

Environmental Impact Assessment Report

Cummeennabuddoge Wind Farm

Technical Appendix 9-1: Ornithology

Cummeennabuddoge Wind (DAC)

September 2024



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1 Introduction

1.1 Terms of reference

A range of ornithological surveys were undertaken by MKO Ireland between the dates of 22/10/2018 and 30/03/2021 at the Site of the Proposed Development known as the Cummeennabuddoge Wind Farm. Surveys included were as follows:

Vantage Point Surveys following the methodologies outlined by SNH (2017)

- Hen harrier Roost Survey
- Breeding Red grouse Survey
- Breeding Raptor Survey
- Breeding Woodcock Survey
- Breeding Walkover Survey

The Proposed Development spans the Cork and Kerry boundary, on the northern slopes of the Derrynasaggart Mountains and situated approximately 11km to the southwest of Millstreet and approximately 6km to the north of Ballyvourney. The Site is approximately centred on Grid Reference W 20399 83194 and occupies an area of approximately 925ha, (shown bounded by the red line or Proposed Development on Figure 3.4) and bounded to the north-east, east, and south by operational wind farms.

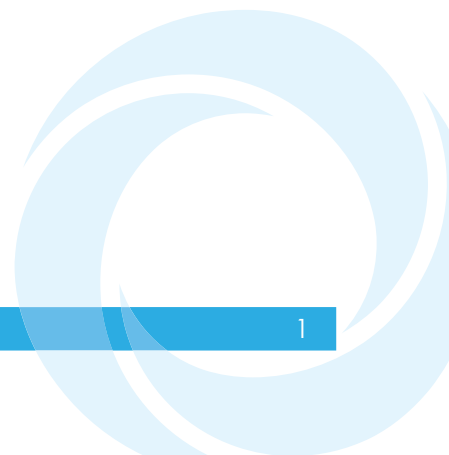
The Applicant commissioned the survey to establish the ornithological baseline condition as summarised in this Technical Appendix (TA).

- This TA supports Chapter 9 of the Environmental Impact assessment Report (EIAR) and as such, does not comprise an assessment of results, but information only.

1.2 Objectives

The principal objectives of this report are:

- To describe the methodology and report on the results of ornithological surveys; and
- To describe the baseline ornithological status of the proposed working areas, including an appropriate buffer.



2 Methodology

2.1 Desk Study

A search for statutory designated sites and protected species records data was undertaken using freely available information from National Parks and Wildlife Service (NPWS) and the Biodiversity Maps Ireland website respectively.

2.1.1 Statutory Designated Nature Conservation Sites

A desktop search of designated sites in proximity to the Proposed Development was undertaken using the following criteria:

- Any nationally/internationally designated site with an avian designation (e.g., Natura sites, Natural Heritage areas) within 10km of the Proposed Development boundary; and
- Any internationally designated site with geese as a qualifying feature within 20km of the Proposed Development.

Criteria were chosen based upon likely connectivity of selected receptors (SNH, 2016).

2.1.2 NBDC records

For bird species protected under Annex I of the EU Birds directive the presence and absence of records was investigated with increasing range from the Site, from the grid square containing the Site (W28) to those within radii of 5 and 10km.

2.2 Field Surveys

2.2.1 Vantage Point Survey

Vantage point surveys were undertaken between the dates of 22/10/2018 and 30/03/2021. The Vantage point Surveys were conducted in compliance with the standards outlined by SNH (2017) and consisted of watches of tree hour durations from fixed locations chosen to provide an optimal visual coverage of the site. As per the standard guidance requiring a minimum of 36 hours of observation to be carried out per vantage point for each set of six summer and six months of winter surveys amounting to 72 hours each. Table 1 shows the hours of observation per vantage point.

Table 1: Vantage Point Survey Effort

V P	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total hours	VP Total
1	2018										6	6	6	18.0	172
	2019	6	6	6	6	0	12	6	6	6	6.5	6	6	72.5	
	2020	6	6	6	3	6	6	6	6	6	6	0	6	63.0	
	2021	6	6	6										18.0	
2	2018										6	6	0	12.0	180
	2019	0	12	12	6	0	12	6	6	6	6	6	6.1	78.1	
	2020	6	6	6	6	6	6	6	6	6	6	6	6	72.0	
	2021	6	6	6										18.0	
3	2018										6	6	6	18.0	181

V P	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total hours	VP Total
	2019	6	6	6	6	6	6	6	6	6	6.5	6	6.1	72.6	
	2020	6	6	6	6	6	6	6	3	9	6	6	6	72.0	
	2021	6	6	6										18.0	
4	2018										0	12	6	18.0	176
	2019	6	6	7	6	6	6	6	6	6	6	6	6.1	73.1	
	2020	6	6	6	3	6	6	6	6	6	6	6	6	69.0	
	2021	6	6	4										16.0	
5	2018										0	12	6	18.0	187
	2019	6	6	7	6	6	6	6	6	6	6	6	6	73.0	
	2020	6	6	6	6	6	6	6	6	6	6	12	6	78.0	
	2021	6	6	6										18.0	
6	2018										6	6	6	18.0	182
	2019	6	6	7	6	6	6	6	6	6	6.5	6	6	73.5	
	2020	6	6.1	6	6	6	6	6	3	9	6	6	6	72.1	
	2021	6	6	6										18.0	

Table 2 shows the coordinates of the vantage points and their bearings.

Table 2: Vantage Point Locations and Bearings

Vantage Point	Easting	Northing	Bearing in degrees
VP1a	520659	582572	20
VP02	521705	581975	75
VP03a	522270	583619	75
VP4a	519277	583563	350
VP5b	519347	582279	350
VP6a	521806	584655	180

Target species constituted non-passerine species listed under Annex I of the EU Birds directive and species on schedule four of the 1976 Wildlife Act of Ireland.

These were carried out to:

- Determine which birds were present
- Characterise their flight behaviour with respect to their risk of collision

Two different schema were used for height bands and, because the dimensions for the turbines under consideration are 36.5m at the bottom end and 200m at the top end we have assumed a worst case scenario for collision risk modelling (CRM) wherein all flights within the height bands highlighted in grey below are considered to be at collision risk.

Table 3: Height bands used within collision risk modelling in grey fill

Schema 1	Schema 2
0-15m	0-10m
15-25m	10-25m
25-200m	25-175m
>200m	>175m

2.2.2 Hen harrier Roost Survey

Eight vantage points were selected for observations, at dawn or dusk, of the land within a 2km buffer of the proposed development area with a view to identifying the presence of Hen harrier roosts in the area. These surveys were conducted over three consecutive winters, 2018-19, 2019-20 and 2020-21 with a total of 699.9 hours observation time spread across spread across the vantage points.

Table 4: Hen harrier roost vantage point survey effort

VP	Winter	Oct	Nov	Dec	Jan	Feb	Mar	Total Hours	VP Total
1	2018-2019	2.25	2.40	2.33	2.50	3.50	2.50	15.48	94.07
	2019-2020	3.00	2.00	2.25	2.75	2.83	3.33	16.17	
	2020-2021	2.50	2.75	2.50	2.50	2.63	2.50	15.38	
2	2018-2019	2.25	3.00	2.33	2.50	2.50	2.50	15.08	91.33
	2019-2020	3.00	2.00	2.25	2.58	3.08	3.00	15.92	
	2020-2021	2.50	2.67	2.00	2.50	2.50	2.50	14.67	
3	2018-2019	2.25	3.00	2.25	2.50	3.50	2.50	16.00	79.65
	2019-2020	3.00	2.00	2.25	3.17	2.95	3.00	16.37	
	2020-2021	2.50	2.67	2.50	2.50	2.50	2.50	15.17	
4	2018-2019	2.25	3.00	2.25	2.50	2.50	2.50	15.00	93.33
	2019-2020	3.08	2.00	2.25	2.75	3.00	2.67	15.75	
	2020-2021	2.50	2.42	2.50	3.50	2.50	2.50	15.92	
5	2018-2019	2.25	3.00	2.25	2.50	2.50	2.50	15.00	78.17
	2019-2020	3.00	2.00	2.67	2.83	2.83	2.83	16.17	
	2020-2021	2.67	2.42	2.00	3.50	2.50	2.50	15.58	
6	2018-2019	2.25	3.00	2.25	2.50	2.50	2.50	15.00	77.92
	2019-2020	3.08	2.00	2.25	2.92	3.00	3.00	16.25	
	2020-2021	2.67	2.42	2.67	2.50	2.50	2.67	15.42	
7	2018-2019	0.00	5.25	2.25	2.50	2.33	2.50	14.83	91.27
	2019-2020	3.08	2.00	2.25	2.88	3.00	3.00	16.22	
	2020-2021	2.50	2.50	2.00	2.58	2.50	2.50	14.58	
8	2018-2019	0.00	5.25	2.25	2.50	2.50	2.50	15.00	94.17
	2019-2020	3.00	1.83	2.67	2.83	3.00	3.00	16.33	
	2020-2021	2.67	2.58	2.00	2.50	3.50	2.50	15.75	

The locations of the hen harrier vantage points, in context with the site and buffers, are shown in Figure 9.2 and the precise locations are shown in the table 5 below.

Table 5: Hen harrier Vantage Point locations

Vantage Point	Easting	Northing
1	522818	580801
2	520912	581507
3	523972	584582
4	520679	585421
5	518604	585019
6	523252	582546
7	518052	581591

Vantage Point	Easting	Northing
8	516930	584610

2.2.3 Breeding Raptor Survey

Breeding raptor surveys were carried out within a buffer of 5km around the Site and consisted of a mixture of static vantage point observations from six different locations and transects walked along public rights of way, predominantly roads.

In 2019 four visits were carried out but in 2020 April surveys were not carried out due to covid 19 restrictions on travel to site. The hours of survey for these visits are summarised in Table 6 below.

Table 6: Breeding Raptor Survey Effort

Visit Number	Start Date	End Date	Total Survey Duration days/hours/minutes
1	04/04/2019	02/05/2019	01:13:00
2	17/05/2019	30/05/2019	01:01:00
3	03/06/2019	28/06/2019	01:06:00
4	07/07/2019	31/07/2019	01:06:00
2	08/05/2020	25/05/2020	01:08:42
3	08/06/2020	26/06/2020	01:02:25
4	15/07/2020	28/07/2020	01:02:27
Total	04/04/2019	28/07/2020	08:15:34

2.2.4 Breeding Bird Survey

In 2019 four visits were carried out but in 2020 April surveys were not carried out due to covid 19 restrictions on travel to site. Methodology was broadly based on methods described in Bibby *et al.* (2000) and Brown & Shepherd (1993). The survey area extended 500m beyond the site boundary as recommended by SNH, 2017.

The hours of survey for these visits are summarised in the table below.

Table 7: Breeding Bird Survey Effort

Visit Number	Start Date	End Date	Total Survey Duration days/hours/minutes
1	03/04/2019	25/04/2019	20:00
2	03/05/2019	07/05/2019	17:00
3	05/06/2019	10/06/2019	17:00
4	22/07/2019	29/07/2019	15:30
2	08/05/2020	10/05/2020	15:00
3	17/06/2020	26/06/2020	13:40
4	17/07/2020	27/07/2020	15:30

2.2.5 Wintering Bird Survey

Methodology was broadly based on methods described in in Bibby *et al.* (2000) and Brown & Shepherd (1993). Target species were raptors, waterbirds, gulls, and ground birds of conservation interest. Surveys were carried in in the winter of 2018-2019 and the winter of 2019-2020. There were four survey periods carried out in each winter, in

October, December, January and March. The hours of survey for these visits are summarised in the table below.

Table 8: Wintering Bird Survey Effort

Visit Number	Start Date	End Date	Total Survey Duration days/hours/minutes
1	23/10/2018	08/11/2018	14:00
2	12/12/2018	21/12/2018	14:00
3	08/01/2019	22/01/2019	17:00
4	13/03/2019	28/03/2019	18:00
1	02/10/2019	18/10/2019	14:10
2	05/12/2019	08/12/2019	13:00
3	04/01/2020	15/01/2020	11:05
4	05/03/2020	17/03/2020	12:32

2.2.6 Breeding Red grouse Survey

Red grouse surveys were accomplished by the tape-luring method described in (Cummins, Bleasdale, Douglas, Newton, & O'Halloran, 2010), under license from the National Parks and Wildlife Service and in suitable habitat within 500m of the site boundary. Four different transect routes were worked in March of 2019 and 2020 and the time spent on each is summarised in the table below. The transect routes are shown in Figure 9.6.

Table 9: Red Grouse Survey Effort

	Transect 1	Transect 2	Transect 3	Transect 4	Grand Total
March 2019	00:55	03:38	01:01	01:22	06:56
March 2020	00:55	04:00	04:00	01:00	09:55

2.2.7 Breeding Woodcock Survey

Woodcock surveys followed the methodology outlined by Gilbert et.al (1998) with dusk survey undertaken in forested areas of suitable habitat extending to 500m from the site boundary where access was possible. Surveys involved the slow walking of transects which began one hour before sunset and continued for one hour after sunset or until it was too dark to see.

Three visits were made with two different transect routes for woodcock surveys conducted between 16th March 2019 and 28th June 2019. The routes are shown in Figure 9.7.

