0/0/0	0/0/0
28/02/2019	B	SP	08:05	11:05	3	4/4/4	SE/SE/SE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
28/02/2019	B	TL	11:35	14:35	3	4/3/2	SE/ESE/SSE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
28/02/2019	B	SP	15:05	18:05	3	2/1/1	SSE/SSE/SSE	0/0/0	2/2/2	2/2/2	2/2/2	0/0/0	0/0/0
28/02/2019	C	TL	08:05	11:05	3	4/4/4	SE/SE/SE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
28/02/2019	C	SP	11:35	14:35	3	4/3/2-3	SE/ESE/SSE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
28/02/2019	C	TL	15:05	18:05	3	2/1/1	SSE/SSE/SSE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
08/03/2019	A	SP	06:30	09:30	3	4/4/4	S/S/S	0/0/3-4	4/8/8	2/1/1	2/2/2	0/0/0	0/0/2
25/03/2019	A	TL	16:05	19:05	3	3/3/3	WNW/WNW/WNW	0/0/0	6/7/8	2/2/2	2/2/2	0/0/0	0/0/0
28/03/2019	A	SP	08:30	11:30	3	2-3/3/3	SW/SW/SW	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
27/03/2019	B	SP	09:30	12:30	3	3/3/3	W/W/W	1/1/1	8/8/8	1/1/0	2-1/1/1-0	0/0/0	0/0/0
29/03/2019	B	TL	09:15	12:15	3	4/3/3	SW/SW/SW	0/0/0	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
27/03/2019	C	TL	09:30	12:30	3	3/3/3	W/W/W	1/1/1	8/8/8	1/1/0	2-1/1/1-0	0/0/0	0/0/0
29/03/2019	C	SP	09:15	12:15	3	4/4/3	SW/SW/SW	0/0/0	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
01/03/2019	D	SP	07:30	10:30	3	3/3/3	E/E/E	0/1/1	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
01/03/2019	D	SP	11:00	14:00	3	3/3/3	E/E/E	0/0/0	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
05/03/2019	D	TL	12:00	15:00	3	1/1/0	ESE/ESE/-	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	2/2/2
05/03/2019	D	TL	15:30	18:30	3	2/1/2	ESE/SE/SE	0/0/0	8/7/7/	2/2/2	2/2/2	0/0/0	0/0/0
25/03/2019	D	SP	09:15	12:15	3	3/3/3	NW/NW/NW	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
25/03/2019	D	SP	12:45	15:45	3	3/3/3	NNW/NNW/NNW	0/0/0	8/6/6	2/2/2	2/2/2	0/0/0	0/0/0
24/04/2019	A	DH	11:30	14:30	3	5/5/4	E/E/E	0/0/0	2/2/3	2/2/2	2/2/2	0/0/0	0/0/0
24/04/2019	A	DH	15:00	18:00	3	4/5/5	E/E/E	0/0/0	4/6/7	2/2/2	2/2/2	0/0/0	0/0/0
22/04/2019	B	TB	16:30	19:30	3	3/3/2	SE/SE/SE	0/0/0	1/1/2	2/2/2	2/2/2	0/0/0	0/0/0
25/04/2019	B	DH	08:40	11:40	3	3/3/4	SE/E/E	0/0/0	6/5/5	0/1/1	2/2/2	0/0/0	0/0/0
25/04/2019	B	DH	12:00	15:00	3	4/4/5	E/E/E	0/2/2	6/6/7	2/1/1	2/2/2	0/0/0	0/0/0
22/04/2019	C	DH	16:30	19:30	3	4/2/1	SE/SE/SE	0/0/0	2/1/1	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
24/04/2019	D	TB	12:45	15:45	3	4/4/4	E/E/E	0/0/0	2/5/5	2/2/2	2/2/2	0/0/0	0/0/0
25/04/2019	D	TB	08:00	11:00	3	3/2/4	ESE/ESE/E	0/0/0	5/5/5	1/2/2	2/2/2	0/0/0	0/0/0
25/04/2019	D	TB	11:30	14:30	3	2/3/3	E/E/E	0/0/0	5/6/7	2/2/2	2/2/2	0/0/0	0/0/0
17/05/2019	A	GP	09:30	12:30	3	3/3/3	NE/ENE/ESE	0/0/0	8/4/6	2/2/2	2/2/2	0/0/0	0/0/0
17/05/2019	A	GP	13:00	16:00	3	2/3/3	SE/SE/ESE	0/0/0	5/3/2	2/2/2	2/2/2	0/0/0	0/0/0
29/05/2019	A	RI	14:45	17:45	3	3/4/4	SSE/SE/SE	0/0/1	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
09/05/2019	B	AL	10:00	13:00	3	2/2/2	ENE/SE/E	0/0/0	4/5/7	2/2/2	2/2/2	0/0/0	0/0/0
09/05/2019	B	AL	13:30	16:30	3	2/1/2	E/E/E	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
29/05/2019	B	AR	13:30	16:30	3	2/2/3	S/SW/SW	0/1/1	7/8/8	2/1/1	2/2/2	0/0/0	0/0/0
09/05/2019	C	KL	10:00	13:00	3	2/2/2	ESE/SE/E	0/0/0	4/5/7	2/2/2	2/2/2	0/0/0	0/0/0
09/05/2019	C	KL	13:30	16:30	3	2/1/2	E/E/E	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
17/05/2019	D	AR	09:30	12:30	3	1/2/3	E/E/E	0/1/0	6/5/4	2/2/2	2/2/2	0/0/0	0/0/0
17/05/2019	D	AR	13:00	16:00	3	2/3/3	E/E/E	0/0/0	4/3/4	2/2/2	2/2/2	0/0/0	0/0/0
29/05/2019	D	GP	13:45	16:45	3	2/2/2	SSE/SE/SE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
26/06/2019	A	RI	10:30	13:30	3	1/1/1	SW/SW/W	0/0/0	1/1/1	2/2/2	2/2/2	0/0/0	0/0/0
26/06/2019	A	RI	14:00	17:00	3	2/2/2	W/NW/NW	0/0/0	0/0/0	2/2/2	2/2/2	0/0/0	0/0/0
27/06/2019	A	RI	14:30	17:30	3	1/1/1	SW/SW/E	0/0/0	0/1/0	2/2/2	2/2/2	0/0/0	0/0/0
13/06/2019	B	PC	09:35	12:35	3	4/4/4	NNE/NNE/NNE	0/0/0	5/6/6	2/2/2	2/2/2	0/0/0	0/0/0
13/06/2019	B	PC	13:05	16:05	3	3/2/3	NNE/N/N	0/0/0	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
26/06/2019	B	EM	10:10	13:10	3	3/3/3	NW/NW/NW	0/0/0	1/1/1	2/2/2	2/2/2	0/0/0	0/0/0
26/06/2019	B	EM	13:40	16:40	3	3/3/3	NW/NW/NW	0/0/0	1/1/0	2/2/2	2/2/2	0/0/0	0/0/0
27/06/2019	B	EM	15:00	18:00	3	1/1/1	W/E/E	0/0/0	0/0/0	1/1/1	2/2/2	0/0/0	0/0/0
04/06/2019	C	AR	08:30	09:30	1	3	WSW	4	8	0	0	0	0
06/06/2019	C	AR	13:00	16:00	3	3/4/4	SE/SE/SE	1/0/0	7/5/4	2/2/2	2/2/2	0/0/0	0/0/0
06/06/2019	C	AR	16:30	19:30	3	4/4/4	SSE/S/S	0/0/0	4/3/3	2/2/2	2/2/2	0/0/0	0/0/0
13/06/2019	C	AJM	09:25	12:25	3	4/4/4	NNE/NNE/NNE	0/0/0	4/4/5	2/2/2	2/2/2	0/0/0	0/0/0
13/06/2019	C	AJM	12:55	15:55	3	4/3/3	N/NNW/NW	0/0/0	7/7/8	2/2/2	2/2/2	0/0/0	0/0/0
27/06/2019	D	CG	15:00	18:00	3	1/1/2	S/SW/SW	0/0/0	0/0/1	2/0/2	2/2/2	0/0/0	0/0/0
17/07/2019	A	RI	06:20	09:20	3	4/4/5	S/S/S	2/2/2	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0

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Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
25/07/2019	A	RI	14:30	17:30	3	4/4/5	SSE/SE/SE	0/0/0	5/4/6	2/2/2	2/2/2	0/0/0	0/0/0
26/07/2019	A	CG	12:30	15:30	3	4/4/4	SE/SE/SE	0/0/0	5/6/4	2/2/2	2/2/2	0/0/0	0/0/0
26/07/2019	A	CG	09:00	12:00	3	4/5/5	SE/SE/SE	0/1/0	4/7/6	2/2/2	2/2/2/1	0/0/0	0/0/0
17/07/2019	B	AR	06:35	09:35	3	3/4/4	S/SW/SW	2/2/2	8/8/8	1/2/1	1/2/1	0/0/0	0/0/0
02/07/2019	B	AR	16:30	19:30	3	4/4/4	NW/NW/NW	0/0/0	5/4/5	2/2/2	2/2/2	0/0/0	0/0/0
02/07/2019	B	AR	13:00	16:00	3	4/4/4	NNW/NW/NW	1/0/0	6/5/5	2/2/2	2/2/2	0/0/0	0/0/0
23/07/2019	C	CG	13:30	16:30	3	4/4/4	SE/SE/SE	0/0/0	5/4/3	2/2/2	2/2/2	0/0/0	0/0/0
23/07/2019	C	CG	10:00	13:00	3	3/3/4	ESE/SE/SE	0/0/0	7/8/4	1/1/2	2/2/2	0/0/0	0/0/0
13/07/2019	C	PC	10:20	13:20	3	3/3/3	NNW/NNW/NNW	0/0/0	8/7/7	2/2/2	2/2/2	0/0/0	0/0/0
13/07/2019	C	PC	13:50	16:50	3	4/4/4	NW/NW/NW	0/0/0	7/7/6	2/2/2	2/2/2	0/0/0	0/0/0
03/07/2019	C	PC	10:00	11:00	1	3	SW	0	8	2	2	0	0
02/07/2019	C	GP	13:00	16:00	3	5/5/5	NW/NW/NW	0/0/0	6/5/6	2/2/2/1	2/2/2	0/0/0	0/0/0
02/07/2019	C	GP	16:30	19:30	3	5/4/4	NW/NW/NW	0/0/0	5/4/3	2/2/2	2/2/2	0/0/0	0/0/0
17/07/2019	D	CG	07:00	10:00	3	2/3/3	S/S/S	2/2/2	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
23/07/2019	D	CG	17:15	20:15	3	4/4/4	SE/SE/SE	0/0/0	1/1/1/1	2/2/2	2/2/2	0/0/0	0/0/0
25/07/2019	D	CG	15:15	18:15	3	3/4/4	SE/SE/SE	0/0/0	2/4/5	2/2/2	2/2/2	0/0/0	0/0/0
26/07/2019	D	AR	13:00	16:00	3	4/4/4	SSW/SSW/SSW	0/0/0	4/4/3	2/2/2	2/2/2	0/0/0	0/0/0
26/07/2019	D	AR	09:30	12:30	3	4/4/4	SSW/SSW/SSW	1/0/0	7/6/5	2/2/2	2/2/2	0/0/0	0/0/0
19/08/2019	A	PC	16:20	19:20	3	4/4/4	SW/SW/SW	0/3/3	7/8/8	2/2/1	2/2/2	0/0/0	0/0/0
23/08/2019	A	CG	08:30	11:30	3	4/4/3	S/S/S	0/0/0	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
23/08/2019	A	CG	12:00	15:00	3	4/3/3	S/S/S	0/0/0	8/7/7	2/2/2	2/2/2	0/0/0	0/0/0
23/08/2019	B	EM	12:30	15:30	3	4/4/4	SSW/SSW/SSW	0/0/0	7/7/7	2/2/2	2/2/2	0/0/0	0/0/0
24/08/2019	B	EM	08:00	11:00	3	4/4/4	SE/SE/SE	0/0/0	7/7/8	1/1/1	2/2/2	0/0/0	0/0/0
23/08/2019	B	EM	09:00	12:00	3	4/3/3	SSW/SSW/SSW	0/0/0	8/7/7	2/2/2	2/2/2	0/0/0	0/0/0
24/08/2019	C	CG	08:00	11:00	3	4/4/4	SE/SE/SE	0/0/0	8/7/8	2/2/2	1/2/2	0/0/0	0/0/0
29/08/2019	C	AJM	16:25	19:25	3	4/4/4	SW/SW/SW	3/0/0	7/6/8	1/2/2	2/2/2	0/0/0	0/0/0
29/08/2019	C	AJM	15:55	18:55	3	4/4/4	SSW/SSW/SW	0/0/2	8/7/7	1/2/2	2/2/2	0/0/0	0/0/0
23/08/2019	D	AR	12:40	15:40	3	4/4/4	SW/W/SW	0/0/0	6/5/5	2/2/2	2/2/2	0/0/0	0/0/0
23/08/2019	D	AR	09:10	12:10	3	3/3/4	SW/SW/SW	0/0/1	8/8/6	2/2/2	2/2/2	0/0/0	0/0/0