Table 10: Breeding Woodcock Survey Effort

Date	VP/Transect/Area/Radius	Start Time	Stop Time	Duration
16/05/2019	East	20:00	22:20	02:20
30/05/2019	West	20:00	22:30	02:30
08/06/2019	East	20:00	22:30	02:30
10/06/2019	West	20:00	22:30	02:30
20/06/2019	East	20:00	22:30	02:30
28/06/2019	West	20:00	22:30	02:30

3 Baseline

3.1 Desk Study

3.1.1 Statutory Designated Nature Conservation Sites

Designated sites for avian interests falling within these categories are shown in Table 11. Four designated sites fulfil these criteria, as per Table 11.

Figure 9-1 shows the location of designated sites in relation to the Proposed Development.

Table 11: Statutory designated sites for avian interests within 10km or, for geese, within 20km of the Proposed Development Site

Site Name	Site Designation	Distance from the Proposed Development
Cork Harbour SPA	Little Grebe (<i>Tachybaptus ruficollis</i>) Great Crested Grebe (<i>Podiceps cristatus</i>) Cormorant (<i>Phalacrocorax carbo</i>) Grey Heron (<i>Ardea cinerea</i>) Shelduck (<i>Tadorna tadorna</i>) Wigeon (<i>Anas penelope</i>) Teal (<i>Anas crecca</i>) Pintail (<i>Anas acuta</i>) Shoveler (<i>Anas clypeata</i>) Red-breasted Merganser (<i>Mergus serrator</i>) Oystercatcher (<i>Haematopus ostralegus</i>) Golden Plover (<i>Pluvialis apricaria</i>) Grey Plover (<i>Pluvialis squatarola</i>) Lapwing (<i>Vanellus vanellus</i>) Dunlin (<i>Calidris alpina</i>) Black-tailed Godwit (<i>Limosa limosa</i>) Bar-tailed Godwit (<i>Limosa lapponica</i>) Curlew (<i>Numenius arquata</i>) Redshank (<i>Tringa totanus</i>) Black-headed Gull (<i>Chroicocephalus ridibundus</i>) Common Gull (<i>Larus canus</i>) Lesser Black-backed Gull (<i>Larus fuscus</i>) Common Tern (<i>Sterna hirundo</i>) Wetland and Waterbirds	400m
Mullaghanish to Musheramore Mountains SPA	Hen harrier	500m
The Gearagh SPA	Wigeon <i>Anas penelope</i> Teal <i>Anas crecca</i>	14.2km

Site Name	Site Designation	Distance from the Proposed Development
	Mallard <i>Anas platyrhynchos</i> Coot <i>Fulica atra</i> Wetland and Waterbirds	
Killarney National Park SPA	Greenland white-fronted Goose & Merlin	19km

Whilst the Cork Harbour SPA is the closest designated site to the Proposed Development at 400m this is in relation to discrete areas of existing junctions which require upgrades to accommodate infrastructure arriving at Cork Harbour. These areas are dominated by asphalt and urban planting (amenity grassland and street trees) unrelated to that used by qualifying features of the Cork Harbour SPA. As such, this SPA is not considered further.

The Mullaghanish to Musheramore Mountains SPA is designated for a species with the potential to nest within young plantation that is present within the Site. For this reason, the potential to influence the viability of this SPA population is considered further in the assessment (EIAR Chapter 9: Ornithology).

The Gearagh SPA, 14.2 km from site, designated for Wigeon, Mallard, Teal and Coot, is not designated for geese and is beyond 10km distance from the Proposed development.

The Greenland white-fronted goose population at the Killarney National Park SPA is within 20km of site, but the Merlin population, is further than 10km from the Proposed development.

3.1.2 NBDC records

For all Annex I bird species documented on maps at the Biodiversity Ireland website record distribution data, as accessed on 24/10/2022, was examined to see how many 10km grid squares contained records at increasing distance from the Site. This tally does not give an account of the density of records within each grid square or of their recency. The wind turbine envelope of the Proposed Development is entirely within grid square W28. Of these species all but two, Ruff and Little egret, were assessed as being at potential risk from onshore windfarms, (SNH, 2006). Species that are qualifying features for SPAs within qualifying distances of section 3.1.1 are marked in bold.

Table 12: Presence of Annex I bird species in the data of the National Biodiversity Data Centre at varying distances from the proposed development site (SPA qualifying features in bold)

Species	Scientific name	W28 (grid square within which the Site is located)	5km(/9)	10km(/23)	At risk from windfarms*
Hen harrier	Circus cyaneus	1	8	20	Yes
Greenland white-fronted goose	Anser albifrons flavirostris	0	1	3	Yes
*Merlin	<i>Falco</i>	1	7	15	Yes

Species	Scientific name	W28 (grid square within which the Site is located)	5km(/9)	10km(/23)	At risk from windfarms*
	<i>columbarius</i>				
Peregrine	<i>Falco peregrinus</i>	1	6	10	Yes
Whooper swan	<i>Cygnus cygnus</i>	1	3	8	Yes
Short-eared owl	<i>Asio flammeus</i>	1	3	5	Yes
Corncrake	<i>Crex crex</i>	0	5	13	Yes
Golden plover	<i>Pluvialis apricaria</i>	0	3	11	Yes
Dunlin	<i>Calidris alpina</i>	0	1	2	Yes
Little egret	<i>Egretta garzetta</i>	0	3	10	No
Ruff	<i>Calidris pugnax</i>	0	1	1	No

* As per guidance from (SNH, Assessing significance of impacts from onshore windfarms on birds outwith designated areas, 2006)

Hen harrier and Greenland white-fronted goose are both qualifying features of local SPAs, the former from the nearby Mullaghanish to Musheramore Mountains SPA and the latter from the more distant Killarney Hills SPA. None of the species in the list above are strongly associated with mature plantation of the type that forms the dominant habitat of the Site although Hen harrier, Merlin and Short-eared owl have all been known to nest in young plantation. These species, along with Golden plover and Dunlin, are often associated with moorland habitat such as surrounds the Site. Greenland white-fronted geese is known to frequent boglands in the Killarney National park SPA which may have some similarity to habitat found in the Mullaghanish Bog SAC (50m from the Site boundary and not included in Table 11 as it is not designated for avian interests) but this is a small population, the only one in south west Ireland, and unlikely to occur frequently in the area.

Peregrine and Whooper swan have both been recorded from W28 and some surrounding grid squares but are not qualifying features of a nearby SPA. Corncrake are a rare breeding bird of low intensity arable and species rich fenland unlike any habitat in the vicinity of the Site. Little egret are fish eating birds associated with wetlands and could potentially forage from the watercourse that runs adjacent to the northern boundary and forms part of the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC.

3.2 Field Surveys

3.2.1 Vantage Point Survey

Table 13 shows the summary results of the vantage point surveys between October 2018 and March 2021. Thirteen target species were recorded during the VP surveys. Flightlines for all species are shown in Figures 9.1a-b. Appendix B includes the flight line information for all target species observed.

Table 13: Cummennabuddoge Vantage Point Survey Results

Species	Scientific name	At risk from windfarms*	Conservation Designations	Number of Birds in flight				Bird Seconds	At risk bird seconds
				Min.	Average	Max.	No: of flights		
Golden plover	<i>Pluvialis apricaria</i>	Yes	Annex I, Ireland BOCC Red, Breeding & Wintering	3	36.9	175	28	154716	134652
Hen harrier	<i>Circus cyaneus</i>	Yes	Annex I, Schedule 4, Ireland BOCC Amber, Breeding	1	1.1	2	8	337	130
Peregrine	<i>Falco peregrinus</i>	Yes	Annex I	1	1	1	1	74	74
White-tailed eagle	<i>Haliaeetus albicilla</i>	Yes	Annex I, Schedule 4, Ireland BOCC Red, Breeding	1	1	1	1	360	0
Little egret	<i>Egretta garzetta</i>	No	Annex I	3	3	3	1	84	84
Snipe	<i>Gallinago gallinago</i>	No	Ireland BOCC Red, Breeding & Wintering	1	1.7	3	6	272	0
Kestrel	<i>Falco tinnunculus</i>	No	Schedule 4, Ireland BOCC Red, Breeding	1	1	1	25	2600	228
Red grouse	<i>Lagopus lagopus</i>	No	Ireland BOCC Red, Breeding	1	1.7	2	3	65	0
Buzzard	<i>Buteo buteo</i>	No	Schedule 4	1	1.3	2	3	866	866
Grey heron	<i>Ardea cinerea</i>	No		1	1.1	2	8	152	21
Cormorant	<i>Phalacrocorax carbo</i>	No		1	1	1	3	160	20
Mallard	<i>Anas platyrhynchos</i>	No		2	2	2	1	96	0
Sparrowhawk	<i>Accipiter nisus</i>	No	Schedule 4,	1	1	1	7	164	84

* As per guidance from (SNH, Assessing significance of impacts from onshore windfarms on birds outwith designated areas, 2006)

3.2.2 Hen harrier Roost Survey

In 699.9 hours of Hen Harrier roost surveys carried out from 8 vantage points over three winters only eight Hen Harrier flights. Each flight contained single birds. There is no evidence that the Hen harriers roost within two kilometres of the site. Appendix B includes details of all observations of Hen harriers.

3.2.3 Breeding Raptor Survey

Five species of birds of prey were recorded during breeding raptor surveys, these species were, in order of decreasing conservation status, Hen harrier, Peregrine, Kestrel, Buzzard and Sparrowhawk.

On 29/07/2019 a male Hen harrier was seen to the southwest of the Site and on the 15/07/2020 a Hen harrier of undetermined age and sex was seen over the Mullaghanish to Musheramore Mountains SPA.

Peregrine was seen on nine occasions. In 2019 there were three records including vocalising birds in the vicinity of Claragh Mountain around 5km northwest of the Site. In 2020 all records of Peregrines were around 4.5km away from the site boundary where birds were watched attending a nest on 21/07/2020 and are believed to have reared two young.

There were 16 records of Kestrels and four records of Buzzards well distributed across the survey area but with no concrete evidence of breeding.

There were nine records of Sparrowhawks including female birds seen carrying prey on the 16/06/202 and 26/06/2020 in the Gneevs and Gortavehy regions respectively at about 1 and 5km away from the turbine envelope, sparrowhawks often carry prey to plucking posts to consume but there is the possibility that they were provisioning a nest.

3.2.4 Breeding Bird Survey

Six species of bird were recorded during breeding bird surveys. They are listed in the table below. None of these species is on Annex I of the wild birds directive or considered at risk from windfarms (SNH, 2006).

Table 14: Breeding bird survey results

Species	Scientific name	2019 Total records	Total birds	2020 Total records	Total birds	Designation
Snipe	<i>Gallinago gallinago</i>			1	1	Ireland BOCC, 2020-26, Red, Breeding & Wintering
Grey wagtail	<i>Motacilla cinerea</i>	3	6			Ireland BOCC, 2020-26, Red, Breeding
Kestrel	<i>Falco tinnunculus</i>	3	3	1	1	Ireland Schedule 4, Ireland

Species	Scientific name	2019 Total records	Total birds	2020 Total records	Total birds	Designation
						BOCC, 2020-26, Red, Breeding
Meadow pipit	<i>Anthus pratensis</i>	26	62			Ireland BOCC, 2020-26, Red, Breeding
Grey heron	<i>Ardea cinerea</i>	1	1	1	1	
Little grebe	<i>Tachybaptus ruficollis</i>	1	2			

3.2.5 Wintering Bird Survey

Table 15: Wintering Bird Survey Results

Species	Scientific name	2018-2019 Number of records	Total Birds	2019-2020 Number of records	Total Birds	At risk from wind-farms *	Designations
White-tailed eagle	<i>Haliaeetus albicilla</i>			1	1	Yes	Annex I, Ireland Schedule 4, Ireland BOCC, 2020-26, Red, Breeding
Peregrine	<i>Falco peregrinus</i>	2	2			Yes	Annex I, Ireland Schedule 4
Hen harrier	<i>Circus cyaneus</i>	2	2			Yes	Annex I, Ireland Schedule 4, Ireland BOCC 2020-26, Amber, Breeding
Golden plover	<i>Pluvialis apricaria</i>	3	154	6	38	Yes	Annex I, Ireland BOCC, 2020-26, Red, Breeding & Wintering
Snipe	<i>Gallinago gallinago</i>	1	1	27	35	No	Ireland BOCC, 2020-26, Red, Breeding & Wintering
Mallard	<i>Anas platyrhynchos</i>	1	2	1	2	No	Ireland BOCC 2020-26, Amber, Breeding & Wintering
Red grouse	<i>Lagopus lagopus</i>	6	8	2	2	No	Ireland BOCC, 2020-26, Red, Breeding
Kestrel	<i>Falco tinnunculus</i>	3	3	3	3	No	Ireland Schedule 4, Ireland BOCC,

Species	Scientific name	2018-2019 Number of records	Total Birds	2019-2020 Number of records	Total Birds	At risk from wind-farms *	Designations
							2020-26, Red, Breeding
Dipper	<i>Cinclus cinclus</i>			2	2	No	
Grey heron	<i>Ardea cinerea</i>	1	1	1	1	No	
Sparrowhawk	<i>Accipiter nisus</i>	3	3	1	1	No	Ireland Schedule 4

*As per guidance from (SNH, Assessing significance of impacts from onshore windfarms on birds outwith designated areas, 2006)

3.2.6 Breeding Red grouse Survey

Red grouse were seen on only two of the four transects that were surveyed the data is summarised in the table below.

Table 16: Red Grouse Survey Results

Row Labels	Transect 2		Transect 3	
	Number of records	Number of birds	Number of records	Number of birds
March 2019	1	1		
March 2020	7	7	2	2

This data demonstrates that Red grouse are present around the site but only in very small numbers. The surrounding moorland is not managed for Red grouse with burning and so it is only to be expected that grouse are not common in the area.

3.2.7 Breeding Woodcock Survey

Table 17: Breeding Woodcock Surveys

	Transect 1 Clydaghroe East	Transect 1 Clydaghroe West	Transect 2 Clydaghroe East	Transect 2 Clydaghroe West	Grand Total
May	1	1	1	1	4
16-May	1		1		2
30-May		1		1	2
Jun	1	1		1	3
10-Jun		1		1	2
20-Jun	1				1
Grand Total	2	2	1	2	7

Small numbers of woodcock were recorded during transects on forestry tracks within or close to the proposed development. All records are of birds displaying over woodland indicating that woodcock breed in small numbers within the plantations.

4 Conclusion

The Proposed Development is generally of low importance for ornithological receptors. The Site is heavily planted with non-native conifers plantation which is currently of an age that is of little utility to key protected bird species. Despite substantial observation time from standard vantage points, Hen harrier vantage and breeding raptor vantage points it is apparent that Hen harriers are infrequently seen, within the turbine envelope of the proposed development with little flight activity at risk height. Despite the proximity of the site to and SPA designated for Hen harrier, are infrequent within relevant buffer areas surrounding the Site both in the breeding season and over winter. The other key ornithological receptor identified within the desktop study, Greenland white-fronted goose, was not observed during field work. Of species observed from vantage points Golden plover is the species with the most at risk flight time.

5 References

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Appendices

Appendix A. Survey Results

A.1. Vantage Point Observations by Species

Table A-1: Vantage Point Observation Results

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m)(s)	Band 3 (25-200m)(s)	Band 4 (>200m)(s)	Band 1 (0-10m)(s)	Band 2 (10-25m)(s)	Band 3 (25-175m)(s)	Band 4 (>175m)(s)		
Buzzard	BZ001	22/10/2018	15:21	VP3	1	102	0	0	102	0	0	0	0	0	conifer plantation, upland blanket bog; soaring and foraging; adult	JM
Buzzard	BZ002	29/10/2018	08:13	VP2	1	34	0	0	34	0	0	0	0	0	conifer plantation ; soaring over conifers; adult	JM
Buzzard	BZ003	21/11/2019	11:16	VP3	2	365	0	0	0	0	0	0	350	15	conifer plantation, improved agricultural grassland; soaring together, mobbed by corvids, seperated out beyond hillside.	CD
Cormorant	J1	07/10/2019	13:32	VP4	1	55	0	0	20	35	0	0	0	0	upland blanket bog, improved agricultural grassland; flying through	CMc

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m)(s)	Band 3 (25-200m)(s)	Band 4 (>200m)(s)	Band 1 (0-10m)(s)	Band 2 (10-25m)(s)	Band 3 (25-175m)(s)	Band 4 (>175m)(s)		
Cormorant	1	19/03/2020	10:26	VP6	1	35	10	25	0	0					eroding/upland rivers, conifer plantation; in flight; cormorant in flight, landed in stream.	TK
Cormorant	2	19/03/2020	10:42	VP6	1	70	10	60	0	0					eroding/upland rivers, conifer plantation; in flight; cormorant flew up from stream, flying west.	TK
Golden plover	GP001	26/10/2018	09:32	VP6	50	235	0	0	200	35	0	0	0	0	upland blanket bog ; flock circling around turbines and over bog before settling in area without turbines; adult	JM
Golden plover	GP002	29/10/2018	11:48	VP2	20	70	0	0	70	0	0	0	0	0	upland blanket bog ; flock travelling to west; adult	JM
Golden plover	GP003	07/11/2018	14:22	VP4a	12	100	0	0	100	0	0	0	0	0	upland blanket bog ; flock calling and circling; adults	JM
Golden plover	GP004	27/11/2018	11:18	VP2	50	240	0	0	240	0	0	0	0	0	upland blanket bog ; circling in flight	TK
Golden plover	GP005	27/11/2018	12:40	VP2	50	120	0	0	120	0	0	0	0	0	upland blanket bog ; circling in flight	TK

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m) (s)	Band 3 (25-200m) (s)	Band 4 (>200m) (s)	Band 1 (0-10m)(s)	Band 2 (10-25m) (s)	Band 3 (25-175m) (s)	Band 4 (>175m) (s)		
Golden plover	GP006	22/12/2018	13:04	VP4a	10	30	0	20	10	0	0	0	0	0	upland blanket bog ; flock calling and circling; adults	JM
Golden plover	GP007	31/12/2018	12:40	VP6a	24	80	40	30	10	0	0	0	0	0	upland blanket bog, conifer plantation; flock calling and circling, landed on bog to forage and rising again; golden plover flock present in this area again	JM
Golden plover	GP008	11/01/2019	10:16	VP6a	175	100	0	0	80	20	0	0	0	0	upland blanket bog ; flock calling and circling, landed on bog to forage and rising again; flock landing on bog feeding flying and circling	JM
Golden plover	GP009	11/01/2019	12:25	VP6a	162	125	0	0	100	25	0	0	0	0	upland blanket bog ; flock calling and circling, landed on bog to forage and rising again; flock landing on bog calling, feeding, flying and circling	JM

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m)(s)	Band 3 (25-200m)(s)	Band 4 (>200m)(s)	Band 1 (0-10m)(s)	Band 2 (10-25m)(s)	Band 3 (25-175m)(s)	Band 4 (>175m)(s)		
Golden plover	GP010	07/03/2019	07:11	VP2	6	5	0	0	0	0	3	2	0	0	upland blanket bog ; briefly spotted flying across the bog; male	CMc
Golden plover	GP011	07/03/2019	11:30	VP2	27	7	0	0	0	0	5	2	0	0	upland blanket bog ; came up behind a ridge, landed on the bog for approximately 5 minutes then flew away again	CMc
Golden plover	GP012	26/03/2019	17:30	VP2	37	15	0	0	0	0	5	10	0	0	upland blanket bog ; flock flying back and fourth across the bog, popping up into view over the ridge, lost to sight behind ridge again; adults	CMc
Golden plover	GP013	08/10/2019	18:21	VP2	37	150	150	0	0	0	0	0	0	0	upland blanket bog ; flying over the bog	CMc
Golden plover	GP014	08/10/2019	18:49	VP2	37	26	10	16	0	0	0	0	0	0	upland blanket bog ; flying over the bog	CMc
Golden plover	GP015	08/10/2019	18:51	VP2	6	7	7	0	0	0	0	0	0	0	upland blanket bog ; flying over the bog	CMc
Golden plover	GP016	09/10/2019	15:06	VP1	8	94	0	0	0	0	0	0	94	0	upland blanket bog, conifer plantation; descending on to pb3	JK

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m)(s)	Band 3 (25-200m)(s)	Band 4 (>200m)(s)	Band 1 (0-10m)(s)	Band 2 (10-25m)(s)	Band 3 (25-175m)(s)	Band 4 (>175m)(s)		
Golden plover	GP017	17/10/2019	15:44	VP6	18	36	0	0	0	0	0	0	36	0	upland blanket bog, conifer plantation; travelling	JK
Golden plover	GP018	19/11/2019	09:38	VP6	85	720	0	0	0	0	0	0	90	630	cutover bog ; flying above pch above existing turbines	CD
Golden plover	GP019	29/12/2019	12:26	VP3	25	286	0	0	286	0					upland blanket bog, conifer plantation; in flight; flock of 25 golden plover in flight and circling over area of open blanket bog	TK
Golden plover	GP020	22/02/2020	16:48	VP2	8	10	10	0	0	0					upland blanket bog ; in flight; flock of 8 golden plover seen briefly in flight. flying approx.5m above ground, possibly took flight from ground.	TK
Golden plover	GP021	22/03/2020	07:13	VP2	12	15	15	0	0	0					upland blanket bog ; in flight; flock of 12 golden plover in flight, landed on ground.	TK

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m)(s)	Band 3 (25-200m)(s)	Band 4 (>200m)(s)	Band 1 (0-10m)(s)	Band 2 (10-25m)(s)	Band 3 (25-175m)(s)	Band 4 (>175m)(s)		
Golden plover	GP022	22/03/2020	07:52	VP2	12	85	55	30	0	0					upland blanket bog ; circling; flock of 12 golden plover took flight from ground, circling overhead for 85 seconds, before landing on ground again.	TK
Golden plover	GP023	15/10/2020	15:15	VP2	66	32	0	0	32	0					upland blanket bog ; flying; golden plover	CMc
Golden plover	GP024	15/10/2020	15:24	VP2	66	25	0	0	25	0					upland blanket bog ; flying; golden plover flock came around again	CMc
Golden plover	GP025	15/10/2020	17:40	VP2	3	7	7	0	0	0					upland blanket bog ; flying; golden plover	CMc
Golden plover	GP026	15/10/2020	18:01	VP2	12	5	5	0	0	0					upland blanket bog ; flying; golden plover	CMc
Golden plover	GP027	15/10/2020	18:32	VP2	3	5	5	0	0	0					upland blanket bog ; flying; golden plover	CMc
Golden plover	GP028	25/11/2020	13:26	VP2	12	15	15	0	0	0					upland blanket bog ; flying low over the bog	CMc
Grey heron	H001	22/10/2018	16:03	VP3	1	21	0	0	21	0	0	0	0	0	conifer plantation ; travelling through site; adult	JM
Grey heron	H001	22/03/2019	12:31	VP6a	1	32	0	32	0	0	0	0	0	0	upland blanket bog ; flying through the site	JM

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m) (s)	Band 3 (25-200m) (s)	Band 4 (>200m) (s)	Band 1 (0-10m)(s)	Band 2 (10-25m) (s)	Band 3 (25-175m) (s)	Band 4 (>175m) (s)		
Grey heron	FH01	24/06/2019	11:54	VP4	1	5	5	0	0	0	0	0	0	0	improved agricultural grassland, watercourses; h was feeding in river, took off and flew behind conifers out of sight; adult	CMc
Grey heron	GH01	15/07/2019	12:25	VP4	2	7	7	0	0	0	0	0	0	0	watercourses ; moving position	CMc
Grey heron	HH01	20/08/2019	20:08	VP4	1	30	0	30	0	0	0	0	0	0	improved agricultural grassland, conifer plantation; flew across ga1 and landed in a conifer, perched there for 4 minutes	CMc
Grey heron	HH02	20/08/2019	20:12	VP4	1	5		5	0	0	0	0	0	0	improved agricultural grassland, conifer plantation; bird from previous observation took off from the conifer and flew around the stand of trees out of sight	CMc
Grey heron	H0001	18/11/2019	11:40	VP6	1	15	0	0	0	0	5	10	0	0	conifer plantation, cutover bog; flying	CD
Grey heron	H0002	18/11/2019	12:14	VP6	1	30	0	0	0	0	0	30	0	0	conifer plantation ; flying	CD

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m)(s)	Band 3 (25-200m)(s)	Band 4 (>200m)(s)	Band 1 (0-10m)(s)	Band 2 (10-25m)(s)	Band 3 (25-175m)(s)	Band 4 (>175m)(s)		
Hen harrier	HH001	31/10/2018	10:21	VP1a	1	11	8	3	0	0	0	0	0	0	upland blanket bog ; travelling and quartering; juv	JM
Hen harrier	HH002	19/11/2018	09:54	VP1	2	65	0	0	0	0	0	0	60	5	conifer plantation ; flying and circling; female and juvenile	CMc
Hen harrier	HH003	11/01/2019	11:51	VP6a	1	15	0	15	0	0	0	0	0	0	upland blanket bog ; male gliding ne ; male gliding low toward ne	JM
Hen harrier	HH004	06/03/2019	11:09	VP3	1	10	0	0	0	0	0	10	0	0	conifer plantation ; flying through site	CMc
Hen harrier	HH005	17/09/2019	17:43	VP4	1	8	5	3	0	0	0	0	0	0	conifer plantation, watercourses; spotted flying low along a stream, moved over grassland and bog, lost to sight behind conifers; female	CMc
Hen harrier	HH006	19/09/2019	13:41	VP2	1	20	20	0	0	0	0	0	0	0	upland blanket bog ; mobbed by 2rn; female	CMc
Hen harrier	HH007	09/10/2019	14:51	VP1	1	48	0	0	0	0	48	0	0	0	upland blanket bog, conifer plantation; forageing / travelling; male	JK