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Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
19/08/2019	D	PC	12:05	15:05	3	3/3/3	WSW/SW/SW	3/0/0	7/6/7	2/2/2	2/2/2	0/0/0	0/0/0
06/09/2019	A	CG	08:00	11:00	3	4/3/4	NW/NW/NW	1/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
06/09/2019	A	CG	11:30	14:30	3	4/4/4	NW/NW/NW	0/0/0	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
06/09/2019	B	MW	08:00	11:00	3	2/2/3	WSW/WSW/WSW	0/1/2	7/8/8	2/2/1	2/2/2	0/0/0	0/0/0
06/09/2019	B	MW	11:30	14:30	3	3/3/3	WSW/WSW/WSW	2/1/0	8/8/7	1/1/1	2/2/2	0/0/0	0/0/0
21/09/2019	C	PC	13:20	16:20	3	5/4/4	E/E/E	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
21/09/2019	C	PC	16:50	19:50	3	5/5/5	E/E/E	0/0/0	1/0/1	2/-/2	2/2/2	0/0/0	0/0/0
06/09/2019	D	AR	08:45	11:45	3	4/4/4	NW/NW/NW	1/0/1	7/7/8	2/1/1	2/2/1	0/0/0	0/0/0
06/09/2019	D	AR	12:15	15:15	3	4/4/3	NW/NW/NW	1/1/0	8/8/7	1/1/1	2/1/2	0/0/0	0/0/0
25/10/2019	A	CG	10:15	13:15	3	2/2/1	SW/SW/SW	0/2/0	5/8/8	2/2/2	2/2/2	0/0/0	0/0/0
25/10/2019	A	CG	13:45	16:45	3	1/1/1	SW/SW/SW	1/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
02/10/2019	B	AR	11:35	14:35	3	4/3/2	NW/NW/NW	0/0/0	4/6/6	2/2/2	2/2/2	0/0/0	0/0/0
02/10/2019	B	AR	15:05	18:05	3	2/2/1	NW/NW/NW	0/0/0	6/4/3	2/2/2	2/2/2	0/0/0	0/0/0
02/10/2019	C	GP	15:00	18:00	3	3/3/3	NW/NW/WNW	0/0/0	7/8/5	2/2/2	2/2/2	0/0/0	0/0/0
02/10/2019	C	GP	11:30	14:30	3	4/3/3	NNW/NW/WNW	0/0/0	2/4/6	2/2/2	2/2/2	0/0/0	0/0/0
25/10/2019	D	AR	14:00	17:00	3	3/4/3	W/NW/NW	0/1/1	8/8/7	2/1/2	2/2/2	0/0/0	0/0/0
25/10/2019	D	AR	10:30	13:30	3	3/3/4	W/W/W	0/1/0	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
22/11/2019	A	GP	08:30	11:30	3	3/4/4	ESE/ESE/ESE	0/0/0	6/5/7	2/2/2	2/2/2	0/0/0	0/0/0
22/11/2019	A	GP	12:00	15:00	3	4/2/3	E/E/E	0/0/2	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
15/11/2019	B	AR	08:50	11:50	3	4/4/3	SE/SE/SE	0/0/0	1/1/1	2/2/2	2/2/2	1/0/0	0/0/0
15/11/2019	B	AR	12:20	15:20	3	3/3/3	SE/E/E	0/0/0	2/2/1	2/2/2	2/2/2	0/0/0	0/0/0
15/11/2019	C	GP	08:45	11:45	3	5/4/4	NE/ENE/NE	0/0/0	0/0/0	-/-/-	2/2/2	1/1/1	0/0/0
15/11/2019	C	GP	12:15	15:15	3	4/3/3	N/N/NNE	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
22/11/2019	D	AR	09:00	12:00	3	3/4/4	ENE/ENE/E	0/0/0	7/7/6	2/2/2	2/2/2	0/0/0	0/0/0
22/11/2019	D	AR	12:30	15:30	3	3/4/3	E/E/E	1/0/0	7/6/6	2/2/2	2/2/2	0/0/0	0/0/0
13/12/2019	A	MW	09:00	12:00	3	0/0/1	-/-/SW	0/0/0	1/1/5	2/2/2	2/2/2	1/1/1	2/2/2
13/12/2019	A	MW	12:30	15:30	3	1/0/0	SW/-/-	0/0/0	3/2/2	1/2/2	2/2/2	0/0/0	2/2/2
28/12/2019	B	MW	12:35	15:35	3	4/4/4	S/S/S	2/0/0	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
28/12/2019	C	MW	09:05	12:05	3	3/3/4	SE/SE/SE	2/2/2	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0

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Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
13/12/2019	D	AR	09:15	12:15	3	0/0/1	-/-/W	0/0/0	5/2/3	2/2/2	2/2/2	1/0/0	0/0/0
13/12/2019	D	AR	12:45	15:45	3	1/1/1	W/W/W	0/0/0	4/6/4	2/1/2	2/2/2	0/0/0	0/0/0
09/01/2020	A	PC	10:05	13:05	3	3/2/2	NNW/NNE/E	0/0/0	7/3/2	2/2/2	2/2/2	0/0/0	1/1/1
09/01/2020	A	PC	13:35	16:35	3	1/2/2	SW/SW/WNW	0/0/0	3/2/1	2/2/2	2/2/2	0/0/0	1/1/1
10/01/2020	B	AR	09:15	11:15	2	3/3	SSW/SSW	0/0	6/8	2/1	2/1	0/0	1/1
10/01/2020	C	GP	09:15	11:15	2	3/3	SSW/SSW	0/0	6/8	2/1	2/1	0/0	1/1
29/01/2020	C	PH	10:00	12:00	2	2/2	SW/WSW	0/3	8/8	2/2	2/2	0/0	1/1
18/02/2020	A	AL	09:30	12:30	3	4/3/4	SW/WSW/WSW	2/0/0	7/4/6	2/2/2	2/2/2	0/0/0	1/1/1
18/02/2020	A	AL	13:00	16:00	3	3/3/4	SW/SW/SW	3/3/0	7/7/5	2/2/2	2/1/2	0/0/0	1/1/1
19/02/2020	A	KL	07:30	10:30	3	3/3/3	SW/SW/S	3/0/1	8/8/8	2/2/1	2/2/2	0/0/0	1/1/1
05/02/2020	B	AR	09:45	12:45	3	3/3/3	SW/SW/SSW	1/1/0	7/7/8	2/2/2	2/2/2	1/0/0	0/0/0
05/02/2020	B	AR	13:15	16:15	3	4/3/3	SSW/SSW/WSW	0/0/0	8/8/8	2/2/1	2/2/1	0/0/0	0/0/0
20/02/2020	B	KL	08:15	11:15	3	5/4/5	WSW/W/W	2/3/0	6/4/3	2/2/2	2/2/2	0/0/0	0/0/0
20/02/2020	C	AL	08:15	11:15	3	5/4/5	WNW/W/W	2/3/0	6/4/3	2/2/2	2/2/2	0/0/0	0/0/0
05/02/2020	D	MW	09:50	12:50	3	2/2/2	SW/SW/SW	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
05/02/2020	D	MW	13:20	16:20	3	2/2/2	SW/SW/SW	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
13/02/2020	D	AR	10:20	13:20	3	5/4/4	SE/SE/SE	2/0/0	7/6/5	2/2/2	2/2/2	2/2/2	1/1/1
13/02/2020	D	AR	13:50	16:50	3	4/4/2	SE/E/E	0/0/0	3/3/2	2/2/2	2/2/2	2/2/2	1/1/1
18/02/2020	D	KL	10:30	13:30	3	3/3/2	W/W/W	2/0/3	4/5/5	2/2/2	2/2/2	0/0/0	1/1/1
18/02/2020	D	KL	14:00	17:00	3	4/4/3	W/W/W	3/0/3	7/6/6	1/2/2	1/2/2	0/0/0	1/1/1
20/03/2020	A	GP	09:00	12:00	3	2/3/3	SE/ESE/ESE	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
20/03/2020	A	GP	12:30	15:30	3	3/3/3	SE/ESE/ESE	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
26/03/2020	A	GP	08:30	11:30	3	2/1/1	N/NW/NW	0/0/1	8/8/8	2/2/1	2/2/1	0/0/0	0/0/0
03/03/2020	B	SM	11:25	14:25	3	3/4/3	N/NNW/WNW	3/3/3	8/8/8	1/2/2	2/2/2	0/0/0	1/1/1
03/03/2020	B	SM	14:55	17:55	3	3/3/4	WNW/W/W	0/0/0	7/3/5	2/2/2	2/2/2	0/0/0	1/1/1
19/03/2020	B	AJM	13:30	16:30	3	4/4/4	NW/NW/NW	0/0/0	5/5/6	2/2/2	2/2/2	0/0/0	2/2/2
23/03/2020	B	AR	10:30	13:30	3	4/4/4	SSE/SSE/S	0/0/0	8/7/7	2/1/2	2/2/2	0/0/0	0/0/0
23/03/2020	B	AR	14:00	17:00	3	4/4/4	S/SE/SE	0/0/1	7/7/7	2/2/2	2/2/2	0/0/0	0/0/0
03/03/2020	C	AR	11:10	14:10	3	5/5/4	W/WSW/SW	1/2/0	7/5/5	1/1/2	1/1/2	2/2/2	1/1/1

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Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
03/03/2020	C	AR	14:40	17:40	3	4/5/4	SW/SW/SW	2/0/0	4/4/4	2/2/2	2/2/2	2/2/2	1/1/1
19/03/2020	C	AJM	10:00	13:00	3	4/4/4	NW/NW/NW	0/0/2	4/4/5	2/2/2	2/2/2	0/0/0	2/2/2
23/03/2020	C	GP	10:30	13:30	3	5/5/5	SSE/S/SSE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
23/03/2020	C	GP	14:00	17:00	3	5/5/5	S/SSE/S	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
20/03/2020	D	AR	09:20	12:20	3	2/3/4	NE/ENE/E	0/0/0	1/2/3	2/2/2	2/2/2	1/0/0	0/0/0
20/03/2020	D	AR	12:50	15:50	3	4/4/4	E/E/ESE	0/0/0	3/3/3	2/2/2	2/2/2	0/0/0	0/0/0
26/03/2020	D	AR	09:00	12:00	3	3/2/2	NE/ENE/NE	0/2/0	7/8/8	2/2/1	2/2/1	0/0/0	0/0/0
03/03/2020	E	PC	11:00	14:00	3	3/3/3	WNW/WNW/WNW	3/3/3	7/7/7	1/2/2	2/2/2	0/0/0	1/1/1
03/03/2020	E	PC	14:30	17:30	3	3/3/3	WNW/WNW/WNW	0/2/0	7/6/3	2/2/2	2/2/2	0/0/0	1/1/1
13/03/2020	E	GP	09:30	12:30	3	3/4/4	ESE/ESE/SE	0/0/0	1/2/2	2/2/2	2/2/2	1/0/0	2/2/2
13/03/2020	E	GP	13:00	16:00	3	4/4/4	SE/SE/SSE	0/0/0	3/3/3	2/2/2	2/2/2	0/0/0	2/2/2
16/03/2020	E	AJM	08:15	11:15	3	4/4/4	SW/SW/SW	0/0/0	6/6/6	1/2/2	2/2/2	0/0/0	0/0/0
16/03/2020	E	AJM	11:45	14:45	3	4/4/5	SW/SW/SW	0/2/3	7/6/7	2/2/2	2/2/2	0/0/0	0/0/0
21/04/2020	A	CG	10:00	13:00	3	4/4/4	ESE/ESE/ESE	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
21/04/2020	A	CG	13:30	16:30	3	3/4/3	ESE/ESE/ESE	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
23/04/2020	A	CG	16:20	19:20	3	1/1/1	E/E/E	0/0/0	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
22/04/2020	B	AR	15:15	18:15	3	4/4/4	S/S/S	0/0/0	2/2/3	2/2/2	2/2/2	0/0/0	0/0/0
26/04/2020	B	CG	09:00	12:00	3	2/3/2	NW/NW/NW	0/1/0	3/7/8	2/2/2	2/2/2	0/0/0	0/0/0
26/04/2020	B	CG	12:30	15:30	3	3/3/3	NW/NW/NW	1/0/0	8/7/7	2/2/2	2/2/2	0/0/0	0/0/0
22/04/2020	C	CG	15:00	18:00	3	4/3/3	ESE/ESE/ESE	0/0/0	3/2/2	2/2/2	2/2/2	0/0/0	0/0/0
26/04/2020	C	AR	09:30	12:30	3	4/4/4	NNW/NNW/NNW	0/1/1	7/7/7	2/2/2	2/2/2	0/0/0	0/0/0
26/04/2020	C	AR	13:00	16:00	3	4/4/3	NNW/NW/NW	1/1/1	8/8/8	2/2/1	2/2/2	0/0/0	0/0/0
21/04/2020	D	AR	10:25	13:25	3	5/4/4	NNE/NE/NE	0/0/0	0/1/1	-/2/2	2/2/2	0/0/0	0/0/0
21/04/2020	D	AR	13:55	16:55	3	4/4/4	NE/ENE/ENE	0/0/0	1/1/1	2/2/2	2/2/2	0/0/0	0/0/0
23/04/2020	D	AR	16:20	19:20	3	3/3/2	SSE/SE/SE	0/0/0	5/6/6	2/2/2	2/2/2	0/0/0	0/0/0
24/04/2020	E	CG	09:00	12:00	3	0/1/1	-/E/E	0/0/0	2/1/4	2/2/2	2/2/2	0/0/0	0/0/0
24/04/2020	E	CG	12:30	15:30	3	1/1/1	E/SSW/SSW	0/0/0	3/3/3	2/2/2	2/2/2	0/0/0	0/0/0
25/04/2020	E	CG	13:30	16:30	3	2/1/1	SW/SW/SW	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
07/05/2020	A	CG	10:30	13:30	3	1/1/1	E/E/E	1/1/0	8/8/8	1/1/1	1/1/2	0/0/0	0/0/0

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Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
07/05/2020	A	CG	14:00	17:00	3	0/2/2	-/SE/SE	0/0/0	7/5/4	2/2/2	2/2/2	0/0/0	0/0/0
22/05/2020	A	CG	08:30	11:30	3	4/6/6	SSE/SSE/SSE	0/3/3	8/8/8	2/1/1	2/2/2	0/0/0	0/0/0
04/05/2020	B	AR	12:30	15:30	3	2/3/4	ESE/ESE/SE	0/0/0	6/6/5	2/2/2	2/2/2	0/0/0	0/0/0
04/05/2020	B	AR	16:00	19:00	3	1/2/2	SE/SE/SE	0/0/0	5/5/2	2/2/2	2/2/2	0/0/0	0/0/0
27/05/2020	B	AL	08:45	11:45	3	2/3/1	NW/NW/NW	0/0/0	2/3/3	1/2/2	2/2/2	0/0/0	0/0/0
04/05/2020	C	CG	12:30	15:30	3	3/1/2	E/E/E	0/0/0	6/5/7	2/2/2	2/2/2	0/0/0	0/0/0
04/05/2020	C	CG	16:00	19:00	3	3/2/3	E/E/E	0/0/0	4/4/3	2/2/2	2/2/2	0/0/0	0/0/0
27/05/2020	C	KL	08:45	11:45	3	2/3/1	NW/NW/NW	0/0/0	2/3/3	2/2/2	2/2/2	0/0/0	0/0/0
07/05/2020	D	AR	14:00	17:00	3	3/2/2	SW/SW/SW	1/0/0	6/7/7	2/2/2	2/2/2	0/0/0	0/0/0
07/05/2020	D	AR	10:30	13:30	3	4/3/3	SW/SW/SW	0/0/1	6/5/6	2/2/2	2/2/2	0/0/0	0/0/0
22/05/2020	D	AR	09:00	12:00	3	4/4/4	S/SSW/SSW	2/2/3	8/8/8	2/1/1	2/1/1	0/0/0	0/0/0
12/05/2020	E	CG	10:15	13:15	3	3/4/4	W/W/NW	0/0/0	6/7/7	2/2/2	2/2/2	0/0/0	0/0/0
12/05/2020	E	CG	13:45	16:45	3	4/3/3	NW/NNW/NNW	1/0/0	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
26/05/2020	E	KL	17:45	20:45	3	4/4/4	W/W/W	0/0/0	2/3/3	2/2/2	2/2/2	0/0/0	0/0/0
04/06/2020	A	CG	12:00	15:00	3	2/3/3	SW/W/NW	1/0/0	8/8/7	1/2/2	2/2/2	0/0/0	0/0/0
04/06/2020	A	CG	15:30	18:30	3	2/2/2	SW/W/W	0/0/0	4/6/5	2/2/2	2/2/2	0/0/0	0/0/0
25/06/2020	A	CG	06:15	09:15	3	0/2/2	-/SE/SE	0/0/0	3/4/7	2/2/2	2/2/2	0/0/0	0/0/0
03/06/2020	B	AR	11:00	14:00	3	3/3/3	SW/W/WSW	1/0/1	8/7/7	1/2/2	2/2/2	0/0/0	0/0/0
03/06/2020	B	AR	14:30	17:30	3	3/3/3	S/SE/SE	1/0/0	6/6/5	2/2/2	2/2/2	0/0/0	0/0/0
19/06/2020	B	CG	09:30	12:30	3	3/3/2	ENE/ENE/ENE	0/0/0	8/8/8	1/1/1	2/2/2	0/0/0	0/0/0
03/06/2020	C	CG	11:00	14:00	3	3/2/2	NNW/N/N	0/0/0	2/3/4	2/2/2	2/2/2	0/0/0	0/0/0
03/06/2020	C	CG	14:30	17:30	3	1/1/2	NW/NW/NW	0/0/0	3/4/4	2/2/2	2/2/2	0/0/0	0/0/0
19/06/2020	C	CG	13:30	16:30	3	2/1/2	ENE/ENE/ENE	0/0/0	6/5/4	2/2/2	2/2/2	0/0/0	0/0/0
04/06/2020	D	AR	15:30	18:30	3	4/4/4	NW/NW/NW	0/0/0	4/3/3	2/2/2	2/2/2	0/0/0	0/0/0
04/06/2020	D	AR	12:00	15:00	3	4/4/4	NW/W/W	1/0/0	7/5/4	2/2/2	2/2/2	0/0/0	0/0/0
25/06/2020	D	AR	09:45	12:45	3	2/3/3	E/ENE/ENE	0/0/0	6/4/5	2/2/2	2/2/2	0/0/0	0/0/0
12/06/2020	E	CG	09:30	12:30	3	2/3/3	NE/NE/NE	0/0/0	8/5/5	2/2/2	2/2/2	0/0/0	0/0/0
12/06/2020	E	CG	13:00	16:00	3	2/3/3	NE/NE/NE	0/0/0	3/3/3	2/2/2	2/2/2	0/0/0	0/0/0
25/06/2020	E	CG	12:35	15:35	3	2/2/2	E/S/SE	0/0/0	0/1/3	-/2/2	2/2/2	0/0/0	0/0/0