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m)(s)	Band 3 (25-200m)(s)	Band 4 (>200m)(s)	Band 1 (0-10m)(s)	Band 2 (10-25m)(s)	Band 3 (25-175m)(s)	Band 4 (>175m)(s)		
Hen harrier	HH008	13/12/2019	11:48	VP5	1	95	95	0	0	0					upland blanket bog ; hunting; male hen harrier hunting low over ground 2-3m high	TK
Kestrel	K001	22/10/2018	10:45	VP3	1	44	0	44	0	0	0	0	0	0	conifer plantation, upland blanket bog; hunting and hovering; female	JM
Kestrel	K002	26/10/2018	13:44	VP6	1	75	0	75	0	0	0	0	0	0	upland blanket bog ; hovering and hunting; adult	JM
Kestrel	K003	29/10/2018	08:24	VP2	1	45	0	25	20	0	0	0	0	0	upland blanket bog ; hunting and hovering; male	JM
Kestrel	K004	31/10/2018	11:56	VP1a	1	25	0	25	0	0	0	0	0	0	conifer plantation, upland blanket bog; hovering and sweeping; female	JM
Kestrel	K005	02/11/2018	10:45	VP5b	1	55	0	55	0	0	0	0	0	0	conifer plantation, upland blanket bog; hunting and hovering; male	JM
Kestrel	K006	07/11/2018	08:15	VP4a	1	78	0	50	28	0	0	0	0	0	conifer plantation, upland blanket bog; hunting and hovering; male	JM

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m)(s)	Band 3 (25-200m)(s)	Band 4 (>200m)(s)	Band 1 (0-10m)(s)	Band 2 (10-25m)(s)	Band 3 (25-175m)(s)	Band 4 (>175m)(s)		
Kestrel	K007	20/11/2018	12:15	VP3	1	5	0	0	0	0	5	0	0	0	conifer plantation ; flew over replanted clearfell and down along a forestry access track	CMc
Kestrel	K008	22/12/2018	10:21	VP4a	1	17	0	17	0	0	0	0	0	0	eroding/upland rivers, upland blanket bog; travelling west along watercourse; male	JM
Kestrel	K009	06/03/2019	10:24	VP3	1	15	0	0	0	0	5	10	0	0	conifer plantation ; flew out from behind a ridge, looped around and was lost to sight below ridge again; adult	CMc
Kestrel	K010	04/04/2019	16:28	VP3	1	3	0	0	0	0	0	3	0	0	conifer plantation ; observed briefly flying into trees	CMc
Kestrel	K011	17/05/2019	11:45	VP3	1	25	0	15	10	0	0	0	0	0	conifer plantation ; hunting	CMc
Kestrel	K012	19/09/2019	13:38	VP2	1	16	6	10	0	0	0	0	0	0	upland blanket bog ; mobbed by sl and rn; female	CMc
Kestrel	K013	17/10/2019	15:45	VP6	1	48	0	0	0	0	0	48	0	0	upland blanket bog, conifer plantation; travelling; adult male	JK

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m)(s)	Band 3 (25-200m)(s)	Band 4 (>200m)(s)	Band 1 (0-10m)(s)	Band 2 (10-25m)(s)	Band 3 (25-175m)(s)	Band 4 (>175m)(s)		
Kestrel	K014	17/10/2019	16:37	VP6	1	72	0	0	0	0	0	72	0	0	upland blanket bog, conifer plantation; hunting; adult male	JK
Kestrel	K015	18/11/2019	13:20	VP6	1	150	0	0	0	0	15	0	0	0	bogs ; flying	CD
Kestrel	K016	19/11/2019	09:01	VP6	1	20	0	0	0	0	15	5	0	0	conifer plantation ; female k. landed in conifer briefly. flew off over wd4	CD
Kestrel	K017	21/11/2019	10:32	VP3	1	1320	0	0	0	0	1320	0	0	0	conifer plantation ; perched, made 3 flights, each 10s.; female	CD
Kestrel	K018	21/11/2019	11:07	VP3	1	20	0	0	0	0	0	5	15	0	conifer plantation ; hunting	CD
Kestrel	K019	09/12/2019	12:26	VP4	1	225	40	185	0	0					upland blanket bog, conifer plantation; hunting; male kestrel hunting, hovering and flying on	TK
Kestrel	K020	17/12/2019	15:21	VP1	1	70	0	70	0	0					conifer plantation ; hunting; male kestrel hovering briefly over area of clearfell before flying on.	TK

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m)(s)	Band 3 (25-200m)(s)	Band 4 (>200m)(s)	Band 1 (0-10m)(s)	Band 2 (10-25m)(s)	Band 3 (25-175m)(s)	Band 4 (>175m)(s)		
Kestrel	K021	17/12/2019	15:42	VP1	1	30	0	30	0	0					conifer plantation ; in flight; male kestrel observed in flight over forestry/clearfell	TK
Kestrel	K022	28/12/2019	14:32	VP6	1	175	0	175	0	0					conifer plantation ; hunting; male kestrel seen hovering and in flight over area of forestry/open bog.	TK
Kestrel	K023	29/12/2019	16:18	VP3	1	45	0	45	0	0					conifer plantation ; in flight; female kestrel in flight	TK
Kestrel	K024	14/07/2020	12:53	VP5	1	7	1	1	5	0					upland blanket bog ; hovering then dropped out of sight	CMc
Kestrel	K025	27/08/2020	17:29	VP3	1	150	0	0	150	0					conifer plantation ; hunting over clearfell, flew behind conifers out of sight	CMc
Little egret	ET001	26/10/2018	08:45	VP6	3	28	0	0	28	0	0	0	0	0	conifer plantation, upland blanket bog; travelling through site; adult	JM
Mallard	MA001	19/03/2020	11:50	VP6	2	48	5	43	0	0					conifer plantation ; in flight; 2 mallard in flight over forestry/clearfell	TK

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m)(s)	Band 3 (25-200m)(s)	Band 4 (>200m)(s)	Band 1 (0-10m)(s)	Band 2 (10-25m)(s)	Band 3 (25-175m)(s)	Band 4 (>175m)(s)		
Peregrine	PE001	15/10/2019	14:56	VP3	1	74	0	0	0	0	0	0	74	0	upland blanket bog, conifer plantation; travelling; female mala	JK
Red grouse	RG001	16/01/2019	09:15	VP3a	1	25	0	25	0	0	0	0	0	0	upland blanket bog ; flushed from bog flew northeast; adults	JM
Red grouse	RG002	23/08/2019	17:54	VP2	2	10	10	0	0	0	0	0	0	0	upland blanket bog ; came up off the bog and flew away over the ridge where the previous rg went; not clear what disturbed the birds causing them to move position	CMc
Red grouse	RG003	12/01/2020	11:51	VP2	2	10	10	0	0	0					upland blanket bog ; in flight; red grouse heard calling on a number of occasions from 11:10 am, saw 2 birds in heather approx 150m from the vp, after about 30 mins the 2 birds flew about 100m before landing out of sight.	TK

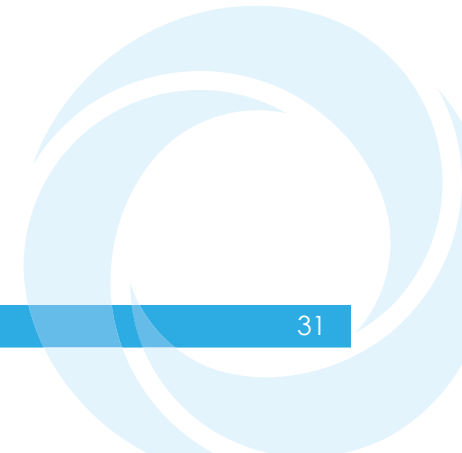
Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m)(s)	Band 3 (25-200m)(s)	Band 4 (>200m)(s)	Band 1 (0-10m)(s)	Band 2 (10-25m)(s)	Band 3 (25-175m)(s)	Band 4 (>175m)(s)		
Snipe	SN001	26/10/2018	15:12	VP6	1	15	15	0	0	0	0	0	0	0	upland blanket bog ; flew from cover ; adult	JM
Snipe	SN002	29/10/2018	07:40	VP2	1	15	15	0	0	0	0	0	0	0	upland blanket bog ; flushed from bog flew east; adult	JM
Snipe	SN003	31/10/2018	13:04	VP1a	1	22	22	0	0	0	0	0	0	0	upland blanket bog ; flushed from bog flew northwest; adult	JM
Snipe	SN004	02/11/2018	15:21	VP5b	2	25	10	15	0	0	0	0	0	0	upland blanket bog, conifer plantation; flying east; adult	JM
Snipe	SN005	07/11/2018	14:12	VP4a	3	30	0	30	0	0	0	0	0	0	upland blanket bog ; flying from bog nw; adult	JM
Snipe	SN006	11/01/2019	10:43	VP6a	2	40	20	20	0	0	0	0	0	0	upland blanket bog ; pair flushed from bog; pair flushed from bog	JM
Sparrowhawk	SH001	29/10/2018	12:21	VP2	1	56	0	50	6	0	0	0	0	0	conifer plantation, upland blanket bog; hunting; female	JM
Sparrowhawk	SH002	11/01/2019	09:50	VP6a	1	42	0	0	42	0	0	0	0	0	hedgerows, conifer plantation; travelling and hunting	JM
Sparrowhawk	SH003	16/05/2019	12:14	VP4a	1	14	0	0	0	0	14	0	0	0	upland blanket bog, conifer plantation; male travelling	JM

Species	Map Reference	Date	Time	VP	Number of Birds	Duration of Flight(s)	Height Band Schema 1				Height Band Schema 2				Habitat and Activity	Surveyor
							Band 1 (0-15m)(s)	Band 2 (15-25m)(s)	Band 3 (25-200m)(s)	Band 4 (>200m)(s)	Band 1 (0-10m)(s)	Band 2 (10-25m)(s)	Band 3 (25-175m)(s)	Band 4 (>175m)(s)		
Sparrowhawk	SH004	16/06/2019	12:14	VP1a	1	15	0	0	0	0	15	0	0	0	#N/A	JM
Sparrowhawk	SH005	18/09/2019	08:11	VP4	1	10	6	4	0	0	0	0	0	0	conifer plantation, improved agricultural grassland; flew past vp, landed on a conifer briefly and flew away; male	CMc
Sparrowhawk	SH006	25/01/2020	13:15	VP6	1	20	20	0	0	0					conifer plantation ; in flight; male sparrowhawk gliding over area of forestry/clearfell	TK
Sparrowhawk	SH007	02/12/20	12:10	VP3	1	7	7	0	0	0					conifer plantation ; flying; flying low over the road	CMc
White-tailed eagle	WE001	15/07/2019	12:57	VP4	1	360	0	0	0	360	0	0	0	0	improved agricultural grassland, upland blanket bog; flying high over the hillside, the bird circled and climbed until it flew out of sight behind the hill. bird had wing tags and a predominately dark tail.; juvenile	CMc

A.2. Hen harrier Roost Survey Results

Table A2: Hen Harrier Roost Survey Results

Map Reference	Date	Time	Hen Harrier Vantage point	Number of Birds	Habitat and activity	Fossitt Habitat 1	Notes	Surveyor
HH001	26/10/2018	17:10:00	4	1	juvenile ringtail hunting over bog	upland blanket bog	Juvenile Ringtail	JM
HH002	31/10/2018	17:15:00	5	1	female/juv flying slowly to east	upland blanket bog	Female/juv	JM
HH003	08/11/2018	15:45:00	7	1	female travelling east toward lake	upland blanket bog	Female	JM
HH004	11/01/2019	15:20:00	2	1	adult male hunting over bog	upland blanket bog	Adult Male	JM
HH005	30/01/2019	15:10:00	7	1	female/juv hunting over bog in a westerly direction	upland blanket bog	Female/juv	JM
HH006	21/03/2019	17:33:00	6	1	male flying low over bog to east	upland blanket bog	Male	JM
HH007	17/03/2020	17:03:00	8	1	male hen harrier hunting, in slow flight (1-2m) over bog	lowland blanket bog	Male Hen Harrier hunting, in slow flight low over ground (1-2m)	TK



A.3. Breeding Raptor Survey Results

Table A3: Breeding Raptor Survey Results

Species	Map Reference	Date	Time	Location	Number of Birds	Habitat summary	Activity/ behaviour	Notes	Surveyor
Buzzard	BZ001	24/06/2019	08:45:00	Area 4	1	Conifer plantation & Improved agricultural grassland	Soaring and hunting and mewing	Adult	JM
Buzzard	BZ002	26/06/2019	09:15:00	Area 2	1	Conifer plantation	Soaring and hunting and mewing	Adult	JM
Buzzard	BZ003	16/07/2019	11:12:00	Area 1	1	Conifer plantation	Soaring followed by gradual descent into forestry	Adult	JM
Buzzard	BZ004	15/06/2020	13:51:00	Mullaghanish	1	Conifer plantation & Upland blanket bog	Adult flying and soaring flew awy NW	Soaring	TN
Hen Harrier	HH001	29/07/2019	12:37:00	Area 3	1	Upland blanket bog	Hunting over bog	Adult Male	JM
Hen Harrier	HH002	15/07/2020	16:21:00	Curraleigh	1	Dry siliceous heath & Scrub	HH1 (Dry Heath)	Soaring	TN
Kestrel	K001	17/04/2019	13:53:00		1	Improved agricultural grassland	Hovering and Travelling	Adult	JM
Kestrel	K002	28/05/2019	11:14:00	Area 2	1	Improved agricultural grassland	Hovering and hunting	Adult Male	JM

Species	Map Reference	Date	Time	Location	Number of Birds	Habitat summary	Activity/ behaviour	Notes	Surveyor
Kestrel	K003	30/05/2019	13:45:00	Area 3	1	scrub/transitional woodland	Male hunting	Adult Male	JM
Kestrel	K004	03/06/2019	11:13:00	Area 2	1	Wet grassland	Hovering and hunting	Adult Male	JM
Kestrel	K005	16/07/2019	13:42:00	Area 1	1	Upland blanket bog	Female hovering and hunting near lake	Adult Female	JM
Kestrel	K006	31/07/2019	11:31:48	Area 4	1	Improved agricultural grassland	Hunting over grassland	Adult Male	JM
Kestrel	K007	08/05/2020	15:05:00	Knockullane	1	Conifer plantation	Hovering followed by gradual descent into forestry	Adult Male	TN
Kestrel	K008	12/05/2020	15:16:00	Knocknagowan	2	Upland blanket bog	Soaring over Mullaghanish	Two birds soaring and chasing; probably a territorial dispute.	TN
Kestrel	K009	19/05/2020	10:00:00	Garranearney	1	Conifer plantation & Wet heath	Flying southwest across the valley	Hunting bird.	TN
Kestrel	K010	20/05/2020	12:55:00	Glendav (Transect)	1	Conifer plantation	Hovering and flying southeast across the valley	Hunting bird.	TN
Kestrel	K011	20/05/2020	15:44:00	Mullaghanish	1	Wet heath	Flying east across the valley	Hunting bird.	TN
Kestrel	K012	15/07/2020	11:42:00	Derrynafinnia	1	Conifer plantation	Circling over young plantation	Hunting bird.	TN

Species	Map Reference	Date	Time	Location	Number of Birds	Habitat summary	Activity/ behaviour	Notes	Surveyor
Kestrel	K013	15/07/2020	12:54:00	Slievareagh	1	Conifer plantation	Flying over mature forest and clearfell	Hunting bird.	TN
Kestrel	K014	15/07/2020	15:00:00	Coomnaclohy	1	Conifer plantation & Upland blanket bog	WD4	Hunting bird.	TN
Kestrel	K015	20/07/2020	13:10:00	Carrigallissy	1	Dry siliceous heath		Hunting bird.	TN
Kestrel	K016	20/07/2020	13:50:00	Carrigallissy	1	Dry siliceous heath		Hunting bird.	TN
Kestrel	K017	27/07/2020	11:34:00	Glantane West	1	Conifer plantation		Adult Female flying	TN
Kestrel	K018	27/07/2020	11:41:00	Garranearney	1	Wet heath		Flying/hunting	TN
Kestrel	K019	27/07/2020	12:12:00	Derryleigh	1	Scrub		Fledged juv hunting	TN
Peregrine Falcon	PE001	10/04/2019	11:16:00		1	Upland blanket bog	Hunting above Claragh mountain lower slopes	Adult	JM
Peregrine Falcon	PE002	23/04/2019	14:12:00		1	Upland blanket bog	Soaring near Paps	Adult	JM
Peregrine Falcon	PE003	23/05/2019	10:03:00	Area 1	1	Upland blanket bog	Adult calling and soaring	Adult	JM
Peregrine Falcon	PE004	08/05/2020	12:14:00	1 (L.Glannafreag haun	1	Upland blanket bog & Wet heath	Calling followed by brief flight from one part of crag to another.	Adult Female	TN
Peregrine Falcon	PE005	25/05/2020	12:41:00	L.Glannafreagh aun	2	Upland blanket bog & Wet heath	Male arrived with prey, female flew to plucking area and back to eyrie	Prey delivery to nest	TN
Peregrine	PE006	21/07/2020	12:22:00	Glannafreagha	2	Wet heath		Juvenile	TN

Species	Map Reference	Date	Time	Location	Number of Birds	Habitat summary	Activity/ behaviour	Notes	Surveyor
Falcon				un					
Peregrine Falcon	PE007	21/07/2020	14:02:00	Glannafreagha un	1	Wet heath		Adult mobbing Raven	TN
Peregrine Falcon	PE008	21/07/2020	14:17:00	Glannafreagha un	1	Wet heath		Adult leaving nest	TN
Peregrine Falcon	PE009	21/07/2020	14:32:00	Glannafreagha un	1	Wet heath		Adult leaving nest after prey delivery	TN
Sparrowhawk	SH001	30/05/2019	16:15:00	Area 3	1	Conifer plantation	Female hunting	Adult Female	JM
Sparrowhawk	SH002	28/06/2019	10:10:00	Area 3	1	Conifer plantation	Female soaring over coniferous forestry	Adult Female	JM
Sparrowhawk	SH003	16/07/2019	12:02:00	Area 1	1	Conifer plantation & Scrub/transitional woodland	Male flying low	Adult Male	JM
Sparrowhawk	SH004	16/06/2020	08:08:00	Gneeves	1	Upland blanket bog & Conifer plantation	Female carrying prey flying towards forest at Comeenatrush L.	Hunting bird.	TN
Sparrowhawk	SH005	26/06/2020	09:15:00	Gortavehy	1		Female carrying prey.	Hunting bird.	TN
Sparrowhawk	SH006	15/07/2020	15:36:00	Coomnaclohy	1	Wet heath		Hunting bird.	TN
Sparrowhawk	SH007	20/07/2020	12:14:00	Carrigallissy	1	Conifer plantation		Hunting bird.	TN
Sparrowhawk	SH008	20/07/2020	17:25:00	Labbadermody	1	Conifer plantation		Hunting bird.	TN
Sparrowhawk	SH009	27/07/2020	12:26:00	Garranearney	1	Wet heath		Soaring	TN

A.4. Breeding Bird Survey Results

Table A4: Breeding Bird Survey Results

Species	Map Reference (V1)	Date	Number of Birds	Activity/ behaviour	Notes	Surveyor
Grey Heron	<Null>	09/05/2020	1	Flying high over bog/field and dropped into forestry	14	CMc
Grey Heron	<Null>	23/07/2019	1	Flying through site	11	CMc
Grey Wagtail	<Null>	22/04/2019	2			JM
Grey Wagtail	<Null>	25/04/2019	2			JM
Grey Wagtail	<Null>	10/06/2019	2	Foraging in field for worms/insects		JM
Kestrel	K005	23/07/2019	1	Flushed from a log pile	4	CMc
Kestrel	K010	27/07/2020	1	Flushed from clearfell, flew up the hill out of sight	12	CMc
Kestrel	K004	23/07/2019	1	Hunting	10	CMc
Kestrel	K006	23/07/2019	1	Hunting	2	CMc
Little Grebe	LG001	10/06/2019	2	Foraging in field for worms/insects	BreedingWalkover Survey Transect 20	JM
Meadow Pipit	MP016	23/07/2019	1		1	CMc
Meadow Pipit	MP024	24/07/2019	1		14	CMc
Meadow Pipit	MP017	23/07/2019	1		4	CMc
Meadow Pipit	MP020	23/07/2019	1		5	CMc
Meadow Pipit	MP022	23/07/2019	1		6	CMc

Species	Map Reference (V1)	Date	Number of Birds	Activity/ behaviour	Notes	Surveyor
Meadow Pipit	MP004	22/04/2019	1		BreedingWalkover Survey Transect 16	JM
Meadow Pipit	MP005	22/04/2019	2		BreedingWalkover Survey Transect 16	JM
Meadow Pipit	MP006	25/04/2019	2		BreedingWalkover Survey Transect 20,21	JM
Meadow Pipit	MP007	25/04/2019	2		BreedingWalkover Survey Transect 20,21	JM
Meadow Pipit	MP001	03/04/2019	2		BreedingWalkover Survey Transect 5,8	JM
Meadow Pipit	MP002	03/04/2019	1		BreedingWalkover Survey Transect 5,8	JM
Meadow Pipit	MP003	03/04/2019	2		BreedingWalkover Survey Transect 5,8	JM
Meadow Pipit	MP018	23/07/2019	1	call	4	CMc
Meadow Pipit	MP019	23/07/2019	1	call	8	CMc
Meadow Pipit	MP015	23/07/2019	3	flight	1	CMc
Meadow Pipit	MP014	23/07/2019	17	flight	10	CMc
Meadow Pipit	MP023	24/07/2019	3	Flight	13	CMc
Meadow Pipit	MP012	22/07/2019	1	flight	20	CMc
Meadow	MP013	22/07/2019	1	flight	20	CMc

Species	Map Reference (V1)	Date	Number of Birds	Activity/ behaviour	Notes	Surveyor
Pipit						
Meadow Pipit	MP008	23/07/2019	1	flight	6	CMc
Meadow Pipit	MP008	05/06/2019	6	Foraging in field for worms/insects	BreedingWalkover Survey Transect 1,6,7	JM
Meadow Pipit	MP009	08/06/2019	2	Foraging in field for worms/insects	BreedingWalkover Survey Transect 13,16	JM
Meadow Pipit	MP010	09/06/2019	3	Foraging in field for worms/insects	BreedingWalkover Survey Transect 13,17	JM
Meadow Pipit	MP011	10/06/2019	2	Foraging in field for worms/insects	BreedingWalkover Survey Transect 19,20,21,23	JM
Meadow Pipit	MP012	10/06/2019	2	Foraging in field for worms/insects	BreedingWalkover Survey Transect 19,20,21,23	JM
Meadow Pipit	MP013	10/06/2019	2	Foraging in field for worms/insects	BreedingWalkover Survey Transect 19,20,21,23	JM
Snipe	No Visual, not mapped	17/06/2020	1	drumming, no visuals		CMc

A.5. Wintering Bird Survey Results

Table A5: Wintering Bird Survey Results

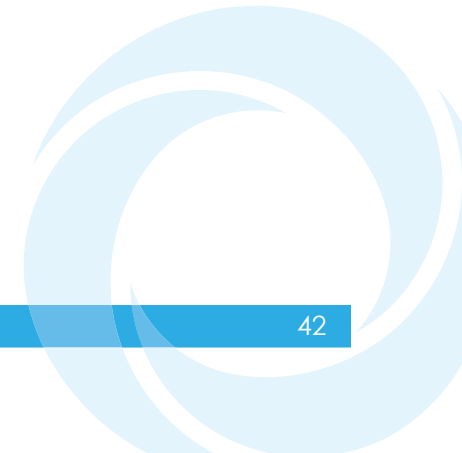
English vernacular name	Map Reference (V1)	Date	Number of Birds	Activity/ behaviour	Notes	Survey or
Sparrowhawk	SH001	23/10/2018	1	Flying fast		JM
Red grouse	RG001	23/10/2018	1	Adult flushed from bog		JM
Red grouse	RG002	23/10/2018	1	Flushed from bog		JM
Golden plover	GP001	23/10/2018	70	Flock flying and calling and landing on bog		JM

English vernacular name	Map Reference (V1)	Date	Number of Birds	Activity/ behaviour	Notes	Survey or
Golden plover	GP002	23/10/2018	80	2nd Flock flying and calling and landing on bog		JM
Sparrowhawk	SH002	08/11/2018	1	Travelling		JM
Sparrowhawk	SH003	08/11/2018	1	Travelling and Hunting		JM
Kestrel	K001	08/11/2018	1	Travelling		JM
Golden plover	GP003	08/11/2018	4	Calling		JM
Snipe	SN001	08/11/2018	1	Flew to cover		JM
Peregrine	PE001	12/12/2018	1	Travelling		JM
Red grouse	RG003	12/12/2018	2	Flew from bog calling		JM
Grey Heron	H001	19/12/2018	1	Calling in flight		JM
Red grouse	RG004	19/12/2018	1	Flew to cover		JM
Hen harrier	HH001	19/12/2018	1	Male in flight		JM
Mallard	MA001	19/12/2018	2	Travelling		JM
Peregrine	PE002	21/12/2018	1	Travelling		JM
Red grouse	RG005	21/12/2018	1	Flew from bog calling		JM
Hen harrier	HH002	21/12/2018	1	Female in flight west		JM
Kestrel	K002	08/01/2019	1	Observed hunting briefly over clearfell	About 25m high for 5 seconds	CMc
Red grouse	RG006	10/01/2019	2	Breeding pair on the forestry road, flew away into the fog as observer approached		CMc
Kestrel	K003	27/03/2019	1	Alighted from a tree, flew down road, and went into conifers	T8	CMc
Snipe	SN002	02/10/2019	1	Snipe flushed from ground	Adult	TK
Golden plover	GP004	02/10/2019	13	Flock of 13 Golden Plover flushed from ground, circled over area of bog (25-175m) for approx. 3 mins before flying	Adult	TK