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Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
01/07/2020	A	PC	12:00	15:00	3	3/3/3	NE/NE/NE	2/2/2	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
02/07/2020	A	PC	06:40	09:40	3	1/2/2	E/E/E	0/0/0	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
29/07/2020	A	CG	07:15	10:15	3	2/2/2	W/WNW/WNW	1/0/0	8/7/6	1/1/2	2/2/2	0/0/0	0/0/0
12/07/2020	B	AR	16:00	19:00	3	3/4/3	NW/NW/SW	0/1/1	6/6/7	2/1/2	2/2/2	0/0/0	0/0/0
28/07/2020	B	AR	10:00	13:00	3	4/4/4	WNW/WNW/WNW	0/0/2	4/5/6	2/2/1	2/2/2	0/0/0	0/0/0
28/07/2020	B	AR	13:30	16:30	3	4/4/3	WNW/WNW/WNW	1/1/1	6/7/7	2/2/2	2/2/2	0/0/0	0/0/0
12/07/2020	C	CG	16:00	19:00	3	2/2/2	WSW/WSW/SW	0/0/0	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
28/07/2020	C	CG	10:00	13:00	3	4/4/4	NW/WNW/WNW	0/0/0	8/7/8	2/2/2	2/2/2	0/0/0	0/0/0
28/07/2020	C	CG	13:30	16:30	3	4/4/3	WNW/WNW/WNW	0/1/0	8/7/7	2/2/2	2/2/2	0/0/0	0/0/0
29/07/2020	D	AR	07:15	10:15	3	2/1/2	W/W/WNW	0/0/0	6/5/4	2/2/2	2/2/2	0/0/0	0/0/0
29/07/2020	D	AR	10:45	13:45	3	3/3/2	WNW/W/W	1/0/0	4/5/5	2/2/2	2/2/2	0/0/0	0/0/0
02/07/2020	E	PC	13:00	16:00	3	3/3/3	WNW/WSW/WSW	0/0/0	7/6/6	2/2/2	2/2/2	0/0/0	0/0/0
21/07/2020	E	CG	09:30	12:30	3	2/2/2	NW/NW/NW	0/0/0	4/3/3	2/2/2	2/2/2	0/0/0	0/0/0
21/07/2020	E	CG	13:00	16:00	3	2/3/2	W/W/W	0/0/0	3/4/4	2/2/2	2/2/2	0/0/0	0/0/0
03/08/2020	A	CG	15:30	18:30	3	3/3/2	SW/SW/S	0/0/0	7/7/6	2/2/2	2/2/2	0/0/0	0/0/0
03/08/2020	A	CG	19:00	22:00	3	2/2/1	SW/S/SW	0/0/0	7/7/8	2/2/2	2/2/2	0/0/0	0/0/0
13/08/2020	A	GP	06:30	09:30	3	1/2/3	E/ESE/SE	0/0/0	0/0/0	2/2/2	2/2/2	0/0/0	0/0/0
06/08/2020	B	AR	12:30	15:30	3	3/4/4	SSW/SSW/SSW	0/1/0	5/5/5	2/2/2	2/2/2	0/0/0	0/0/0
11/08/2020	B	AR	10:45	13:45	3	4/2/2	SW/SW/SSW	0/0/0	3/2/3	2/2/2	2/2/2	0/0/0	0/0/0
11/08/2020	B	AR	14:15	17:15	3	2/2/3	SSW/SSW/SW	0/0/0	3/3/2	2/2/2	2/2/2	0/0/0	0/0/0
06/08/2020	C	AR	16:00	19:00	3	4/4/3	SSW/SW/SW	0/0/0	4/4/6	2/2/2	2/2/2	0/0/0	0/0/0
11/08/2020	C	GP	11:10	14:10	3	4/3/3	SSE/SSE/SSE	0/0/0	4/6/6	2/2/2	2/2/2	0/0/0	0/0/0
11/08/2020	C	GP	14:40	17:40	3	3/3/3	SSE/SSE/S	0/0/0	5/5/3	2/2/2	2/2/2	0/0/0	0/0/0
03/08/2020	D	AR	14:50	17:50	3	2/2/3	SW/SW/SW	0/0/0	3/5/5	2/2/2	2/2/2	0/0/0	0/0/0
03/08/2020	D	AR	18:20	21:20	3	3/3/3	SW/SW/SW	0/0/0	6/6/6	2/2/2	2/2/2	0/0/0	0/0/0
13/08/2020	D	AR	07:00	10:00	3	2/3/3	SE/SE/SE	0/0/0	1/1/2	2/2/2	2/2/2	0/0/0	0/0/0
13/08/2020	D	AR	10:30	13:30	3	3/3/4	NE/ESE/ESE	0/0/0	1/1/3	2/2/2	2/2/2	0/0/0	0/0/0
06/08/2020	E	CG	12:00	15:00	3	3/3/3	S/SSE/SSE	0/0/0	6/7/4	2/2/2	2/2/2	0/0/0	0/0/0
06/08/2020	E	CG	15:30	18:30	3	2/2/2	SSW/SSW/SSW	0/0/0	4/5/4	2/2/2	2/2/2	0/0/0	0/0/0

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Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
13/08/2020	E	GP	10:20	13:20	3	3/3/3	ESE/ESE/ESE	0/0/0	0/1/1	2/2/2	2/2/2	0/0/0	0/0/0
04/09/2020	A	GP	09:00	12:00	3	5/5/5	WSW/WSW/WSW	0/2/3	8/8/8	2/2/1	2/2/2	0/0/0	0/0/0
04/09/2020	A	GP	12:30	15:30	3	4/4/5	WSW/W/W	2/0/2	7/8/8	2/2/1	2/2/2	0/0/0	0/0/0
18/09/2020	B	MW	08:55	11:55	3	2/2/0	E/E/-	0/0/0	0/0/0	-/2/2	2/2/2	0/0/0	0/0/0
18/09/2020	B	MW	12:25	15:25	3	1/2/2	E/E/E	0/0/0	0/0/0	-/-/-/	2/2/2	0/0/0	0/0/0
19/09/2020	B	MW	09:25	12:25	3	3/3/3	E/E/E	0/0/0	0/0/0	-/-/-/	2/2/2	0/0/0	0/0/0
18/09/2020	C	GP	09:00	12:00	3	3/2/2	E/SE/E	0/0/0	0/0/0	-/2/2	2/2/2	0/0/0	0/0/0
18/09/2020	C	GP	12:30	15:30	3	3/3/3	SE/ESE/ESE	0/0/0	0/0/0	2/2/2	2/2/2	0/0/0	0/0/0
19/09/2020	C	MW	12:55	15:55	3	4/3/3	E/E/E	0/0/0	0/0/0	-/-/-/	2/2/2	0/0/0	0/0/0
03/09/2020	D	AR	12:20	15:20	3	4/4/4	WSW/W/W	1/1/0	8/7/6	1/2/2	2/2/2	0/0/0	0/0/0
03/09/2020	D	AR	15:50	18:50	3	4/4/4	W/W/W	0/1/0	6/6/5	2/2/2	2/2/2	0/0/0	0/0/0
19/09/2020	D	CG	09:45	12:45	3	2/2/2	E/E/E	0/0/0	0/0/0	-/-/-/	2/2/2	0/0/0	0/0/0
03/09/2020	E	GP	11:45	14:45	3	5/5/5	WSW/WSW/WSW	0/2/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
03/09/2020	E	GP	15:15	18:15	3	5/5/5	WSW/WSW/WSW	0/3/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
19/09/2020	E	CG	13:45	16:45	3	1/1/1	E/E/E	0/0/0	0/0/0	-/-/-/	2/2/2	0/0/0	0/0/0
08/10/2020	A	PC	12:15	15:15	3	4/4/4	SW/SW/SW	3/0/3	5/6/5	2/2/2	2/2/2	0/0/0	0/0/0
08/10/2020	A	PC	15:45	18:45	3	3/3/3	W/WSW/WSW	2/3/2	4/4/5	2/2/2	2/2/2	0/0/0	0/0/0
13/10/2020	B	AL	10:00	13:00	3	5/5/4	NE/NE/NE	0/0/0	3/3/2	2/2/2	2/2/2	0/0/0	0/0/0
13/10/2020	C	AL	13:30	16:30	3	5/5/5	NNE/NNE/NNE	0/0/0	0/4/3	-/2/2	2/2/2	0/0/0	0/0/0
13/10/2020	D	KL	10:00	13:00	3	5/4/3	NE/NNE/NE	0/0/0	3/3/2	2/2/2	2/2/2	0/0/0	0/0/0
13/10/2020	E	KL	13:40	16:40	3	4/4/5	NNE/NNE/NNE	0/0/0	3/3/3	2/2/2	2/2/2	0/0/0	0/0/0
19/11/2020	A	CG	10:00	13:00	3	2/1/0	SW/W/W	0/0/0	7/6/4	2/2/2	2/2/2	0/0/0	0/0/0
19/11/2020	A	CG	13:30	16:30	3	0/0/0	W/W/W	0/0/0	3/4/6	2/2/2	2/2/2	0/0/0	0/0/0
22/11/2020	B	CG	09:30	12:30	3	2/2/2	SW/SW/SW	2/0/1	5/7/8	2/2/2	2/2/2	0/0/0	0/0/0
22/11/2020	B	CG	13:00	16:00	3	2/3/3	SW/W/W	0/0/2	4/3/6	2/2/2	2/2/2	0/0/0	0/0/0
19/11/2020	C	MW	10:05	13:05	3	3/3/3	SW/SW/SW	2/0/0	7/5/1	2/2/2	2/2/2	0/0/0	0/0/0
19/11/2020	C	MW	13:35	16:35	3	1/1/0	SW/SW/-	0/0/0	6/5/7	2/2/2	2/2/2	0/0/0	0/0/0
25/11/2020	D	CG	09:00	12:00	3	2/2/1	SW/SW/S	1/1/1	4/8/7	2/1/2	2/2/2	0/0/0	0/0/0
25/11/2020	D	CG	12:30	15:30	3	2/2/2	W/W/SW	0/1/0	8/7/6	2/2/2	2/2/2	0/0/0	0/0/0

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Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
16/11/2020	E	CG	08:30	11:30	3	3/2/2	SW/SW/SW	0/1/0	5/5/6	2/2/2	2/2/2	0/0/0	0/0/0
16/11/2020	E	CG	12:00	15:00	3	2/2/2	SW/SW/SW	0/1/1	6/8/8	2/2/2	2/2/2	0/0/0	0/0/0
17/12/2020	A	AR	08:45	11:45	3	4/4/3	SE/E/E	1/1/0	7/7/6	1/2/2	2/2/2	0/0/0	0/0/0
17/12/2020	A	AR	12:15	15:15	3	3/4/4	ESE/S/S	1/0/1	7/5/6	2/2/2	2/2/2	0/0/0	0/0/0
15/12/2020	B	AR	08:45	11:45	3	4/3/3	WSW/SW/SW	1/0/0	7/5/4	1/2/2	2/2/2	0/0/0	0/0/0
15/12/2020	B	AR	12:15	15:15	3	3/3/3	SW/SW/SW	1/0/0	4/5/5	2/2/2	2/2/2	0/0/0	0/0/0
15/12/2020	C	MW	08:35	11:35	3	3/3/3	S/S/S	0/0/0	8/8/7	1/1/1	2/2/2	0/0/0	0/0/0
15/12/2020	C	MW	12:05	15:05	3	3/3/3	S/S/S	1/0/0	6/6/6	1/1/2	2/2/2	0/0/0	0/0/0
17/12/2020	D	MW	08:55	11:55	3	3/3/3	SSW/SSW/SSW	1/2/1	8/8/7	1/1/1	2/2/2	0/0/0	0/0/0
17/12/2020	D	MW	12:25	15:25	3	3/3/3	SSW/S/S	0/0/0	7/6/7	1/1/1	2/2/2	0/0/0	0/0/0
18/12/2020	E	AR	08:45	11:45	3	4/4/4	SE/SE/SE	0/1/1	8/8/8	2/1/1	2/2/1	0/0/0	0/0/0
18/12/2020	E	AR	12:15	15:15	3	4/4/3	SE/SE/S	2/1/1	8/8/7	1/1/2	1/1/2	0/0/0	0/0/0
26/01/2021	A	AL	09:00	12:00	3	3/4/4	SE/SSE/SSE	0/2/4	8/8/8	1/1/1	2/1/0	0/0/0	1/1/1
25/01/2021	B	AL	09:30	12:30	3	3/3/3	NW/NW/NW	2/0/0	4/1/2	2/2/2	2/2/2	0/0/0	1/1/1
25/01/2021	B	AL	13:00	16:00	3	2/2/2	W/WNW/W	0/0/0	1/1/4	2/2/2	2/2/2	0/0/0	1/1/1
25/01/2021	C	KL	09:30	12:30	3	3/3/3	NW/NW/NW	2/0/0	4/1/2	2/2/2	2/2/2	0/0/0	1/1/1
25/01/2021	C	KL	13:00	16:00	3	2/2/2	W/WNW/W	0/0/0	1/1/4	2/2/2	2/2/2	0/0/0	1/1/1
26/01/2021	D	KL	09:15	12:15	3	4/4/4	SE/SSE/SSE	0/2/4	8/8/8	1/1/1	2/1/0	0/0/0	1/1/1
21/01/2021	E	MW	08:35	11:35	3	2/3/4	NW/NW/NW	0/2/0	5/6/6	2/2/2	2/2/2	0/0/0	1/1/1
21/01/2021	E	MW	12:05	15:05	3	4/4/4	NW/NW/NW	0/0/0	6/5/5	2/2/2	2/2/2	0/0/0	1/1/1
07/02/2021	A	PC	09:55	12:55	3	4/4/4	E/E/E	0/0/0	7/7/7	2/2/2	2/2/2	0/0/0	1/1/1
07/02/2021	A	PC	13:25	16:25	3	5/5/5	E/E/E	0/2/2	7/7/7	2/2/2	2/2/2	0/0/0	1/1/1
16/02/2021	A	AL	09:45	12:45	3	3/4/4	SW/SSW/SSW	2/2/3	8/7/6	2/2/2	2/2/2	0/0/0	2/2/2
16/02/2021	A	AL	13:15	16:15	3	3/4/4	SSW/SSW/SSW	3/2/0	7/5/4	2/2/2	2/2/2	0/0/0	2/2/2
11/02/2021	B	MW	08:35	11:35	3	4/4/4	SE/SE/SE	0/0/0	3/4/3	2/2/2	2/2/2	2/2/2	1/1/1
11/02/2021	B	MW	12:05	15:05	3	4/4/4	SE/SE/SE	0/0/0	1/1/1	2/2/2	2/2/2	2/2/2	1/1/1
17/02/2021	B	AL	13:30	16:30	3	5/5/5	S/S/S	0/0/3	8/8/8	2/2/1	2/2/1	0/0/0	2/2/2
11/02/2021	C	SM	08:40	11:40	3	4/4/4	E/ESE/ESE	0/0/0	2/3/3	2/2/2	2/2/2	2/2/2	1/1/1
11/02/2021	C	SM	12:10	15:10	3	5/4/4	ESE/ESE/E	0/0/0	2/1/1	2/2/2	2/2/2	2/2/2	1/1/1

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Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
17/02/2021	C	AL	10:00	13:00	3	4/4/4	SSW/SSW/SSW	0/0/0	5/5/5	2/2/2	2/2/2	0/0/0	2/2/2
16/02/2021	D	KL	10:00	13:00	3	5/5/4	SW/SW/SW	2/2/2	7/7/7	2/2/2	2/2/2	0/0/0	2/2/2
16/02/2021	D	KL	13:30	16:30	3	4/5/4	SW/SSW/SSW	2/0/0	4/3/4	2/2/2	2/2/2	0/0/0	2/2/2
24/02/2021	D	CG	08:15	11:15	3	3/4/4	S/S/S	1/2/1	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
24/02/2021	D	CG	11:45	14:45	3	3/3/3	S/S/S	0/1/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
24/02/2021	E	GP	07:30	10:30	3	5/5/5	S/S/S	0/2/2	8/8/8	2/1/1	2/2/2	0/0/0	0/0/0
24/02/2021	E	GP	11:00	14:00	3	5/5/5	S/S/SSE	2/2/2	8/8/8	2/1/1	2/2/2	0/0/0	0/0/0
25/02/2021	E	PC	11:45	14:45	3	5/6/5	SSW/SW/SW	3/0/0	6/4/6	2/2/2	2/2/2	0/0/0	0/0/0
11/03/2021	A	CG	11:45	14:45	3	4/4/4	W/W/W	2/0/0	7/8/7	2/2/2	2/2/2	0/0/0	0/0/0
11/03/2021	A	CG	15:15	18:15	3	4/4/4	SW/SW/SW	2/0/0	6/7/7	2/2/2	2/2/2	0/0/0	0/0/0
21/03/2021	A	CG	12:00	15:00	3	2/2/2	SW/SW/SW	0/0/0	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
16/03/2021	B	AR	12:00	15:00	3	4/4/4	WNW/NW/NW	0/0/0	1/2/2	2/2/2	2/2/2	0/0/0	0/0/0
24/03/2021	B	AR	09:00	12:00	3	3/4/4	W/W/W	1/2/0	8/7/7	2/1/2	2/2/2	0/0/0	0/0/0
24/03/2021	B	AR	12:30	15:30	3	4/4/4	W/W/W	1/1/0	5/7/7	2/2/2	2/2/2	0/0/0	0/0/0
16/03/2021	C	AR	15:30	18:30	3	5/5/4	W/W/WSW	0/0/0	2/3/3	2/2/2	2/2/2	0/0/0	0/0/0
24/03/2021	C	GP	09:00	12:00	3	5/5/5	SSW/SSW/S	2/2/0	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
24/03/2021	C	GP	12:30	15:30	3	5/5/5	S/S/S	0/0/2	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
16/03/2021	D	CG	08:00	11:00	3	3/3/4	W/W/W	0/0/0	4/3/2	2/2/2	2/2/2	0/0/0	0/0/0
16/03/2021	D	CG	11:30	14:30	3	4/4/4	W/W/W	0/0/0	1/2/2	2/2/2	2/2/2	0/0/0	0/0/0
21/03/2021	D	AR	12:00	15:00	3	4/4/4	NNW/NNW/NNW	0/0/0	7/6/6	2/2/2	2/2/2	0/0/0	0/0/0
07/03/2021	E	CG	10:00	13:00	3	2/2/2	SW/S/S	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
07/03/2021	E	CG	13:30	16:30	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
16/03/2021	E	CG	15:15	18:15	3	3/3/2	NW/W/W	0/0/0	1/2/3	2/2/2	2/2/2	0/0/0	0/0/0
06/04/2021	A	MW	09:55	12:55	3	4/4/4	NW/NW/NW	0/0/0	4/4/3	2/2/2	2/2/2	0/0/0	0/0/0
06/04/2021	A	MW	13:25	16:25	3	4/4/4	NW/NW/NW	2/0/0	5/3/3	2/2/2	2/2/2	0/0/0	0/0/0
27/04/2021	A	AL	14:00	17:00	3	4/4/4	NE/NE/NE	0/0/0	6/6/5	2/2/2	2/2/2	0/0/0	0/0/0
11/04/2021	B	AL	11:00	14:00	3	3/3/4	NNW/NW/NNW	0/0/0	2/3/2	2/2/2	2/2/2	1/0/0	0/0/0
11/04/2021	B	AL	14:30	17:30	3	3/4/4	NNW/NW/NW	0/2/0	3/4/4	2/2/2	2/2/2	0/0/0	0/0/0
27/04/2021	B	AL	10:30	13:30	3	4/4/5	NNE/NE/NNE	0/0/0	4/6/6	2/2/2	2/2/2	0/0/0	0/0/0

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Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
11/04/2021	C	KL	11:00	14:00	3	3/3/4	NNW/NW/NNW	0/0/0	2/3/2	2/2/2	2/2/2	1/0/0	0/0/0
11/04/2021	C	KL	14:30	17:30	3	3/4/4	NNW/NW/NW	0/2/0	3/4/4	2/2/2	2/2/2	0/0/0	0/0/0
27/04/2021	C	KL	10:30	13:30	3	4/6/6	NNE/NE/NNE	0/0/0	4/6/6	2/2/2	2/2/2	0/0/0	0/0/0
06/04/2021	D	GD	10:00	13:00	3	4/4/4	N/N/N	0/0/2	6/4/7	2/2/2	2/2/2	1/1/1	0/0/0
06/04/2021	D	GD	13:30	16:30	3	4/4/4	N/N/N	2/2/0	8/6/6	2/2/2	2/2/2	0/0/0	0/0/0
27/04/2021	D	KL	14:15	17:15	3	4/4/4	ENE/ENE/ENE	0/2/0	6/6/6	2/2/2	2/2/2	0/0/0	0/0/0
26/04/2021	E	KL	09:45	12:45	3	3/4/4	SW/SW/SW	2/2/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
26/04/2021	E	KL	13:15	16:15	3	5/4/2	SW/WSW/W	0/4/0	7/8/8	2/2/1	2/2/1	0/0/0	0/0/0
01/05/2021	E	JS	08:45	11:45	3	2/2/3	SE/ESE/SE	0/2/2	4/6/6	2/2/2	2/2/2	0/0/0	0/0/0
01/05/2021	A	JS	21:10	15:10	3	3/3/2	SE/SE/SE	0/0/0	7/8/7	2/2/2	2/2/2	0/0/0	0/0/0
01/05/2021	A	JS	15:40	18:40	3	1/1/1	SW/SW/W	0/0/0	6/5/3	2/2/2	2/2/2	0/0/0	0/0/0
14/03/2021	A	GH	10:00	13:00	3	3/3/3	ESE/S/S	0/0/0	7/7/8	2/2/2	2/2/2	0/0/0	0/0/0
22/05/2021	B	RT	06:30	09:30	3	1/1/1	W/W/E	0/0/0	0/0/1	2/2/2	2/2/2	1/1/0	0/0/0
22/05/2021	B	RT	10:00	13:00	3	1/2/2	W/W/W	0/0/0	3/4/4	2/2/2	2/2/2	0/0/0	0/0/0
26/05/2021	B	RT	12:00	15:00	3	1/1/1	WNW/WNW/WNW	0/0/1	7/7/8	2/2/2	2/2/2	0/0/0	0/0/0
22/05/2021	C	GH	06:20	08:20	3	2/3/3	NW/NW/N	0/0/0	0/0/4	2/2/2	2/2/2	0/0/0	0/0/0
22/05/2021	C	GH	09:50	12:50	3	3/4/4	NW/NW/WNW	0/0/0	5/7/8	2/2/2	2/2/2	0/0/0	0/0/0
26/05/2021	C	RT	16:00	19:00	3	1/2/1	NNW/NNW/NNW	0/1/0	4/7/4	2/2/2	2/2/2	0/0/0	0/0/0
24/05/2021	D	RT	13:20	16:20	3	4/4/4	WSW/WSW/WSW	1/1/0	8/8/8	1/1/2	2/2/2	0/0/0	0/0/0
31/05/2021	D	RT	13:45	16:45	3	5/5/5	SE/SE/SE	0/0/0	1/1/2	2/2/2	2/2/2	0/0/0	0/0/0
31/05/2021	D	RT	17:15	20:15	3	5/5/5	SE/SE/SE	0/0/0	4/2/0	2/2/2	2/2/2	0/0/0	0/0/0
04/05/2021	E	JS	06:35	09:35	3	3/3/3	N/N/NNW	0/0/0	8/8/7	1/1/2	2/2/2	0/0/0	0/0/0
04/05/2021	E	JS	10:05	13:05	3	7/6/7	NNW/NNW/N	0/0/0	7/6/7	2/2/2	2/2/2	0/0/0	0/0/0
14/05/2021	E	GH	06:30	09:30	3	2/2/2	E/SE/SE	0/0/0	3/3/6	2/2/2	2/2/2	0/0/0	0/0/0
11/06/2021	A	CG	14:00	17:00	3	3/3/4	SSW/SSW/SSW	0/0/1	8/8/8	2/1/1	2/2/1	0/0/0	0/0/0
14/06/2021	A	CG	09:20	12:20	3	3/3/3	W/W/W	0/0/0	8/6/8	2/2/2	2/2/2	0/0/0	0/0/0
14/06/2021	A	CG	12:50	15:50	3	3/3/2	W/W/W	0/0/0	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
02/06/2021	B	RT	11:10	14:10	3	5/5/6	E/E/E	0/0/0	1/1/1	2/2/2	2/2/2	0/0/0	0/0/0
17/06/2021	B	AJM	15:05	18:05	3	4/3/3	WNW/WNW/WNW	0/0/0	5/4/5	2/2/2	2/2/2	0/0/0	0/0/0

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Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
01/07/2021	B	AL	11:00	14:00	3	1/2/3	ESE/W/W	0/0/0	3/3/1	2/2/2	2/2/2	0/0/0	0/0/0
02/07/2021	C	RT	14:50	17:50	3	5/4/6	ESE/ESE/ESE	0/0/0	1/2/4	2/2/2	2/2/2	0/0/0	0/0/0
17/06/2021	C	AJM	11:25	14:25	3	3/3/4	W/W/WNW	0/0/0	5/5/4	2/2/2	2/2/2	0/0/0	0/0/0
01/07/2021	C	KL	11:00	14:00	3	1/2/3	ESE/W/W	0/0/0	3/3/1	2/2/2	2/2/2	0/0/0	0/0/0
17/06/2021	D	MW	19:30	22:30	3	3/3/3	W/W/W	0/1/0	6/7/6	2/1/1	2/2/2	0/0/0	0/0/0
18/06/2021	D	MW	04:05	07:05	3	0/0/1	-/-/NW	0/0/0	2/1/0	2/2/2	2/2/2	0/0/0	0/0/0
18/06/2021	D	MW	07:35	10:35	3	1/2/2	NW/NW/NW	0/0/0	0/0/0		2/2/2	0/0/0	0/0/0
03/06/2021	E	RT	13:45	16:45	3	6/5/5	ESE/ESE/ESE	0/0/0	8/8/7	2/2/2	2/2/2	0/0/0	0/0/0
03/06/2021	E	RT	17:15	20:15	3	3/3/4	ESE/ESE/SE	1/0/0	8/7/4	2/2/2	2/2/2	0/0/0	0/0/0
11/06/2021	E	CG	10:30	13:30	3	4/4/3	SW/SW/SW	0/0/1	8/8/8	2/2/1	2/2/1	0/0/0	0/0/0
07/07/2021	A	GP	10:00	13:00	3	3/3/3	W/W/W	0/0/0	8/7/5	1/2/2	2/2/2	0/0/0	0/0/0
07/07/2021	A	GP	13:30	16:30	3	4/4/4	W/W/W	0/0/0	5/5/7	2/2/2	2/2/2	0/0/0	0/0/0
25/07/2021	A	CG	16:00	19:00	3	2/2/1	S/S/S	0/0/0	4/5/5	2/2/2	2/2/2	0/0/0	0/0/0
02/07/2021	B	AL	13:30	16:30	3	3/3/3	E/SE/SE	0/0/0	5/4/4	2/2/2	2/2/2	0/0/0	0/0/0
31/07/2021	B	JS	12:00	15:00	3	2/3/4	NW/NW/NW	0/0/0	7/6/5	1/1/2	2/2/2	0/0/0	0/0/0
31/07/2021	B	JS	15:30	18:30	3	4/5/4	NW/NW/NW	0/0/0	3/2/2	1/2/2	2/2/2	0/0/0	0/0/0
02/07/2021	C	AL	10:00	13:00	3	2/3/4	SSE/SSE/SSE	0/0/0	1/6/7	2/2/2	2/2/2	0/0/0	0/0/0
31/07/2021	C	CG	12:00	15:00	3	0/0/0	NW/NW/NW	0/0/0	7/6/7	2/2/2	2/2/2	0/0/0	0/0/0
31/07/2021	C	CG	15:30	18:30	3	0/0/0	WNW/WNW/WNW	0/0/0	4/5/3	2/2/2	2/2/2	0/0/0	0/0/0
07/07/2021	D	AR	10:30	13:30	3	0/0/0	WSW/SW/SW	0/0/0	5/4/4	2/2/2	2/2/2	0/0/0	0/0/0
07/07/2021	D	AR	14:00	17:00	3	4/4/4	SW/SW/SW	0/0/0	5/6/6	2/2/2	2/2/2	0/0/0	0/0/0
22/07/2021	D	CG	14:30	17:30	3	1/1/2	SE/NW/NW	0/0/0	2/2/1	2/2/2	2/2/2	0/0/0	0/0/0
13/07/2021	E	CG	15:00	18:00	3	2/3/2	SW/SW/SW	0/0/0	8/7/8	2/2/2	2/2/2	0/0/0	0/0/0
02/07/2021	E	KL	09:35	12:35	3	2/2/3	SE/SE/SE	0/0/0	1/7/5	2/2/2	2/2/2	0/0/0	0/0/0
02/07/2021	E	KL	13:05	16:05	3	1/3/2	ESE/SE/SSW	0/0/0	5/2/3	2/2/2	2/2/2	0/0/0	0/0/0
09/08/2021	A	SM	12:55	15:55	3	2/3/3	WNW/WNW/NW	0/0/0	7/6/5	2/2/2	2/2/2	0/0/0	0/0/0
09/08/2021	A	SM	16:25	19:25	3	3/3/3	WNW/WNW/NW	0/0/0	7/6/6	2/2/2	2/2/2	0/0/0	0/0/0
25/08/2021	A	CG	09:00	12:00	3	0/1/1	-/N/N	0/0/0	0/0/0	-/-	2/2/2	0/0/0	0/0/0
19/08/2021	B	AR	11:50	14:50	3	2/2/3	WSW/SW/SW	0/0/0	8/7/7	2/2/2	2/2/2	0/0/0	0/0/0