English vernacular name	Map Reference (V1)	Date	Number of Birds	Activity/ behaviour	Notes	Survey or
				easterly out of sight.		
White-tailed eagle	WE001	02/10/2019	1	Juvenile White-tailed Eagle observed in flight 5-10m above ground over open bog in an easterly direction. Had green and orange tags on wings.	Juvenile	TK
Snipe	SN003	02/10/2019	1	Snipe flushed from ground	Adult	TK
Snipe	SN004	02/10/2019	2	Snipe flushed from ground	Adult	TK
Grey Heron	1	02/10/2019	1	Grey Heron took flight from edge of stream.	Adult	TK
Kestrel	K007	09/10/2019	1	Female Kestrel seen in flight over forestry/clearfell	Adult	TK
Snipe	SN005	09/10/2019	1	Snipe flushed from ground, flew off, landing near Lough Gal.	Adult	TK
Snipe	SN006	09/10/2019	2	2 Snipe flushed from ground, flew in a northerly direction out of sight.	Adult	TK
Golden plover	GP005	18/10/2019	6	Flock of 6 Golden Plover took flight from ground, circled overhead for 3 mins approx, before flying southerly direction 50-100m hgh		TK
Snipe	SN007	18/10/2019	2	2 Snipe flushed from ground, flew sw.		TK
Snipe	SN008	05/12/2019	1	Flushed from ground	Snipe flushed from ground	TK
Snipe	SN009	05/12/2019	2	Flushed from ground	2 Snipe flushed from ground	TK
Golden plover	GP006	05/12/2019	7	Flushed from ground, circling	7 Golden Plover flushed from ground, circled around before flying in southerly direction.	TK
Red grouse	RG007	05/12/2019	1	Heard calling.	Male Red Grouse heard calling,	TK

English vernacular name	Map Reference (V1)	Date	Number of Birds	Activity/ behaviour	Notes	Survey or
					didn't actually see the bird.	
Snipe	SN010	05/12/2019	1	Flushed from ground		TK
Kestrel	K008	07/12/2019	1	Hunting	Male Kestrel hunting, hovering over area of clerfell/young forestry before flying on.	TK
Golden plover	GP007	07/12/2019	4	In Flight, flushed from ground	4 Golden Plover flushed from ground, circled briefly before flying northerly direction and landing on bog	TK
Snipe	SN011	07/12/2019	1	In Flight, flushed from ground	Snipe flushed from ground, flew away before landing again.	TK
Red grouse	RG008	07/12/2019	1	In Flight, flushed from ground	Red Grouse flushed from ground, flew f100m away before landing again.	TK
Snipe	SN012	07/12/2019	1	In Flight, flushed from ground	Snipe flushed from ground, flew away before landing again.	TK
Snipe	SN013	08/12/2019	1		Snipe flushed from ground, flew away before landing again.	TK
Snipe	SN014	08/12/2019	2		Snipe flushed from ground, flew away before landing again.	TK
Snipe	SN015	08/12/2019	1		Snipe flushed from ground, flew away before landing again.	TK
Snipe	SN016	04/01/2020	1	Flushed from ground	Snipe flushed from ground	TK
Snipe	SN017	04/01/2020	1	Flushed from ground	Snipe flushed from ground	TK
Golden plover	GP008	04/01/2020	5	Flushed from ground	5 Golden Plover took flight from ground	TK
Snipe	SN018	04/01/2020	1	Flushed from ground	Snipe flushed from ground	TK
Snipe	SN019	06/01/2020	1	Flushed from ground	Snipe flushed from ground	TK
Snipe	SN020	06/01/2020	1	Flushed from ground	Snipe flushed from ground	TK

English vernacular name	Map Reference (V1)	Date	Number of Birds	Activity/ behaviour	Notes	Survey or
Snipe	SN021	06/01/2020	1	Flushed from ground	Snipe flushed from ground	TK
Golden plover	GP009	06/01/2020	3	Flushed from ground	3 Golden Plover took flight from ground	TK
Snipe	SN022	15/01/2020	1	Flushed from ground		TK
Snipe	SN023	15/01/2020	2	Flushed from ground		TK
Snipe	SN024	15/01/2020	1	Flushed from ground		TK
Snipe		15/01/2020	1	Seen in stream		TK
Snipe	17	05/03/2020	1	Flushed from ground		TK
Snipe	SN025	05/03/2020	2	Flushed from ground	2 Snipe flushed from ground	TK
Mallard	MA002	05/03/2020	2	In flight	2 Mallard, male and female, took flight from edge of lake.	TK
Snipe	SN026	05/03/2020	1	Flushed from ground	Single Snipe flushed from ground.	TK
Sparrowhawk	SH004	05/03/2020	1	Perched and in flight	Male Sparrowhawk perched on fencepost for 6 mins, flew off low to ground.	TK
Kestrel	K009	13/03/2020	1	Hunting	Male Kestrel seen hunting, hovering and flying on.	TK
Snipe	SN027	13/03/2020	2	Flushed from ground	2 Snipe flushed from ground	TK
Snipe	SN028	17/03/2020	1	Flushed from ground	Snipe flushed from ground	TK



A.6. Red Grouse Survey Results

Table A6: Red Grouse Survey Results

Map Reference	Date	Time	Transect	Number of Birds	Activity/ behaviour	Habitat	Surveyor
RG001	19/03/2019	15:47:00	T2	1	Calling male	upland blanket bog	JC
RG002	25/03/2020	09:05:00	T3	1	Flew towards then away calling	bogs	JC
RG003	25/03/2020	10:12:00	T3	1	Male flew towards, landed calling	bogs	JC
RG004	25/03/2020	12:42:00	T2	1	male flying away W calling	bogs	JC
RG005	25/03/2020	12:51:00	T2	1	calling	bogs	JC
RG006	25/03/2020	13:11:00	T2	1	calling	bogs	JC
RG008	25/03/2020	14:09:00	T2	1	male flying away to w	bogs	JC
RG009	25/03/2020	14:35:00	T2	1	towards n across road not calling	bogs	JC
RG010	25/03/2020	14:51:00	T2	1	another calling female	bogs	JC
RG011	25/03/2020	15:17:00	T2	1	flying away w not calling	bogs	JC

A.7. Breeding Woodcock Survey Results

Table A7: Breeding Woodcock Survey Results

Map Reference	Date	Transect	Number of Birds	Activity/ behaviour	Notes	Surveyor
WK001	16/05/2019	1	1	Bird roding and calling over woodland	Clydaghroe East	JM
WK002	16/05/2019	2	1	Bird heard calling above woodland	Clydaghroe East	JM
WK001	16/05/2019	1	1	Bird roding and calling over woodland	Clydaghroe East	JM
WK002	16/05/2019	2	1	Bird heard calling above woodland	Clydaghroe East	JM

Map Reference	Date	Transect	Number of Birds	Activity/ behaviour	Notes	Surveyor
WK003	30/05/2019	1	1	Bird roding and calling over woodland	Clydaghroe West	JM
WK004	30/05/2019	2	1	Bird heard calling above woodland	Clydaghroe West	JM
WK005	10/06/2019	1	1	Bird roding and calling at edge of coniferous forestry	Clydaghroe West	JM
WK006	10/06/2019	2	1	Bird heard calling above coniferous forestry	Clydaghroe West	JM
WK007	20/06/2019	1	1	Seen roding over coniferous forestry	Clydaghroe East	JM

Appendix B. Survey Effort and Conditions

B.1. Vantage Point Survey Effort and Conditions

Table B1: Vantage Point Survey Effort and Conditions

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
22/10/2018	3	09:30	12:30	3.00	NW	gentle breeze	>500m	0-33%	good	none	none	none		JM
22/10/2018	3	13:30	16:30	3.00	NW	gentle breeze	>500m	0-33%	good	none	none	none		JM
26/10/2018	6	09:30	12:30	3.00	NW	strong breeze	150-500m	33-66%	good	heavy showers	none	none		JM
26/10/2018	6	13:30	16:30	3.00	NW	strong breeze	150-500m	33-66%	good	heavy showers	none	none		JM
29/10/2018	2	07:30	10:30	3.00	SE	moderate breeze	150-500m	66-100%	good	heavy showers	none	none		JM