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Date	VP	Surveyor	Start Time	Finish Time	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
19/08/2021	B	AR	15:20	18:20	2	3/4/4	SSW/W/W	0/0/0	7/6/6	2/2/2	2/2/2	0/0/0	0/0/0
26/08/2021	B	AR	13:00	16:00	3	2/3/3	S/SW/SW	0/0/0	3/3/5	2/2/2	2/2/2	0/0/0	0/0/0
19/08/2021	C	AJM	11:45	14:45	3	1/1/2	NW/NW/NW	0/0/0	7/8/7	1/2/2	2/2/2	0/0/0	0/0/0
19/08/2021	C	AJM	15:15	18:15	3	2/3/1	NW/NW/NNW	0/0/0	8/7/6	2/2/2	2/2/2	0/0/0	0/0/0
26/08/2021	C	AR	09:30	12:30	3	1/1/2	E/E/SN	0/0/0	1/1/2	2/2/2	2/2/2	0/0/0	0/0/0
09/08/2021	D	AR	13:10	16:10	3	4/4/4	W/SW/SW	0/0/0	5/4/5	2/2/2	2/2/2	0/0/0	0/0/0
09/08/2021	D	AR	16:40	19:40	3	4/4/3	SW/SW/SW	0/0/0	4/5/5	2/2/2	2/2/2	0/0/0	0/0/0
26/08/2021	D	GP	12:50	15:50	3	1/1/1	E/W/W	0/0/0	1/2/3	2/2/2	2/2/2	0/0/0	0/0/0
18/08/2021	E	AJM	12:50	15:50	3	4/4/4	WNW/WNW/NW	2/1/0	8/8/8	1/1/2	2/1/2	0/0/0	0/0/0
18/08/2021	E	AJM	16:20	19:20	3	4/4/4	NW/NW/NW	0/0/0	7/7/6	2/2/2	2/2/2	0/0/0	0/0/0
26/08/2021	E	GP	09:10	12:10	3	1/1/1	NW/NW/NW	0/0/0	0/0/0	2/2/2	2/2/2	0/0/0	0/0/0

Table A2.2: MBBS effort.

When only one value is given this was the weather condition for the whole survey period.

Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost / Snow
23/04/2019	DH	08:30	15:30	4/3/3/4/4/4/4	E	0/0/0/0/0/0/0	8/5/6/6/7/6/6	2/2/2/2/2/2/2	2	0/0/0/0/0/0/0
24/04/2019	DH	08:00	11:00	4/3/4/	E	0/0/0	6/4/5/	2/2/2/	2	0/0/0/
23/04/2019	TB	08:30	15:00	4/4/4/3/3/4	E	0/0/0/0/0/0	8/6/6/7/8/6	2/2/2/2/2/2/2	2	0/0/0/0/0/0
24/04/2019	TB	08:00	12:45	4/4/4/4/4	E	0/0/0/0/0/	5/4/5/3/2	2/2/2/2/2	2	0/0/0/0/0
29/05/2019	GP	08:45	17:45	2/2/3/3/2/2	SSE/SSE/SE/SE/SE/	0/0/0/0/0/0	8/8/8/8/8/8	2/2/2/2/2/2	2	0/0/0/0/0/0
29/05/2019	RI	08:30	14:30	2/2/2/2/3/3	SE/SE/SSE/SSE/SSE	0/0/0/0/0/0	6/7/7/8/7/8	2/2/2/2/2/2	2	0/0/0/0/0/0
29/05/2019	AR	09:00	18:00	2/2/1/2/2/3	S/S/S/SW/SW	0/0/0/0/1/1	6/7/6/6/8/8	2/2/2/2/2/2	2	0/0/0/0/0/0
27/06/2019	RI	08:15	14:15	0/0/0/0/1/1	-/-/-/-SSW/SSW	0/0/0/0/0/0	0/0/0/0/0/0	2/2/2/2/2/2	2	0/0/0/0/0/0
27/06/2019	CG	08:30	14:30	1/1/1/1/1/1	NNW	0/0/0/0/0/0	0/0/0/0/0/0	-/-/-/-/-/-/-	2	0/0/0/0/0/0
27/06/2019	EM	07:20	14:20	1/1/2/2/1/1/1	W	0/0/0/0/0/0/0	0/0/1/0/0/0/0	-/-/-2/-/-/-/-	2	0/0/0/0/0/0/0
25/07/2019	AR	08:30	17:30	2/3/3/2/1/2	SW	0/0/0/0/0/0	5/4/3/3/2/3	2/2/2/2/2/2	2	0/0/0/0/0/0
25/07/2019	CG	08:45	17:45	3/3/4/4/4/4	SE	0/0/0/0/0/0	3/4/3/2/3/5	2/2/2/2/2/2	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
25/07/2019	RI	08:30	14:20	4/4/4/4/4/4	SSE/SE/SSE/SE/SE/SE	0/0/0/0/0/0	5/4/4/4/3/3	2/2/2/2/2/2	2	0/0/0/0/0/0
22/04/2020	AR	08:30	14:30	3/3/2/2/3/4	E/E/E/E/E/ESE	0/0/0/0/0/0	3/2/2/1/1/2	2/2/2/2/2/2	2	0/0/0/0/0/0
22/04/2020	CG	08:30	14:30	3/3/4/4/3/3	E/ESE/ESE/ESE/ESE	0/0/0/0/0/0	3/2/2/3/3/3	2/2/2/2/2/2	2	0/0/0/0/0/0
24/04/2020	AR	09:00	15:00	2/2/3/2/3/3	SE/SE/SE/SE/S/SE	0/0/0/0/0/0	1/1/3/3/4/4	2/2/2/2/2/2	2	0/0/0/0/0/0
11/05/2020	CG	09:00	15:00	1/2/3/3/3/3	NNW	0/0/0/0/0/0	1/2/2/5/4/5	2/2/2/2/2/2	2	0/0/0/0/0/0
11/05/2020	AR	08:30	14:30	3/3/2/2/2/3	NE/NE/NE/ENE/NE/NE	0/0/0/0/0/0	4/4/4/3/3/3	2/2/2/2/2/2	2	0/0/0/0/0/0
12/05/2020	AR	08:30	14:30	4/3/3/2/3/3	NNE/NE/NE/N/N/N	0/0/0/1/1/0	8/7/6/4/6/7	2/2/2/2/2/2	2	0/0/0/0/0/0
11/06/2020	AR	08:30	14:30	2/2/3/3/2/2	SW/SW/SW/NE/ENE/NE	0/0/0/0/0/0	4/3/2/2/2/2	2/2/2/2/2/2	2	0/0/0/0/0/0
11/06/2020	CG	08:30	14:30	3/3/2/3/2/2	NE/NE/NE/E/E/E	0/0/0/0/0/0	8/5/6/6/4/3	2/2/2/2/2/2	2	0/0/0/0/0/0
12/06/2020	AR	08:30	14:30	1/1/1/2/3/2	NE/E/E/SW/SW/SW	0/0/0/0/0/0	3/3/2/2/4/3	2/2/2/2/2/2	2	0/0/0/0/0/0
12/07/2020	CG	09:30	15:30	2/2/2/2/2/2	WSW	0/0/0/0/0/0	7/6/5/5/5/7	2/2/2/2/2/2	2	0/0/0/0/0/0
12/07/2020	AR	08:30	14:30	2/2/2/1/2/3	SW	0/0/0/0/1/0	7/5/4/3/3/6	2/2/2/2/2/2	2	0/0/0/0/0/0
21/07/2020	AR	08:30	14:30	3/2/2/2/3/3	SW	0/0/0/0/0/0	6/6/4/4/5/6	2/2/2/2/2/2	2	0/0/0/0/0/0
29/04/2022	JS	09:15	13:55	1/1/1/1/2	S/S/SW/SW/WSW	0/0/0/0/0	5/6/2/3/3	2/2/2/2/2	2/2/2/2/2	0/0/0/0/0
16/05/2022	CG	08:00	14:00	3/3/4/3/2/2	ESE/ESE/ESE/ESE/ESE	0/1/1/0/1/0	8/8/8/8/8/8	2/2/2/2/2/2	2/2/2/2/2/2	0/0/0/0/0/0
18/06/2022	GH	08:00	14:00	3/3/4/4/4/3	WSW/WSW/WSW/WSW/WSW/WSW	0/0/0/0/0/1	5/4/4/4/2/4	2/2/2/2/2/2	2/2/2/2/2/2	0/0/0/0/0/0
22/07/2022	JS	08:00	12:20	2/2/3/3/1	SE/SE/SE/SSE	0/0/0/0/0	8/8/8/8/8	2/2/2/2/2	2/2/2/2/2	0/0/0/0/0

Table A2.3: Annex 1/Schedule 1 breeding raptor and owl search effort.

When only one value is given this was the weather condition for the whole survey period. For the 'Frost/Snow' column, the value given is for frost where '(f)' stated and snow when '(s)' stated. If '0' stated this is for both frost and snow.

Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost / Snow
27/02/2019	TL	08:00	14:35	1/1/2/2/2/2	SW	0	0/0/0/1/3/6/6	-/-/-2/2/2/2	2/2/2/2/2/2	1/1/1/0/0/0/0 (f)
27/02/2019	SP	15:00	18:10	2/2-3/1-2/1-2	W	0	8/8/8/8	2/2/2/2	2/2/2/2	0
01/03/2019	TL	07:20	14:25	3/3/3/3	E	0	8/8/8/8	1/1/1/1	2/2-1/2/2-1	0
01/03/2019	SP	14:25	15:00	3	E	0	8	1	1-0	0

Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost/Snow
05/03/2019	SP	12:00	18:20	1-2/1-2/1/1/2/1	SE	0	8/8/8/8/8/5	2/2/2/2/2/2	2/2/2/2/2/2	2 (s)
08/03/2019	TL	06:30	09:30	4/4/4-5	S	0/0/3-4	4/8/8	2/1/1/	2/2/2	0/0/2 (s)
25/03/2019	TL	09:00	15:30	4/4/4/4/4/4	NW	0	7/7/6/7/8/8/	2/2/2/2/2/2	2/2/2/2/2/2	0
25/03/2019	SP	16:15	19:15	3/3/3	WSW	0	8/8/8	2/2/2	2/2/2	0
28/03/2019	TL	08:30	11:30	3/3/3	SW	0	8/8/8	2/2/2	2/2/2	0
26/04/2019	TB/DH	10:30	13:30	2/2/3	E	0/0/0	7/7/7	1/1/2	2/2/2	0
08/05/2019	AL/KL	09:15	15:15	3/2/4/4/4/2	NE	0/0/0/0/5/0	3/5/8/6/8/8	2/2/2/2/2/2	2/2/2/2/2/2	0
13/06/2019	PC	16:05	19:05	2/2/2	N	0/2/2	8/8/8	2/2/2	2/2/2	0
26/06/2019	CG	10:15	17:00	1/2/2/2/1/1/1	E	0	0/0/0/0/0/0/0	1-1-1-1-1-1-1	2/2/2/2/2/2/2	0
30/06/2019	RI	09:30	10:30	4	SW	2	8	1	0	0
30/06/2019	CG	09:30	15:30	1/2/2/2/2/2	SE	0/2/2/0/0/1	8/8/8/8/8/8	2/2/2/2/2/2	2/2/2/2/2/2	0
23/07/2019	RI	16:30	19:30	5/5/5	S	0/0/0	2/1/1	2/2/2	2/2/2	0
02/07/2019	PC	12:00	18:00	3/4/4/4/4/4	W	2/0/0/0/0/0	8/6/7/7/6/6	2/2/2/2/2/2	2/2/2/2/2/2	0
25/07/2019	AR	08:30	17:30	2/2/1	SW	0/0/0	4/3/3	2/2/2	2/2/2	0
27/07/2019	CG	10:20	16:20	1/1/0/0/0/0	NE/NE/-1-1-1-	0/0/0/2/1/1	8/8/8/8/8/8	2/2/2/2/2/2	2/2/2/2/2/2	0
27/07/2019	AR	10:30	16:30	3/3/3/4/3/3	SW	0/0/1/0/0/1	7/7/8/8/8/8	2/2/2/2/2/1	2/2/2/2/2/2	0
13/02/2020	PC	10:00	16:00	4/4/4/4/4/3	NNE	0	7/7/6/5/3/1	2/2/2/2/2/2	2/2/2/2/2/2	1 (s)
19/02/2020	AL	07:30	10:30	3/3/3	SW	3/0/1	8/8/8	2/2/1	2/2/2	1 (s)
20/02/2020	AL/KL	12:30	13:30	4	W	2	4	2	2	0
20/02/2020	KL	14:30	15:15	2	SW	2	6	2	2	0
20/02/2020	AL	14:15	15:30	2	SW	2	6	2	2	0
26/02/2020	AJM	10:00	16:10	2/2/3/3/3/4	WNW	0	4/5/5/5/6/6	2/2/2/2/2/2	2/2/2/2/2/2	1 (s)
05/03/2020	PC	09:45	15:45	2/3/3/3/3/3	SW	0/0/2/2/0/0	7/7/7/7/6/8	2/2/2/2/2/2	2/2/2/2/2/2	1 (s)
13/03/2020	AR	08:30	15:30	4/5/5/4/4/4/4	SE	0	5/4/2/3/4/3/4	2/2/2/2/2/2/2	2/2/2/2/2/2/2	2 (s)
23/04/2020	CG	09:50	15:50	0/0/0/0/0/0	-	0	0/0/0/0/0/0	1-1-1-1-1-1	2/2/2/2/2/2	0
23/04/2020	AR	09:50	15:50	3/2/2/2/3/3	SE	0	3/3/3/4/4/5	2/2/2/2/2/2	2/2/2/2/2/2	0
25/04/2020	AR	09:00	15:00	2/3/3/3/4/3	NW	0	1/1/2/3/3/3	2/2/2/2/2/2	2/2/2/2/2/2	0

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Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost/Snow
25/04/2020	CG	09:00	12:00	0/1/1	-/SW/SW	0	0/0/0	1-1-1-1	2/2/2	0
06/05/2020	AR	10:00	16:00	2/2/3/3/2/1	E/SE/ESE/SE/SE/SE	0	0/0/0/0/1/1	2/2/2/2/2/2	2/2/2/2/2/2	0
06/05/2020	CG	10:00	16:00	2/1/3/3/2/1	E/SE/SE/SE/SE/SE	0	0/0/0/0/1/1	1-1-1-1/2/2	2/2/2/2/2/2	0
26/05/2020	AL/KL	10:30	16:30	2/1/4/4/4/4	WSW	0	5/4/4/5/4/3	2/2/2/2/2/2	2/2/2/2/2/2	0
19/06/2020	AR	10:00	16:00	3/3/2/3/2/4	S/S/S/S/SW/SW	0	8/8/7/6/4/3	1/2/2/2/2/2	2/2/2/2/2/2	0
25/06/2020	AR	06:15	09:15	3/2/2	ENE/ENE/ENE	1/1/0	4/5/4	2/2/2	2/2/2	0
25/06/2020	AR	13:15	16:15	2/2/2	E/E/E	0/1/0	3/4/4	1/2/2	2/2/2	0
25/06/2020	CG	09:15	12:15	2/1/2	SE/SE/SE	0	4/1/1	2/2/2	2/2/2	0
02/07/2020	PC	09:40	12:40	2/2/2	E/S/S	0	8/7/7	2/2/2	2/2/2	0
20/07/2020	AL/KL	07:45	13:45	2/1/3/2/2/2	W	0/2/2/0/2/2	7/8/5/5/5/5	2/1/2/2/1/2	2/2/2/2/2/2	0
29/07/2020	CG	10:15	16:15	2/2/2/2/2/1	WNW	1/0/0/0/0/0	8/8/7/6/6/7	2/2/2/2/2/2	2/2/2/2/2/2	0
29/07/2020	AR	14:15	17:15	2/3/3	W	0	5/5/6	2/2/2	2/2/2	0
09/02/2021	PC	09:00	15:00	4/4/4/4/4/4	NNE	0	2/3/3/3/1/1	2/2/2/2/2/2	2/2/2/2/2/2	2 (s)
17/02/2021	KL	09:00	15:00	4/3/3/3/3/4	S/SSW/SSW/S/S/S	0/0/0/0/0/2	5/4/5/5/6/8	2/2/2/2/2/2	2/2/2/2/2/2	2 (s)
25/02/2021	PC	08:20	11:20	4/4/4	SSW/SSW/SSW	3/0/0	7/7/7	2/2/2	2/2/2	0
25/02/2021	PC	14:45	18:00	4/4/4/4	SW/SW/SW/SW	0	7/7/7/7	2/2/2/2	2/2/2/2	0
02/03/2021	CG	14:00	17:00	1/0/0	E/-/-	0	0/0/1	-1/2	2/2/2	0
02/03/2021	AR	14:00	17:00	0/0/0	1-1-1-1	0	0/0/2	-1/2	2/2/2	0
16/03/2021	AR	08:30	11:30	4/4/4	NW/NW/WNW	0	5/2/1	2/2/2	2/2/2	0
18/03/2021	CG	08:00	11:00	2/2/2	NW/NW/WNW	0	8/8/8	1/1/1	1/2/2	0
21/03/2021	AR	08:55	11:55	4/4/4	W/W/WNW	0	6/6/7	2/2/2	2/2/2	0
21/03/2021	CG	09:00	12:00	1/1/1	SW/SW/SW	0	8/8/8	2/2/2	2/2/2	0
27/03/2021	AR	09:30	15:30	2/2/3/5/4/4	SW	0/0/0/2/2/0	2/2/3/5/7/7	2/2/2/2/2/2	2/2/2/2/2/2	2/2/2/1/1/1 (f)
27/03/2021	GP	09:00	15:30	3/2/3/3/4/5	SW	0	6/7/8/8/8/8	2/2/2/2/2/2	2/2/2/2/2/2	0
09/04/2021	PC	07:50	13:50	2/2/3/3/3	NW	0/0/0/0/2	1/2/4/5/5	2/2/2/2/2/2	2/2/2/2/2/2	0
26/04/2021	AL	09:45	15:45	2/3/2/4/3/2	WSW	2/2/0/0/2/0	7/8/7/7/8/8	2/2/2/2/1/2	2/2/2/2/2/2	0
14/04/2021	AL/KL	10:00	16:00	1/0/1/1/1/2	SSE/-/SSE/SE/SE/WNW	0	2/2/3/3/3/4	2/2/2/2/2/2	2/2/2/2/2/2	0
14/05/2021	CG	06:30	12:30	2/2/3/3/3/3	E/SSE/SE/SE/E/E	0	3/4/6/7/7/8	2/2/2/2/2/2	2/2/2/2/2/2	0
24/05/2021	AL/KL	09:30	15:30	2/2/4/2/3/2	W	2/2/2/2/3/0	8/8/7/7/8/8	2/1/1/1/1/2	2/2/2/2/2/2	0

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Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost/Snow
02/06/2021	CG	10:00	16:00	3/3/3/3/3/3	ESE	0	2/2/2/2/3/3	2/2/2/2/2/2	2/2/2/2/2/2	0
17/06/2021	MW	16:30	19:30	2/2/2	W	0	4/4/5	2/2/2	2/2/2	0
21/06/2021	AL	09:45	15:45	3/3/2/1/2/1	N(3)/SSW(1)WNW(2)	0	2/2/3/3/3/3	2/2/2/2/2/2	2/2/2/2/2/2	0
26/06/2021	KL	08:00	11:00	2/1/1	SSW	0/2/2	8/8/8	1/1/1	2/1/1	0
01/07/2021	AL	14:00	17:00	3/3/2	WSW	0	0/0/1	-/-/2	2/2/2	0
01/07/2021	KL	14:00	17:00	3/3/2	WSW	0	0/0/1	-/-/2	2/2/2	0
22/07/2021	CG	08:30	14:30	1/1/0/1/2/1	SE	0/0/0/0/0/0	0/0/0/1/1/2	2/2/2/2/2/2	2/2/2/2/2/2	0
28/07/2021	JS	11:55	17:55	3/3/3/3/3/3	SW	1/1/1/2/2/0	8/8/8/8/8/7	0/0/0/0/0/1	2/2/2/2/2/2	0
31/07/2021	JS	09:00	12:00	2/2/2	NW	0	8/8/8	0/1/1	2/2/2	0
31/07/2021	CG	09:00	12:00	2/2/3	NW	0	8/7/5	1/1/2	2/2/2	0
18/08/2021	AR	12:30	18:30	4/4/4/3/4/3	WNW	2/1/1/0/0/0	8/8/8/7/7/7	1/1/2/2/2/2	1/1/2/2/2/2	0

Table A2.4 Breeding black grouse search effort.

Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow
27/03/2019	TL	05:15	08:15	3/3/3	W/W/W	0/0/0	8/8/8	2/2/2	2/2/2/	0/0/0	0/0/0
29/03/2019	RL	05:15	08:15	2/2/2	SW/SW/SW	0/0/0	8/8/8	2/2/2	2/2/2/	0/0/0	0/0/0
29/03/2019	SP	05:15	08:15	1-2/2	SW/SW/SW	0/0/0	8/8/8	2/2/2	2/2/2/	0/0/0	0/0/0
25/04/2019	TB	05:00	08:00	2/2/3	E/E/E	0/0/0	8/8/7	1/1/1	2/2/2	0/0/0	0/0/0
25/04/2019	DH	05:00	08:00	2/3/3	E/E/SE	0/0/0	8/7/8	1/1/0	2/2/0	0/0/0	0/0/0
20/03/2020	AR	05:50	08:50	1/2/2	NE/ENE/E	0/0/0	1/1/1	2/2/2	2/2/2	1/1/1	0/0/0
20/03/2020	GP	05:50	08:50	2/2/2	E/E/E	0/0/0	0/0/0	-/-/-	2/2/2	1/1/1	0/0/0
26/03/2020	AR	05:30	08:30	2/2/3	NE/NE/NE	0/0/1	7/7/7	2/2/2	2/2/2	0/0/0	0/0/0
26/03/2020	GP	05:30	08:30	1/2/2	N/N/N	0/2/0	8/8/8	2/1/1	2/2/2	0/0/0	0/0/0
24/04/2020	CG	05:20	08:20	1/1/0	E/E/-	0/0/0	3/3/2	2/2/2	2/2/2	0/0/0	0/0/0
24/04/2020	AR	05:20	08:20	2/1/2	SE/SE/SE	0/0/0	2/3/3	2/2/2	2/2/2	0/0/0	0/0/0
26/04/2020	AR	05:45	08:45	3/2/2	NW/NW/NW	1/0/1	4/5/5	2/2/2	2/2/2	0/0/0	0/0/0
26/04/2020	CG	05:30	08:30	1/2/2	NW/NW/NW	0/0/0	6/7/8	2/2/2	2/2/2	0/0/0	0/0/0
16/05/2022	CG	04:30	07:30	3/3/3	SSE/ESE/ESE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0

Table A2.5 Breeding diver search effort.

When only one value is given this was the weather condition for the whole survey period.

Date	Surveyor	Start Time	Finish Time	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost/Snow
04/06/2019	RI	08:00	09:00	1	WSW	4	8	0	0	0
06/06/2019	RI	12:40	18:40	2/3/3/3/3/4	NE/SSW/SSW/SW/SW/SW	0/0/0/0/0/0	8/7/6/4/4/5	1/2/2/2/2/2	2/2/2/2/2/2	0
13/06/2019	AJM	15:55	19:05	2/2/2/2	NNW/NNW/NNW/NNW	0/0/0/0	8/8/8/7	2/2/2/2	2/2/2/2	0
23/07/2019	RI	09:55	15:55	4/5/5/5/5/5	SSW/S/SSE/SSE/SSE/S	0/0/0/0/0/0	8/8/8/7/6/6	1/1/2/2/2/2	2/2/2/2/2/2	0
02/06/2020	AR	08:00	14:00	2/2/3/3/3/2	SE/SE/SE/SE/SE	1/1/0/1/0/0	0/0/0/0/0/0	1/1/2/2/2/2	2/2/2/2/2/2	0
02/06/2020	CG	08:00	14:00	2/2/1/2/1/1	S/SSW/SSW/S/SSW/S	0/0/0/0/0/0	5/4/6/5/5/6	2/2/2/2/2/2	2/2/2/2/2/2	0
03/06/2020	AR	18:00	21:00	3/4/4	ESE/ESE/SE	1/0/0	3/4/5	2/2/2	2/2/2	0
03/06/2020	CG	17:30	20:30	2/2/2	NW/NW/NW	0/0/0	5/4/5	2/2/2	2/2/2	0
28/07/2020	CG	17:00	20:00	4/3/4	W/W/W	0/0/0	7/8/8	2/2/2	2/2/2	0
28/07/2020	AR	17:00	20:00	4/3/3	WNW/WNW/WNW	0/0/1	7/7/7	2/2/2	2/2/2	0
30/07/2020	CG	08:00	14:00	2/2/2/2/2/2	W/WNW/W/W/W/WNW	1/1/1/1/1/1	8/8/8/8/8/8	2/2/2/2/2/2	2/2/2/2/2/2	0
30/07/2020	AR	08:00	14:00	4/3/3/2/3/3	SE/SE/SE/ESE/E/E	2/1/1/1/2/2	8/8/8/8/8/7	2/2/2/2/1/2	2/2/2/2/2/2	0
04/09/2020	AR	09:00	15:00	4/4/4/4/4/4	NW/NW/WNW/W/W/W	0/2/2/1/0/1	8/6/6/4/4/6	2/2/1/1/2/2	2/2/2/2/2/2	0



#### ANNEX 4: VP FLIGHT ACTIVITY SURVEY: TARGET SPECIES FLIGHTS

**Table A4.1** presents details of target species flight lines recorded during VP flight activity surveys between February 2019 and August 2021. The species, number of birds, total flight duration (no. of birds multiplied by duration) and duration spent at each height band (HT) is presented.

Note that the flights in **Table A4.1** refer to all target species flights recorded over the course of surveys, and not just those flights identified as “at collision risk” to the Proposed Development.

The following height bands were used to record the flight height above the ground of target species in the field:

- February to March 2019: HT1 <20m, HT2 21-150m, HT3 >150m; and,
- April 2019 onwards: HT1 0-10m, HT2 10-25m, HT3 25-150m, HT4 >150m.

The following British Trust for Ornithology (BTO) Species Codes are used to denote species: WE – White-tailed eagle, PE – Peregrine, EA – Golden eagle, ML – Merlin, HH – Hen harrier, RH – Red-throated diver, OP – Osprey, H. – Grey heron, RK – Redshank, SN – Snipe, L. – Lapwing, DN – Dunlin, CU – Curlew, KT – Red kite, WS – Whooper swan, GJ – Greylag goose, WK – Woodcock and GD – Goosander.