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
29/10/2018	2	11:30	14:30	3.00	SE	moderate breeze	150-500m	66-100%	good	heavy showers	none	none		JM
31/10/2018	1	07:30	10:30	3.00	W	light breeze	150-500m	33-66%	good	none	none	none		JM
31/10/2018	1	11:30	14:30	3.00	NW	light breeze	150-500m	33-66%	good	none	none	none		JM
02/11/2018	5	07:45	10:45	3.00	S	near gale	<150m	66-100%	good	drizzle	none	none	OCTOBER SURVEYS	JM
02/11/2018	5	11:15	14:15	3.00	S	near gale	<150m	66-100%	limited	heavy showers	none	none	OCTOBER SURVEYS	JM
07/11/2018	4	07:45	10:45	3.00	W	fresh breeze	>500m	33-66%	good	none	none	none	OCTOBER SURVEYS	JM
07/11/2018	4	11:15	14:15	3.00	W	fresh breeze	>500m	33-66%	good	none	none	none	OCTOBER SURVEYS	JM
13/11/2018	5	07:00	10:00	3.00	S	gentle breeze	150-500m	66-100%	moderate	light showers	none	none		CMc
13/11/2018	5	10:30	13:30	3.00	S	gentle breeze	150-500m	66-100%	moderate	light showers	none	none		CMc
16/11/2018	4	07:00	10:00	3.00	SSE	light breeze	150-500m	66-100%	limited	light showers	none	none		CMc
16/11/2018	4	10:30	13:30	3.00	SSE	light breeze	150-500m	66-100%	limited	none	none	none		CMc
19/11/2018	1	07:05	10:05	3.00	ENE	light breeze	150-500m	0-33%	good	none	none	none		CMc
19/11/2018	1	10:35	13:35	3.00	E	gentle breeze	150-500m	66-100%	moderate	none	none	none		CMc
20/11/2018	3	07:10	10:10	3.00	NE	light air	150-	66-100%	poor	none	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
							500m							
20/11/2018	3	10:40	13:40	3.00	ENE	light breeze	150-500m	66-100%	poor	light showers	none	none	Visability was highly variable throughout as clouds rolled over	CMc
22/11/2018	6	07:10	10:10	3.00	ESE	light breeze	150-500m	66-100%	moderate	light showers	none	none		CMc
22/11/2018	6	10:40	13:40	3.00	E	gentle breeze	>500m	66-100%	good	none	none	none		CMc
27/11/2018	2	07:20	08:20	1.00	SW	strong breeze	150-500m	66-100%	poor	drizzle	none	none		TK
27/11/2018	2	08:20	09:20	1.00	SW	strong breeze	150-500m	66-100%	moderate	drizzle	none	none		TK
27/11/2018	2	09:20	10:20	1.00	SW	strong breeze	>500m	66-100%	good	light showers	none	none		TK
27/11/2018	2	10:50	11:50	1.00	SW	strong breeze	>500m	66-100%	good	none	none	none		TK
27/11/2018	2	11:50	12:50	1.00	SW	strong breeze	>500m	66-100%	good	none	none	none		TK
27/11/2018	2	12:50	13:50	1.00	SW	strong breeze	>500m	66-100%	good	none	none	none		TK
05/12/2018	5	07:30	10:30	3.00	E	light air	150-500m	66-100%	moderate	light showers	none	none	No targets	CMc
05/12/2018	5	11:00	14:00	3.00	SW	light air	150-500m	66-100%	moderate	none	none	none	no targets	CMc
07/12/2018	1	07:35	10:35	3.00	W	gentle breeze	150-500m	66-100%	moderate	light showers	none	none	No targets	CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
07/12/2018	1	11:05	14:05	3.00	W	gentle breeze	150-500m	66-100%	moderate	none	none	none	No targets. Heavy showers of hail and sleet during the first hour	CMc
10/12/2018	3	07:35	10:35	3.00	S	light breeze	150-500m	66-100%	poor	none	none	none	no targets	CMc
10/12/2018	3	11:05	14:05	3.00	SSW	light breeze	150-500m	66-100%	limited	drizzle	none	none	no targets	CMc
22/12/2018	4	07:30	10:30	3.00	W	light breeze	>500m	33-66%	good	none	none	none		JM
22/12/2018	4	11:00	14:00	3.00	W	light breeze	>500m	33-66%	good	none	none	none		JM
31/12/2018	6	07:30	10:30	3.00	NE	light breeze	150-500m	66-100%	good	none	none	none		JM
31/12/2018	6	11:00	14:00	3.00	NE	light breeze	150-500m	66-100%	good	none	none	none		JM
03/01/2019	4	11:20	14:20	3.00	SSE	light air	150-500m	66-100%	good	none	none	none	no targets	CMc
03/01/2019	4	14:50	17:50	3.00	SSE	light air	150-500m	66-100%	good	none	none	none	no targets	CMc
04/01/2019	5	11:20	14:20	3.00	S	gentle breeze	>500m	66-100%	good	none	none	none	no targets	CMc
04/01/2019	5	14:50	17:50	3.00	SSE	gentle breeze	>500m	66-100%	good	none	none	none	no targets	CMc
07/01/2019	1	11:15	14:15	3.00	WSW	light breeze	150-500m	66-100%	moderate	none	none	none	no targets	CMc
07/01/2019	1	14:45	17:45	3.00	W	light	150-	66-100%	moderate	drizzle	none	none	no targets	CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
						breeze	500m							
11/01/2019	6	07:30	10:30	3.00	W	moderate breeze	150-500m	66-100%	good	none	none	none		JM
11/01/2019	6	11:00	14:00	3.00	W	moderate breeze	150-500m	66-100%	good	none	none	none		JM
16/01/2019	3	07:30	10:30	3.00	NW	strong breeze	>500m	33-66%	good	light showers	none	none		JM
16/01/2019	3	11:00	14:00	3.00	NW	near gale	150-500m	66-100%	good	heavy showers	none	none		JM
04/02/2019	2	10:30	13:30	3.00	W	gentle breeze	>500m	0-33%	good	none	none	on ground	January survey: For approximately 15 mins of the first watch visibility reduced to 0 as a cloud rolled over	CMc
04/02/2019	2	14:00	17:00	3.00	W	gentle breeze	>500m	0-33%	good	none	none	on ground	January survey: For approximately 15 mins of the first watch visibility reduced to 0 as a cloud rolled over	CMc
08/02/2019	6	12:10	15:10	3.00	W	gentle breeze	150-500m	66-100%	moderate	heavy showers	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
08/02/2019	6	15:40	18:40	3.00	W	moderate breeze	150-500m	66-100%	moderate	light showers	none	none		CMc
15/02/2019	3	12:20	15:20	3.00	SW	light breeze	150-500m	66-100%	moderate	none	none	none		CMc
15/02/2019	3	15:50	18:50	3.00	SSW	light breeze	150-500m	33-66%	moderate	none	none	none		CMc
18/02/2019	5	12:30	15:30	3.00	WSW	light breeze	>500m	33-66%	good	light showers	none	none		CMc
18/02/2019	5	16:00	19:00	3.00	W	light breeze	>500m	33-66%	good	light showers	none	none		CMc
19/02/2019	1	11:00	14:00	3.00	SSW	gentle breeze	<150m	66-100%	poor	drizzle	none	none		CMc
19/02/2019	1	16:00	19:00	3.00	SSW	light breeze	<150m	66-100%	poor	drizzle	none	none		CMc
22/02/2019	4	12:35	15:35	3.00	S	gentle breeze	150-500m	66-100%	moderate	light showers	none	none		CMc
22/02/2019	4	16:05	19:05	3.00	SSE	light breeze	150-500m	66-100%	good	none	none	none		CMc
26/02/2019	2	12:45	15:45	3.00	SE	gentle breeze	>500m	0-33%	good	none	none	none		CMc
26/02/2019	2	16:15	19:15	3.00	SSE	gentle breeze	>500m	33-66%	good	none	none	none		CMc
06/03/2019	3	06:15	09:15	3.00	NNW	light breeze	150-500m	66-100%	poor	drizzle	none	none		CMc
06/03/2019	3	09:45	12:45	3.00	NNW	moderate breeze	150-500m	66-100%	moderate	light showers	none	none		CMc
07/03/2019	2	06:15	09:15	3.00	WNW	moderate	>500m	66-100%	good	light	none	none	to make up for	CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
						breeze				showers			lost hours in previous months (Dec/Jan)	
07/03/2019	2	09:45	12:45	3.00	NW	moderate breeze	>500m	33-66%	good	light showers	none	none	to make up for lost hours in previous months (Dec/Jan)	CMc
08/03/2019	1	06:10	09:10	3.00	SSW	light air	150-500m	66-100%	poor	heavy showers	none	none	Mist in the first hour	CMc
08/03/2019	1	09:40	12:40	3.00	SSW	light air	150-500m	66-100%	moderate	none	none	none	Light shower in the first hour	CMc
22/03/2019	6	07:00	10:00	3.00	N	moderate breeze	>500m	66-100%	limited	none	none	none		JM
22/03/2019	6	10:30	14:30	4.00	N	moderate breeze	>500m	33-66%	moderate	none	none	none		JM
25/03/2019	5	07:00	10:00	3.00	NW	gentle breeze	>500m	66-100%	good	none	none	none		JM
25/03/2019	5	10:30	14:30	4.00	NW	gentle breeze	>500m	66-100%	good	none	none	none		JM
26/03/2019	2	13:30	16:30	3.00	W	light air	>500m	0-33%	good	none	none	none		CMc
26/03/2019	2	17:00	20:00	3.00	NW	light air	>500m	0-33%	good	none	none	none		CMc
29/03/2019	4	07:00	10:00	3.00	SW	gentle breeze	>500m	0-33%	good	none	none	none		JM
29/03/2019	4	10:30	14:30	4.00	SW	gentle breeze	>500m	0-33%	good	none	none	none		JM
01/04/2019	1	13:45	16:45	3.00	W	light breeze	>500m	66-100%	good	none	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
01/04/2019	1	18:15	21:15	3.00	WSW	light breeze	150-500m	66-100%	good	light showers	none	none		CMc
04/04/2019	3	15:20	18:20	3.00	NNE	light breeze	>500m	66-100%	good	light showers	none	none	Snow showers, did not stick	CMc
04/04/2019	3	18:20	21:20	3.00	NNW	light breeze	>500m	0-33%	good	none	none	none		CMc
09/04/2019	4	14:00	17:00	3.00	E	moderate breeze	150-500m	66-100%	moderate	none	none	none	no targets	JM
09/04/2019	4	17:30	20:30	3.00	E	moderate breeze	150-500m	66-100%	moderate	none	none	none	no targets	JM
11/04/2019	6	15:00	18:00	3.00	SE	light breeze	>500m	66-100%	good	none	none	none		CMc
11/04/2019	6	18:30	21:30	3.00	SSE	light air	>500m	66-100%	good	none	none	none		CMc
18/04/2019	2	15:10	18:10	3.00	ESE	gentle breeze	>500m	0-33%	good	none	none	none		CMc
18/04/2019	2	18:40	21:40	3.00	ESE	gentle breeze	>500m	33-66%	good	none	none	none		CMc
25/04/2019	5	15:25	18:25	3.00	WSW	light breeze	>500m	66-100%	good	none	none	none		CMc
25/04/2019	5	18:55	21:55	3.00	SW	light air	>500m	66-100%	good	none	none	none		CMc
16/05/2019	4	07:30	10:30	3.00	NE	fresh breeze	150-500m	66-100%	good	none	none	none		JM
16/05/2019	4	11:00	14:00	3.00	NE	fresh breeze	150-500m	66-100%	good	none	none	none		JM
17/05/2019	3	04:40	07:40	3.00	E	light air	150-500m	66-100%	poor	light showers	none	none		CMc
17/05/2019	3	11:20	14:20	3.00	N	light air	>500m	66-100%	good	light	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
										showers				
21/05/2019	5	04:40	07:40	3.00	E	light air	>500m	0-33%	good	none	none	none		CMc
21/05/2019	5	11:40	14:40	3.00	S	light air	>500m	0-33%	good	none	none	none		CMc
28/05/2019	6	04:30	07:30	3.00	NW	light air	>500m	66-100%	good	light showers	none	none		CMc
28/05/2019	6	08:00	11:00	3.00	N	light air	>500m	66-100%	good	light showers	none	none		CMc
03/06/2019	2	04:30	05:30	1.00	W	fresh breeze	>500m	0-33%	good	none	none	none	no targets. Surveys carried over from May	MOC
03/06/2019	2	05:30	06:30	1.00	SW	fresh breeze	>500m	33-66%	good	none	none	none	no targets. Surveys carried over from May	MOC
03/06/2019	2	06:30	07:30	1.00	SW	fresh breeze	>500m	0-33%	good	none	none	none	no targets. Surveys carried over from May	MOC
03/06/2019	2	08:00	09:00	1.00	SW	fresh breeze	>500m	33-66%	good	none	none	none	no targets. Surveys carried over from May	MOC
03/06/2019	2	09:00	10:00	1.00	SW	fresh breeze	<150m	66-100%	good	light showers	none	none	no targets. Surveys carried over from May	MOC
03/06/2019	2	10:00	11:00	1.00	SW	fresh breeze	>500m	33-66%	good	none	none	none	no targets. Surveys carried over from May	MOC
05/06/2019	1	04:35	05:35	1.00	NW	strong breeze	<150m	66-100%	limited	drizzle	none	none	no targets. Surveys carried over from May	MOC

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
05/06/2019	1	05:35	06:35	1.00	NW	strong breeze	<150m	66-100%	poor	light showers	none	none	no targets. Surveys carried over from May	MOC
05/06/2019	1	06:35	07:35	1.00	NW	strong breeze	<150m	66-100%	moderate	light showers	none	none	no targets. Surveys carried over from May	MOC
05/06/2019	1	08:05	09:05	1.00	NW	strong breeze	<150m	66-100%	moderate	light showers	none	none	no targets. Surveys carried over from May	MOC
05/06/2019	1	09:05	10:05	1.00	NNW	strong breeze	150-500m	66-100%	good	light showers	none	none	no targets. Surveys carried over from May	MOC
05/06/2019	1	10:05	11:05	1.00	NW	strong breeze	150-500m	33-66%	good	none	none	none	no targets. Surveys carried over from May	MOC
14/06/2019	6	11:30	14:30	3.00	W	light air	>500m	66-100%	good	none	none	none		CMc
14/06/2019	6	15:00	18:00	3.00	NW	light air	150-500m	66-100%	moderate	heavy showers	none	none		CMc
16/06/2019	1	07:30	10:30	3.00	SW	moderate breeze	>500m	33-66%	good	none	none	none		JM
16/06/2019	1	11:00	14:00	3.00	SW	moderate breeze	>500m	33-66%	good	none	none	none		JM
20/06/2019	5	07:30	10:30	3.00	W	moderate breeze	>500m	33-66%	good	none	none	none		JM
20/06/2019	5	11:00	14:00	3.00	W	moderate breeze	>500m	33-66%	good	none	none	none		JM
24/06/2019	4	10:45	13:45	3.00	SW	light air	>500m	66-100%	good	none	none	none		CMc
24/06/2019	4	14:15	17:15	3.00	NW	light air	>500m	66-100%	good	none	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
25/06/2019	3	10:20	13:20	3.00	N	light air	150-500m	66-100%	poor	none	none	none	Visibility was 4 in the final hour	CMc
25/06/2019	3	13:50	16:50	3.00	N	light air	>500m	66-100%	good	light showers	none	none		CMc
26/06/2019	2	10:45	13:45	3.00	NE	gentle breeze	>500m	66-100%	good	none	none	none	Visibility was reduced to 2 for a brief period (10-15mins) during the final hour as a low cloud rolled over	CMc
26/06/2019	2	14:15	17:15	3.00	NE	gentle breeze	>500m	66-100%	good	none	none	none		CMc
08/07/2019	5	10:00	13:00	3.00	NW	light air	150-500m	66-100%	moderate	none	none	none		CMc
08/07/2019	5	13:30	16:30	3.00	NW	light air	150-500m	66-100%	good	none	none	none		CMc
15/07/2019	4	11:30	14:30	3.00	SW	light air	>500m	66-100%	good	none	none	none		CMc
15/07/2019	4	15:00	18:00	3.00	SW	light air	>500m	66-100%	good	none	none	none		CMc
16/07/2019	6	10:00	13:00	3.00	SW	light air	>500m	66-100%	good	none	none	none		CMc
16/07/2019	6	13:30	16:30	3.00	SW	light air	>500m	66-100%	good	none	none	none		CMc
18/07/2019	1	10:00	13:00	3.00	W	light air	>500m	66-100%	good	none	none	none		CMc
18/07/2019	1	13:30	16:30	3.00	W	light air	>500m	66-100%	good	light showers	none	none		CMc
19/07/2019	3	10:00	13:00	3.00	SW	light air	150-500m	66-100%	moderate	light showers	none	none	Showers just during the final hour	CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
19/07/2019	3	13:30	16:30	3.00	SW	light breeze	150-500m	66-100%	moderate	light showers	none	none	Showers just during the first hour	CMc
29/07/2019	2	11:30	14:30	3.00	N	gentle breeze	>500m	66-100%	good	none	none	none		CMc
29/07/2019	2	14:30	17:30	3.00	NW	light breeze	>500m	66-100%	moderate	light showers	none	none		CMc
16/08/2019	5	15:30	18:30	3.00	W	gentle breeze	>500m	66-100%	good	light showers	none	none		CMc
16/08/2019	5	19:00	22:00	3.00	SW	gentle breeze	150-500m	66-100%	moderate	light showers	none	none		CMc
20/08/2019	4	15:20	18:20	3.00	W	light air	150-500m	66-100%	good	heavy showers	none	none		CMc
20/08/2019	4	18:50	21:50	3.00	SW	light air	150-500m	66-100%	good	none	none	none		CMc
21/08/2019	3	15:20	18:20	3.00	SW	light breeze	150-500m	66-100%	poor	persistent	none	none		CMc
21/08/2019	3	18:50	21:50	3.00	SW	light breeze	150-500m	66-100%	poor	none	none	none		CMc
22/08/2019	6	15:25	18:25	3.00	SW	light air	150-500m	66-100%	moderate	none	none	none		CMc
22/08/2019	6	18:45	21:45	3.00	SW	light air	150-500m	66-100%	moderate	none	none	none		CMc
23/08/2019	2	15:15	18:15	3.00	S	gentle breeze	>500m	66-100%	good	none	none	none		CMc
23/08/2019	2	18:45	21:45	3.00	S	gentle breeze	150-500m	66-100%	poor	none	none	none	RG observed during watch, however no	CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
													calls heard after dusk	
27/08/2019	1	15:10	18:10	3.00	S	light breeze	150-500m	66-100%	moderate	light showers	none	none		CMc
27/08/2019	1	18:40	21:40	3.00	SW	light air	150-500m	66-100%	moderate	none	none	none		CMc
09/09/2019	6	06:00	09:00	3.00	NW	light breeze	150-500m	0-33%	good	light showers	none	none		CMc
09/09/2019	6	11:30	14:30	3.00	NW	light breeze	>500m	66-100%	good	light showers	none	none		CMc
10/09/2019	1	06:00	09:00	3.00	SW	light air	>500m	0-33%	good	none	none	none		CMc
10/09/2019	1	13:10	16:10	3.00	SW	light breeze	>500m	66-100%	good	none	none	none		CMc
13/09/2019	3	06:10	09:10	3.00	W	light air	>500m	0-33%	good	none	none	none		CMc
13/09/2019	3	10:20	13:20	3.00	W	light air	>500m	0-33%	good	none	none	none		CMc
17/09/2019	4	15:10	18:10	3.00	E	light air	>500m	0-33%	good	none	none	none		CMc
18/09/2019	4	06:20	09:20	3.00	W	light air	>500m	0-33%	good	none	none	none		CMc
18/09/2019	5	14:15	17:15	3.00	NE	light air	>500m	0-33%	good	none	none	none		CMc
19/09/2019	2	11:20	14:20	3.00	SE	light breeze	>500m	0-33%	good	none	none	none		CMc
19/09/2019	5	06:20	09:20	3.00	SE	light air	>500m	0-33%	good	none	none	none		CMc
20/09/2019	2	06:20	09:20	3.00	NE	moderate breeze	150-500m	66-100%	limited	none	none	none		CMc
07/10/2019	4	13:30	16:30	3.00	SW	light breeze	>500m	66-100%	good	none	none	none		CMc
07/10/2019	4	17:00	20:00	3.00	SW	light	>500m	66-100%	good	none	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
						breeze								
08/10/2019	2	13:30	16:30	3.00	W	moderate breeze	>500m	66-100%	good	none	none	none		CMc
08/10/2019	2	17:00	20:00	3.00	W	gentle breeze	>500m	33-66%	good	none	none	none	RG heard calling after dark	CMc
09/10/2019	1	13:25	19:55	6.50	W	near gale	150-500m	66-100%	good	heavy showers	none	none		JK
10/10/2019	5	13:25	16:25	3.00	SW	light breeze	150-500m	66-100%	good	none	none	none		CMc
10/10/2019	5	16:55	19:55	3.00	SW	light breeze	>500m	66-100%	good	none	none	none		CMc
15/10/2019	3	13:15	19:45	6.50	SE	near gale	150-500m	66-100%	good	heavy showers	none	none		JK
17/10/2019	6	13:00	19:30	6.50	SW	near gale	150-500m	66-100%	good	heavy showers	none	none		JK
12/11/2019	1	06:55	09:55	3.00	NW	gentle breeze	>500m	66-100%	good	light showers	none	none		CMc
12/11/2019	1	09:55	12:55	3.00	NW	light breeze	>500m	33-66%	good	light showers	none	none		CMc
14/11/2019	2	06:55	09:55	3.00	N	moderate breeze	>500m	33-66%	good	none	none	on ground		CMc
14/11/2019	2	10:10	13:10	3.00	NE	moderate breeze	>500m	0-33%	good	none	none	on ground		CMc
18/11/2019	6	10:45	13:45	3.00	SW	moderate breeze	150-500m	66-100%	good	none	none	none	Ice on site. 90% seen a male HH when parking car- mapped.	CD