**Table A4.1: Target species flights (February 2019 to August 2021).**

Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
27/02/2019	A	WE	2	14:01	600	0	0	600	0
27/02/2019	A	PE	1	16:44	70	70	0	0	0
28/02/2019	B	EA	1	09:42	140	15	125	0	0
28/02/2019	C	EA	1	09:38	220	40	180	0	0
28/02/2019	C	EA	2	14:04	12	12	0	0	0
28/02/2019	C	EA	1	14:12	3	3	0	0	0
28/02/2019	C	EA	1	15:11	5	5	0	0	0
25/03/2019	A	EA	1	16:58	580	390	180	10	0
25/03/2019	A	EA	1	17:07	70	0	30	40	0
25/03/2019	A	EA	1	17:58	310	55	255	0	0
28/03/2019	A	EA	1	08:47	30	30	0	0	0
28/03/2019	A	EA	1	08:49	900	0	900	0	0
28/03/2019	A	EA	1	09:07	10	10	0	0	0

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
28/03/2019	A	EA	7	09:32	90	0	90	0	0
28/03/2019	A	EA	1	10:32	1	1	0	0	0
28/03/2019	A	EA	1	10:44	1	1	0	0	0
28/03/2019	A	EA	1	10:46	35	15	20	0	0
29/03/2019	B	RH	1	09:23	170	0	0	170	0
29/03/2019	B	EA	1	09:59	180	0	60	120	0
27/03/2019	C	EA	1	10:12	160	115	45	0	0
05/03/2019	D	EA	1	16:26	75	15	60	0	0
05/03/2019	D	EA	1	16:32	30	30	0	0	0
05/03/2019	D	EA	1	16:34	20	20	0	0	0
05/03/2019	D	EA	1	16:38	15	15	0	0	0
25/03/2019	D	EA	1	10:08	10	10	0	0	0
25/03/2019	D	EA	1	10:17	310	40	270	0	0
25/03/2019	D	EA	2	10:30	10	10	0	0	0
25/03/2019	D	EA	2	10:32	480	0	270	210	0
25/03/2019	D	EA	1	11:14	10	10	0	0	0
25/03/2019	D	EA	1	11:16	480	0	450	30	0
25/03/2019	D	EA	1	13:11	160	15	145	0	0
25/03/2019	D	EA	1	13:21	360	0	360	0	0
25/03/2019	D	WE	1	14:58	250	0	250	0	0
25/03/2019	D	WE	2	15:11	480	0	480	0	0
25/03/2019	D	WE	1	15:19	130	0	130	0	0
25/03/2019	D	EA	1	15:22	10	10	0	0	0
25/03/2019	D	EA	1	15:30	205	15	190	0	0
24/04/2019	A	ML	1	12:06	30	30	0	0	0
24/04/2019	A	WE	1	13:28	90	0	0	15	75
24/04/2019	A	HH	1	16:22	30	30	0	0	0
25/04/2019	B	HH	1	09:13	60	45	15	0	0

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
25/04/2019	B	HH	1	10:20	120	120	0	0	0
25/04/2019	B	RH	1	12:11	60	45	15	0	0
25/04/2019	B	RH	1	12:17	50	35	15	0	0
25/04/2019	B	HH	1	13:02	90	90	0	0	0
25/04/2019	D	OP	1	12:10	300	30	0	270	0
25/04/2019	D	OP	1	12:16	30	0	0	30	0
17/05/2019	A	WE	1	09:59	720	0	0	135	585
17/05/2019	A	WE	1	10:01	615	0	0	60	555
29/05/2019	A	WE	1	15:35	10	10	0	0	0
29/05/2019	A	WE	1	17:01	65	65	0	0	0
29/05/2019	A	WE	1	17:04	60	60	0	0	0
29/05/2019	A	HH	1	17:25	95	95	0	0	0
29/05/2019	B	RH	1	15:22	36	6	30	0	0
29/05/2019	B	RH	1	15:41	49	19	30	0	0
29/05/2019	B	RH	1	16:09	32	0	2	30	0
29/05/2019	B	RH	1	16:28	51	30	21	0	0
09/05/2019	C	WE	1	11:02	90	90	0	0	0
17/05/2019	D	RH	1	11:02	54	0	9	45	0
17/05/2019	D	WE	1	14:22	243	0	60	168	15
29/05/2019	D	WE	1	14:34	5	5	0	0	0
29/05/2019	D	WE	1	15:01	30	15	15	0	0
29/05/2019	D	WE	1	15:40	240	0	30	45	165
29/05/2019	D	WE	1	15:43	30	0	0	0	30
29/05/2019	D	WE	1	15:50	240	0	0	0	240
29/05/2019	D	WE	3	15:55	210	0	15	30	165
26/06/2019	A	HH	1	11:06	80	80	0	0	0
26/06/2019	A	WE	1	14:21	180	0	0	30	150
26/06/2019	A	WE	1	14:28	40	40	0	0	0

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
26/06/2019	A	WE	3	14:39	220	0	30	120	70
26/06/2019	A	WE	1	15:10	50	50	0	0	0
26/06/2019	A	EA	1	16:49	135	0	0	135	0
27/06/2019	A	WE	1	16:43	90	90	0	0	0
13/06/2019	B	H.	1	12:16	67	0	0	67	0
26/06/2019	B	WE	1	11:01	60	30	30	0	0
26/06/2019	B	WE	1	12:12	315	0	105	210	0
26/06/2019	B	WE	1	12:12	765	0	60	435	270
26/06/2019	B	WE	1	12:14	645	0	0	375	270
26/06/2019	B	EA	1	12:30	285	0	0	0	285
26/06/2019	B	WE	1	14:40	420	0	0	255	165
26/06/2019	B	WE	1	14:40	240	0	0	240	0
26/06/2019	B	EA	1	14:41	360	0	0	255	105
06/06/2019	C	HH	1	14:47	49	49	0	0	0
06/06/2019	C	WE	1	17:54	30	15	15	0	0
06/06/2019	C	EA	2	18:37	47	47	0	0	0
13/06/2019	C	HH	1	14:46	110	50	15	45	0
13/06/2019	C	HH	1	14:47	45	45	0	0	0
27/06/2019	D	HH	1	15:31	132	132	0	0	0
27/06/2019	D	WE	1	17:35	13	13	0	0	0
27/06/2019	D	WE	1	17:52	345	15	15	45	270
27/06/2019	D	OP	2	17:53	300	0	0	15	285
17/07/2019	A	RH	1	08:22	75	0	0	75	0
26/07/2019	A	WE	1	15:11	101	0	0	26	75
26/07/2019	A	WE	1	15:11	103	0	0	28	75
26/07/2019	A	WE	1	09:29	139	0	60	79	0
23/07/2019	C	RH	1	10:03	45	15	0	30	0
23/07/2019	C	RH	2	10:36	33	0	0	33	0

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
13/07/2019	C	WE	1	11:14	197	47	45	60	45
13/07/2019	C	WE	1	11:22	291	126	165	0	0
13/07/2019	C	WE	1	11:41	361	0	0	45	316
13/07/2019	C	WE	1	11:52	589	75	60	30	424
13/07/2019	C	WE	2	14:27	10	10	0	0	0
02/07/2019	C	WE	1	15:06	240	15	45	30	150
25/07/2019	D	OP	1	16:25	72	15	57	0	0
26/07/2019	D	WE	1	13:24	61	15	46	0	0
26/07/2019	D	WE	2	15:03	291	0	15	135	141
23/08/2019	A	EA	1	12:16	141	0	141	0	0
23/08/2019	A	EA	1	12:55	238	0	73	75	90
23/08/2019	A	EA	1	13:19	753	0	90	90	573
24/08/2019	B	RH	2	08:22	25	15	10	0	0
23/08/2019	B	RH	2	10:13	131	30	30	45	26
23/08/2019	B	ML	1	11:03	30	0	30	0	0
23/08/2019	B	EA	1	11:49	305	60	105	105	35
29/08/2019	C	EA	2	15:04	190	0	0	190	0
23/08/2019	D	EA	1	13:29	78	0	0	0	78
23/08/2019	D	EA	1	13:32	187	37	15	60	75
23/08/2019	D	ML	1	13:44	51	51	0	0	0
19/08/2019	D	WE	1	14:18	441	6	30	330	75
06/09/2019	B	RK	4	09:59	17	17	0	0	0
06/09/2019	B	EA	1	14:26	117	60	57	0	0
06/09/2019	D	WE	1	09:26	41	41	0	0	0
06/09/2019	D	WE	1	09:38	177	30	147	0	0
06/09/2019	D	WE	1	11:04	234	189	45	0	0
06/09/2019	D	HH	1	13:00	93	93	0	0	0
02/10/2019	B	EA	1	15:06	63	18	30	15	0

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
02/10/2019	B	EA	1	15:14	19	0	0	19	0
25/10/2019	D	ML	1	16:29	78	78	0	0	0
25/10/2019	D	WS	11	10:37	98	15	83	0	0
15/11/2019	B	GJ	12	10:41	283	0	90	163	30
15/11/2019	C	GJ	9	09:45	120	0	0	0	120
28/12/2019	B	WE	1	13:48	72	45	27	0	0
18/02/2020	A	WE	2	10:18	300	0	90	195	15
18/02/2020	A	WE	1	12:24	360	0	0	360	0
18/02/2020	A	WE	1	12:24	195	0	0	195	0
18/02/2020	A	WE	1	13:11	540	0	0	450	90
18/02/2020	A	EA	2	13:31	135	45	15	30	45
18/02/2020	A	EA	1	14:48	300	0	30	270	0
19/02/2020	A	EA	1	07:50	15	0	0	15	0
05/02/2020	B	EA	1	14:07	194	59	75	60	0
05/02/2020	B	EA	1	14:10	178	28	120	30	0
05/02/2020	B	EA	1	14:26	67	37	30	0	0
05/02/2020	B	EA	1	14:35	205	10	60	135	0
20/02/2020	B	EA	1	11:03	60	0	0	60	0
05/02/2020	D	EA	1	14:28	266	0	56	75	135
05/02/2020	D	EA	1	14:32	57	0	57	0	0
05/02/2020	D	EA	1	14:37	310	0	55	255	0
18/02/2020	D	WE	2	12:25	90	0	30	60	0
18/02/2020	D	WE	1	12:41	30	0	0	30	0
20/03/2020	A	RH	1	09:20	120	0	15	45	60
20/03/2020	A	EA	1	11:38	30	0	0	30	0
19/03/2020	B	EA	1	16:15	60	15	30	15	0
19/03/2020	C	WE	2	10:21	315	0	0	75	240
19/03/2020	C	EA	1	10:22	95	0	0	15	80

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
19/03/2020	C	HH	1	10:51	70	70	0	0	0
19/03/2020	C	EA	1	10:53	85	0	0	85	0
19/03/2020	C	WE	2	12:47	400	0	0	0	400
20/03/2020	D	WE	1	09:28	192	57	135	0	0
20/03/2020	D	EA	2	10:21	177	0	0	42	135
20/03/2020	D	EA	1	10:21	212	2	30	15	165
20/03/2020	D	EA	1	10:21	497	17	15	135	330
20/03/2020	D	EA	1	11:24	368	38	150	135	45
20/03/2020	D	EA	1	11:49	136	15	76	45	0
20/03/2020	D	EA	1	11:55	49	0	49	0	0
20/03/2020	D	EA	1	13:13	188	23	15	60	90
20/03/2020	D	WE	1	13:56	354	0	30	234	90
20/03/2020	D	EA	1	14:16	190	45	90	30	25
26/03/2020	D	WK	1	10:13	34	4	30	0	0
03/03/2020	E	WE	1	16:37	40	0	40	0	0
16/03/2020	E	GD	1	08:36	40	40	0	0	0
21/04/2020	A	WE	1	11:57	259	0	30	75	154
21/04/2020	A	ML	1	12:59	8	8	0	0	0
21/04/2020	A	OP	1	16:07	102	0	12	60	30
23/04/2020	A	HH	1	16:43	17	17	0	0	0
23/04/2020	A	EA	1	18:00	13	13	0	0	0
23/04/2020	A	EA	1	18:00	5	5	0	0	0
26/04/2020	B	RH	2	09:02	192	0	15	75	102
26/04/2020	B	EA	1	12:10	155	15	120	20	0
26/04/2020	C	WE	1	09:51	230	50	180	0	0
26/04/2020	C	WE	1	10:10	474	174	195	45	60
26/04/2020	C	WE	1	10:10	380	290	90	0	0
26/04/2020	C	WE	1	10:12	302	152	150	0	0

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
26/04/2020	C	WE	1	10:46	325	15	85	150	75
26/04/2020	C	EA	1	12:01	265	0	60	145	60
26/04/2020	C	EA	1	12:01	335	0	120	60	155
26/04/2020	C	EA	1	12:01	176	0	71	90	15
26/04/2020	C	WE	1	14:06	198	0	18	45	135
21/04/2020	D	WE	1	10:59	716	281	435	0	0
23/04/2020	D	EA	1	16:35	212	0	0	77	135
23/04/2020	D	WE	1	18:32	147	72	45	30	0
24/04/2020	E	EA	1	11:47	42	0	0	42	0
25/04/2020	E	WE	2	14:10	1091	0	0	540	551
25/04/2020	E	HH	1	14:14	152	137	15	0	0
07/05/2020	A	WE	1	10:30	26	26	0	0	0
07/05/2020	A	WE	1	14:37	76	1	60	15	0
22/05/2020	A	OP	1	10:44	27	0	12	15	0
27/05/2020	C	RH	2	09:30	120	0	0	0	120
07/05/2020	D	WE	1	14:43	274	154	90	30	0
07/05/2020	D	EA	1	15:21	95	45	50	0	0
07/05/2020	D	EA	1	15:48	199	0	94	105	0
07/05/2020	D	WE	1	16:20	228	108	45	75	0
07/05/2020	D	RH	1	10:48	86	0	0	86	0
07/05/2020	D	RH	2	11:19	123	0	33	90	0
07/05/2020	D	HH	1	12:41	144	144	0	0	0
07/05/2020	D	HH	1	13:08	69	0	39	30	0
22/05/2020	D	EA	1	09:13	67	37	30	0	0
22/05/2020	D	SN	2	11:38	100	0	25	75	0
12/05/2020	E	WE	1	12:44	134	0	105	29	0
26/05/2020	E	WE	2	17:57	300	0	0	15	285
26/05/2020	E	EA	1	18:39	195	0	150	45	0

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
26/05/2020	E	WE	1	19:06	480	0	390	75	15
04/06/2020	A	WE	1	12:36	106	0	0	60	46
04/06/2020	A	WE	1	12:37	339	0	0	339	0
04/06/2020	A	WE	1	12:40	196	0	0	15	181
03/06/2020	B	OP	1	15:39	198	0	0	198	0
03/06/2020	B	OP	1	15:49	254	0	14	240	0
19/06/2020	B	RH	1	11:58	29	14	15	0	0
19/06/2020	B	RH	1	12:21	98	15	45	38	0
03/06/2020	C	EA	1	11:52	96	6	90	0	0
03/06/2020	C	WE	1	14:49	42	0	0	0	42
03/06/2020	C	EA	1	14:49	309	9	60	180	60
03/06/2020	C	EA	1	14:54	127	15	67	45	0
03/06/2020	C	OP	1	16:14	212	0	0	107	105
03/06/2020	C	WE	1	16:19	622	0	15	180	427
03/06/2020	C	WE	1	16:29	231	0	0	75	156
03/06/2020	C	GJ	4	17:10	93	0	0	0	93
19/06/2020	C	OP	1	15:44	149	0	30	119	0
04/06/2020	D	OP	1	17:15	345	0	150	195	0
04/06/2020	D	L.	2	17:46	49	4	45	0	0
04/06/2020	D	DN	2	18:16	31	16	15	0	0
04/06/2020	D	WE	1	12:39	512	0	0	32	480
04/06/2020	D	WE	1	12:41	339	0	60	279	0
04/06/2020	D	L.	1	13:28	56	11	45	0	0
04/06/2020	D	L.	2	13:37	79	64	15	0	0
04/06/2020	D	WE	1	13:48	107	0	17	90	0
25/06/2020	D	WE	1	09:51	81	30	45	6	0
25/06/2020	D	WE	1	10:44	33	18	15	0	0
25/06/2020	D	WE	1	11:09	265	15	130	120	0

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
25/06/2020	D	EA	1	11:24	10	10	0	0	0
25/06/2020	D	WE	1	12:01	116	56	30	30	0
25/06/2020	D	WE	1	12:01	235	55	60	120	0
25/06/2020	D	WE	1	12:26	39	9	30	0	0
25/06/2020	D	WE	1	12:37	418	15	103	165	135
12/06/2020	E	OP	1	10:39	51	0	0	51	0
12/06/2020	E	WE	1	12:01	37	0	0	37	0
12/06/2020	E	WE	1	13:31	752	0	0	90	662
25/06/2020	E	WE	1	12:36	219	0	15	204	0
02/07/2020	A	GD	6	09:21	30	15	15	0	0
29/07/2020	A	HH	1	07:18	51	51	0	0	0
29/07/2020	A	WE	1	09:15	5	5	0	0	0
29/07/2020	A	HH	1	09:39	10	10	0	0	0
29/07/2020	A	RH	1	09:58	321	0	0	0	321
29/07/2020	D	RH	1	07:19	194	0	0	194	0
29/07/2020	D	WE	1	07:34	18	18	0	0	0
29/07/2020	D	HH	1	08:57	89	89	0	0	0
29/07/2020	D	RH	1	09:56	176	0	0	120	56
29/07/2020	D	RH	1	10:03	216	0	21	150	45
29/07/2020	D	ML	1	12:19	18	18	0	0	0
29/07/2020	D	ML	1	12:20	33	3	30	0	0
29/07/2020	D	EA	1	13:26	74	0	15	59	0
02/07/2020	E	HH	1	15:53	122	122	0	0	0
21/07/2020	E	WE	1	10:54	152	0	0	152	0
21/07/2020	E	OP	1	11:16	174	0	60	114	0
03/08/2020	A	WE	2	16:05	25	10	15	0	0
03/08/2020	A	EA	1	17:17	112	0	112	0	0
03/08/2020	A	ML	1	19:41	6	6	0	0	0

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
03/08/2020	A	ML	1	19:59	14	14	0	0	0
03/08/2020	A	WE	2	20:17	24	24	0	0	0
06/08/2020	B	EA	2	14:43	147	27	60	60	0
06/08/2020	B	EA	1	15:18	31	16	15	0	0
06/08/2020	B	EA	1	15:27	200	0	80	120	0
11/08/2020	B	EA	1	11:03	206	0	56	150	0
11/08/2020	C	WE	1	15:08	900	0	0	330	570
03/08/2020	D	EA	1	17:37	139	0	34	105	0
03/08/2020	D	WE	2	20:44	66	21	45	0	0
03/08/2020	D	WE	1	20:57	17	15	2	0	0
03/08/2020	D	WE	1	21:08	34	0	34	0	0
13/08/2020	D	HH	1	09:49	128	38	60	30	0
13/08/2020	D	ML	1	10:43	48	48	0	0	0
13/08/2020	D	CU	4	11:55	133	0	133	0	0
13/08/2020	E	HH	1	11:50	90	90	0	0	0
13/08/2020	E	CU	4	11:53	180	0	120	60	0
04/09/2020	A	WE	1	10:59	60	0	60	0	0
18/09/2020	B	EA	1	14:11	214	0	0	30	184
19/09/2020	B	RK	9	09:46	103	0	15	45	43
19/09/2020	B	GP	1	09:46	109	0	15	45	49
19/09/2020	B	GP	1	10:14	23	23	0	0	0
18/09/2020	C	HH	1	12:45	135	15	30	90	0
18/09/2020	C	EA	1	13:13	180	0	0	0	180
18/09/2020	C	WE	1	14:08	600	0	0	15	585
19/09/2020	C	WE	1	14:57	231	6	45	75	105
19/09/2020	C	H.	1	15:00	16	16	0	0	0
03/09/2020	D	WE	1	13:06	155	5	30	120	0
03/09/2020	D	HH	1	16:18	261	171	90	0	0

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
03/09/2020	D	HH	1	17:35	180	45	60	75	0
03/09/2020	D	ML	1	17:36	126	36	60	30	0
03/09/2020	D	HH	1	18:41	172	22	75	75	0
03/09/2020	D	PE	1	18:41	152	0	32	120	0
19/09/2020	D	ML	1	09:47	57	12	45	0	0
19/09/2020	D	H.	1	11:35	23	8	15	0	0
08/10/2020	A	EA	1	13:43	665	65	390	90	120
08/10/2020	A	EA	1	13:45	180	15	75	100	0
08/10/2020	A	EA	1	13:46	30	0	0	30	0
08/10/2020	A	EA	1	14:19	425	95	210	120	0
08/10/2020	A	WE	1	14:20	300	30	150	120	0
08/10/2020	A	WE	1	14:27	345	30	15	270	30
08/10/2020	A	EA	1	16:03	520	0	40	480	0
08/10/2020	A	WE	1	16:04	420	0	15	165	240
08/10/2020	A	EA	1	17:17	180	0	30	120	30
08/10/2020	A	HH	1	17:28	95	95	0	0	0
13/10/2020	D	KT	1	11:45	120	0	0	60	60
13/10/2020	D	WE	1	12:37	90	0	0	90	0
22/11/2020	B	WS	4	11:38	28	0	28	0	0
19/11/2020	C	EA	1	10:05	43	0	43	0	0
25/11/2020	D	WS	8	09:14	52	22	30	0	0
25/11/2020	D	WE	1	11:12	43	0	43	0	0
25/11/2020	D	WS	8	12:41	172	37	135	0	0
16/11/2020	E	WE	1	10:33	621	21	90	450	60
17/12/2020	A	EA	1	12:32	133	0	88	45	0
17/12/2020	A	GD	1	13:21	199	0	109	90	0
17/12/2020	A	WE	1	13:46	79	0	79	0	0
17/12/2020	A	WE	1	13:46	45	0	45	0	0

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
15/12/2020	B	EA	1	11:27	37	0	7	30	0
15/12/2020	B	HH	1	11:36	222	45	75	102	0
15/12/2020	B	PE	1	11:44	42	0	0	42	0
15/12/2020	B	EA	1	13:40	326	11	75	240	0
15/12/2020	B	WE	1	14:39	54	0	30	24	0
17/12/2020	D	WE	1	11:46	43	13	30	0	0
17/12/2020	D	WE	1	13:02	65	50	15	0	0
17/12/2020	D	WE	1	13:16	87	72	15	0	0
25/01/2021	B	EA	2	09:40	300	0	45	255	0
21/01/2021	E	WE	1	08:37	198	0	78	120	0
21/01/2021	E	WE	2	08:53	309	0	0	309	0
21/01/2021	E	WE	1	10:57	28	0	28	0	0
21/01/2021	E	WE	1	14:07	508	0	0	90	418
16/02/2021	A	WE	1	10:12	60	15	45	0	0
16/02/2021	A	EA	1	10:50	45	0	0	45	0
16/02/2021	A	WE	2	13:29	75	0	15	60	0
16/02/2021	A	WE	1	13:47	15	0	15	0	0
11/02/2021	C	EA	1	09:21	103	0	30	73	0
17/02/2021	C	WE	1	11:34	15	15	0	0	0
17/02/2021	C	EA	1	12:13	900	60	150	270	420
17/02/2021	C	WE	1	12:21	540	0	135	195	210
17/02/2021	C	WE	1	12:41	360	0	0	0	360
16/02/2021	D	EA	1	10:51	210	0	0	180	30
24/02/2021	D	WE	1	12:59	51	0	6	45	0
24/02/2021	D	WE	1	14:19	29	29	0	0	0
11/03/2021	A	GP	5	11:51	11	11	0	0	0
11/03/2021	A	EA	1	13:43	353	45	143	165	0
11/03/2021	A	EA	2	16:14	233	0	45	188	0

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
11/03/2021	A	WE	1	16:34	619	0	105	195	319
21/03/2021	A	EA	1	12:13	926	11	0	825	90
21/03/2021	A	WE	1	12:21	491	0	0	491	0
21/03/2021	A	WE	1	12:22	432	0	0	432	0
21/03/2021	A	WE	1	12:23	380	0	0	380	0
21/03/2021	A	WE	1	12:25	237	0	0	237	0
21/03/2021	A	EA	1	12:25	1438	13	15	810	600
21/03/2021	A	EA	1	12:46	153	33	30	90	0
21/03/2021	A	EA	2	12:52	606	30	60	381	135
16/03/2021	B	EA	1	14:06	23	0	23	0	0
16/03/2021	C	EA	1	15:35	108	0	18	90	0
16/03/2021	C	WE	1	16:08	216	0	66	120	30
16/03/2021	C	WE	1	16:09	252	0	12	180	60
16/03/2021	C	WE	1	17:05	196	16	60	120	0
16/03/2021	C	WE	1	17:18	177	12	30	135	0
16/03/2021	C	WE	1	17:23	181	1	30	120	30
16/03/2021	C	EA	2	17:30	44	4	15	15	0
16/03/2021	D	EA	1	09:33	271	0	121	150	0
16/03/2021	D	EA	1	10:08	68	8	60	0	0
16/03/2021	D	EA	1	10:14	173	0	38	135	0
21/03/2021	D	EA	1	12:48	177	0	27	150	0
21/03/2021	D	WE	1	13:27	205	0	85	120	0
07/03/2021	E	GP	1	12:12	41	0	0	41	0
16/03/2021	E	WE	2	17:38	379	0	0	379	0
16/03/2021	E	WE	1	17:55	248	0	60	188	0
06/04/2021	A	WE	2	11:02	122	0	0	90	32
06/04/2021	A	WE	1	13:57	96	0	61	45	0
06/04/2021	A	WE	1	14:09	316	0	15	45	256

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
06/04/2021	A	WE	1	16:14	285	0	15	105	165
27/04/2021	B	EA	1	11:30	120	0	0	0	120
27/04/2021	B	GK	1	11:42	60	30	30	0	0
27/04/2021	C	EA	1	11:26	240	0	0	0	240
26/04/2021	E	HH	1	10:13	15	15	0	0	0
26/04/2021	E	HH	1	11:07	30	30	0	0	0
01/05/2021	E	CU	1	10:27	10	10	0	0	0
01/05/2021	A	GP	1	13:27	12	1	0	0	0
01/05/2021	A	EA	2	17:19	90	0	0	0	90
01/05/2021	A	EA	1	17:24	60	0	0	0	60
14/05/2021	A	OP	1	11:35	163	0	0	73	90
22/05/2021	B	RH	2	08:12	18	3	0	15	0
22/05/2021	B	H.	1	10:52	54	0	27	30	0
22/05/2021	B	RH	2	14:19	117	12	30	75	0
22/05/2021	C	GP	1	08:10	16	16	0	0	0
22/05/2021	C	WE	1	08:50	58	0	13	45	0
26/05/2021	C	EA	1	16:40	777	0	0	15	762
26/05/2021	C	GP	1	18:06	15	15	0	0	0
26/05/2021	C	HH	1	18:38	57	57	0	0	0
31/05/2021	D	WE	1	15:01	68	0	0	0	68
31/05/2021	D	WE	1	18:15	46	46	0	0	0
04/05/2021	E	CU	1	09:03	10	10	0	0	0
04/05/2021	E	CU	1	09:07	10	0	10	0	0
11/06/2021	A	OP	1	14:04	253	0	0	253	0
14/06/2021	A	HH	1	11:40	47	47	0	0	0
14/06/2021	A	WE	1	12:16	22	22	0	0	0
14/06/2021	A	OP	1	14:09	58	0	58	0	0
14/06/2021	A	OP	1	14:21	442	0	0	240	202

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Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
14/06/2021	A	EA	1	14:46	69	0	0	24	45
14/06/2021	A	HH	1	14:57	42	42	0	0	0
14/06/2021	A	HH	1	15:19	26	26	0	0	0
18/06/2021	D	WE	1	05:13	30	30	0	0	0
18/06/2021	D	WE	1	05:44	36	36	0	0	0
18/06/2021	D	H.	1	05:44	76	0	76	0	0
03/06/2021	E	SN	1	17:18	35	0	35	0	0
03/06/2021	E	HH	1	17:54	181	181	0	0	0
03/06/2021	E	HH	1	18:51	180	180	0	0	0
07/07/2021	A	EA	1	11:20	330	15	45	120	150
07/07/2021	A	WE	1	13:30	960	0	0	240	720
25/07/2021	A	WE	1	17:59	49	15	34	0	0
02/07/2021	B	H.	1	13:47	30	0	0	0	30
02/07/2021	B	OP	1	14:40	135	0	0	15	120
07/07/2021	D	WE	1	12:43	45	15	0	30	0
07/07/2021	D	WE	1	12:45	56	11	30	15	0
07/07/2021	D	WE	1	12:51	28	13	15	0	0
07/07/2021	D	WE	3	12:59	300	30	30	90	150
07/07/2021	D	WE	1	14:05	147	0	0	57	90
02/07/2021	E	WE	1	13:29	300	0	0	75	225
02/07/2021	E	H.	2	13:29	45	0	0	30	15
09/08/2021	A	OP	1	13:35	261	0	0	261	0
09/08/2021	A	WE	1	14:24	187	0	82	105	0
09/08/2021	A	EA	1	15:26	1038	0	18	165	855
09/08/2021	A	WE	1	16:34	741	0	0	621	120
09/08/2021	A	EA	1	17:09	177	0	0	177	0
09/08/2021	A	EA	1	17:58	994	4	75	705	210
09/08/2021	A	HH	1	18:17	80	80	0	0	0

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Appendix 9.1: Technical Ornithology Appendix



Date	VP	Species	No. of Birds	Start Time (24h)	Duration	HT1 (s)	HT2 (s)	HT3 (s)	HT4 (s)
09/08/2021	A	EA	1	18:26	279	9	30	240	0
09/08/2021	A	EA	1	18:40	410	15	30	365	0
09/08/2021	A	EA	1	18:40	584	15	15	554	0
25/08/2021	A	EA	1	10:19	19	0	19	0	0
25/08/2021	A	EA	1	10:54	78	0	0	78	0
25/08/2021	A	EA	1	11:31	171	0	0	0	171
19/08/2021	B	OP	1	12:10	175	100	60	15	0
19/08/2021	B	OP	1	12:24	309	0	60	135	147
19/08/2021	B	OP	2	18:16	195	0	45	60	90
26/08/2021	B	HH	1	15:51	235	0	130	105	0
19/08/2021	C	WE	1	13:26	20	20	0	0	0
09/08/2021	D	OP	1	13:26	522	45	132	345	0
09/08/2021	D	WE	1	14:28	141	6	45	90	0
09/08/2021	D	WE	1	00:00	100	0	0	30	0
09/08/2021	D	WE	1	16:05	117	0	0	72	45
09/08/2021	D	ML	1	16:09	72	42	30	0	0
09/08/2021	D	ML	1	17:37	56	41	15	0	0
09/08/2021	D	ML	1	17:55	48	15	33	0	0
09/08/2021	D	EA	1	18:12	79	4	60	15	0
18/08/2021	E	WE	1	13:56	85	0	0	85	0
18/08/2021	E	HH	1	14:58	40	40	0	0	0
26/08/2021	E	ML	1	09:45	90	90	0	0	0