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
													Seen at 10:20 for 30s below PCH (15-25m)	
19/11/2019	6	07:35	08:35	1.00	W	gentle breeze	<150m	66-100%	moderate	none	none	none		CD
19/11/2019	6	08:35	09:35	1.00	W	moderate breeze	>500m	0-33%	good	none	none	none		CD
19/11/2019	6	09:35	10:35	1.00	SW	moderate breeze	>500m	33-66%	good	none	none	none		CD
20/11/2019	3	07:35	08:35	1.00	W	light breeze	<150m	66-100%	moderate	drizzle	none	none	poor visibility-fog/ cloud after 30 mins- c. 100m	CD
20/11/2019	3	08:35	10:35	2.00	W	gentle breeze	<150m	66-100%	limited	drizzle	none	none		CD
21/11/2019	3	10:00	11:00	1.00	E	gentle breeze	150-500m	66-100%	good	none	none	none	POOR VISIBILITY AFTER C. 40MINS	CD
21/11/2019	3	11:00	13:00	2.00	E	gentle breeze	<150m	66-100%	poor	none	none	none		CD
22/11/2019	4	07:10	10:10	3.00	NE	light air	150-500m	66-100%	limited	none	none	none	Visibity increased to 3 during the final hour	CMc
22/11/2019	4	10:10	13:10	3.00	NE	light air	150-500m	66-100%	moderate	none	none	none		CMc
25/11/2019	5	07:15	10:15	3.00	SW	light air	150-500m	66-100%	limited	drizzle	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
25/11/2019	5	10:45	13:45	3.00	SW	light air	150-500m	66-100%	poor	drizzle	none	none		CMc
09/12/2019	4	10:30	11:30	1.00	W	fresh breeze	>500m	66-100%	good	none	none	none		TK
09/12/2019	4	11:30	12:30	1.00	W	fresh breeze	>500m	66-100%	good	none	none	none		TK
09/12/2019	4	12:30	13:30	1.00	W	fresh breeze	>500m	66-100%	good	none	none	none		TK
09/12/2019	4	14:00	15:00	1.00	W	fresh breeze	>500m	66-100%	good	none	none	none		TK
09/12/2019	4	15:00	16:00	1.00	SW	fresh breeze	>500m	66-100%	good	none	none	none		TK
09/12/2019	4	16:00	17:05	1.08	SW	strong breeze	>500m	66-100%	good	none	none	none		TK
13/12/2019	5	10:30	11:30	1.00	NW	strong breeze	150-500m	66-100%	moderate	none	none	none		TK
13/12/2019	5	11:30	12:30	1.00	NW	strong breeze	150-500m	66-100%	moderate	none	none	none	Male Hen Harrier observed hunting.	TK
13/12/2019	5	12:30	13:30	1.00	NW	strong breeze	150-500m	66-100%	moderate	light showers	none	none		TK
13/12/2019	5	14:00	15:00	1.00	NW	strong breeze	150-500m	66-100%	moderate	light showers	none	none		TK
13/12/2019	5	15:00	16:00	1.00	NW	strong breeze	150-500m	66-100%	moderate	heavy showers	none	none		TK
13/12/2019	5	16:00	17:00	1.00	NW	strong breeze	>500m	66-100%	moderate	heavy showers	none	none		TK

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
17/12/2019	1	10:30	11:30	1.00	SE	moderate breeze	150-500m	66-100%	good	none	none	none		TK
17/12/2019	1	11:30	12:30	1.00	SE	moderate breeze	150-500m	66-100%	good	none	none	none		TK
17/12/2019	1	12:30	13:30	1.00	SE	moderate breeze	150-500m	66-100%	good	none	none	none		TK
17/12/2019	1	14:00	15:00	1.00	SE	moderate breeze	>500m	66-100%	good	none	none	none		TK
17/12/2019	1	15:00	16:00	1.00	SE	moderate breeze	>500m	66-100%	good	none	none	none	Male Kestrel seen in flight	TK
17/12/2019	1	16:00	17:00	1.00	SE	moderate breeze	>500m	66-100%	good	none	none	none		TK
28/12/2019	6	10:40	11:40	1.00	S	strong breeze	>500m	33-66%	good	none	none	none		TK
28/12/2019	6	11:40	12:40	1.00	S	strong breeze	>500m	33-66%	good	none	none	none		TK
28/12/2019	6	12:40	13:40	1.00	S	strong breeze	>500m	33-66%	good	none	none	none		TK
28/12/2019	6	14:10	15:10	1.00	S	strong breeze	>500m	33-66%	good	none	none	none		TK
28/12/2019	6	15:10	16:10	1.00	S	strong breeze	>500m	33-66%	good	none	none	none		TK
28/12/2019	6	16:10	17:10	1.00	S	strong breeze	>500m	33-66%	good	none	none	none		TK
29/12/2019	3	10:35	11:35	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
29/12/2019	3	11:35	12:35	1.00	S	fresh	>500m	66-100%	good	none	none	none		TK

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
						breeze								
29/12/2019	3	12:35	13:35	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
29/12/2019	3	14:05	15:05	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
29/12/2019	3	15:05	16:05	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
29/12/2019	3	16:05	17:10	1.08	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
30/12/2019	2	10:35	11:35	1.00	S	fresh breeze	150-500m	66-100%	moderate	none	none	none		TK
30/12/2019	2	11:35	12:35	1.00	S	fresh breeze	150-500m	66-100%	moderate	none	none	none		TK
30/12/2019	2	12:35	13:35	1.00	S	fresh breeze	150-500m	66-100%	moderate	none	none	none		TK
30/12/2019	2	14:05	15:05	1.00	S	fresh breeze	150-500m	66-100%	moderate	none	none	none		TK
30/12/2019	2	15:05	16:05	1.00	S	fresh breeze	150-500m	66-100%	moderate	none	none	none		TK
30/12/2019	2	16:05	17:10	1.08	S	fresh breeze	150-500m	66-100%	moderate	none	none	none		TK
07/01/2020	1	07:45	10:45	3.00	SW	gentle breeze	150-500m		poor	drizzle	none	none		CMc
07/01/2020	1	11:15	14:15	3.00	SW	gentle breeze	150-500m		moderate	heavy showers	none	none		CMc
08/01/2020	5	07:45	10:45	3.00	SW	light air	>500m		good	none	none	none		CMc
08/01/2020	5	11:15	14:15	3.00	SW	light air	>500m		good	none	none	none	At 12:40 SN	CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
													heard calling from bog east of VP, no visual	
12/01/2020	2	07:55	08:55	1.00	SW	strong breeze	150-500m	66-100%	moderate	light showers	none	none		TK
12/01/2020	2	08:55	09:55	1.00	SW	strong breeze	150-500m	66-100%	moderate	light showers	none	none		TK
12/01/2020	2	09:55	10:55	1.00	SW	strong breeze	>500m	66-100%	good	none	none	none		TK
12/01/2020	2	11:25	12:25	1.00	SW	strong breeze	>500m	33-66%	good	none	none	none		TK
12/01/2020	2	12:25	13:25	1.00	SW	strong breeze	>500m	33-66%	good	none	none	none		TK
12/01/2020	2	13:25	14:25	1.00	SW	strong breeze	>500m	33-66%	good	none	none	none		TK
19/01/2020	3	07:50	08:50	1.00	SE	moderate breeze	>500m	0-33%	good	none	light			TK
19/01/2020	3	08:50	09:50	1.00	SE	moderate breeze	>500m	0-33%	good	none	light			TK
19/01/2020	3	09:50	10:50	1.00	SE	moderate breeze	>500m	0-33%	good	none	light	none		TK
19/01/2020	3	11:20	12:20	1.00	SE	moderate breeze	>500m	0-33%	good	none	none	none		TK
19/01/2020	3	12:20	13:20	1.00	SE	moderate breeze	>500m	0-33%	good	none	none	none		TK
19/01/2020	3	13:20	14:20	1.00	SE	moderate breeze	>500m	0-33%	good	none	none	none		TK

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
25/01/2020	6	07:45	08:45	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
25/01/2020	6	08:45	09:45	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
25/01/2020	6	09:45	10:45	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
25/01/2020	6	11:15	12:15	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
25/01/2020	6	12:15	13:15	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
25/01/2020	6	13:15	14:15	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
26/01/2020	4	07:45	08:45	1.00	SW	fresh breeze	150-500m	66-100%	moderate	drizzle	none	none		TK
26/01/2020	4	08:45	09:45	1.00	SW	fresh breeze	150-500m	66-100%	moderate	drizzle	none	none		TK
26/01/2020	4	09:45	10:45	1.00	S	fresh breeze	150-500m	66-100%	good	none	none	none		TK
26/01/2020	4	11:15	12:15	1.00	S	fresh breeze	150-500m	66-100%	good	none	none	none		TK
26/01/2020	4	12:15	13:15	1.00	S	fresh breeze	150-500m	66-100%	good	none	none	none		TK
26/01/2020	4	13:15	14:15	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
04/02/2020	1	12:00	15:00	3.00	NW	light breeze	>500m	66-100%	good	none	none	none		CMc
04/02/2020	1	15:30	18:30	3.00	NW	light	>500m	66-100%	good	none	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
						breeze								
05/02/2020	4	12:00	15:00	3.00	S	light air	>500m	66-100%	good	none	none	none		CMc
05/02/2020	4	15:30	18:30	3.00	S	light air	>500m	66-100%	good	none	none	none		CMc
06/02/2020	5	12:05	15:05	3.00	SE	gentle breeze	>500m	66-100%	good	none	none	none		CMc
06/02/2020	5	15:35	18:35	3.00	SE	moderate breeze	>500m	66-100%	good	none	none	none		CMc
20/02/2020	6	12:00	13:00	1.00	SW	strong breeze	>500m	33-66%	good	light showers	none	none		TK
20/02/2020	6	13:00	14:00	1.00	SW	strong breeze	>500m	33-66%	good	light showers	none	none		TK
20/02/2020	6	14:00	15:00	1.00	SW	strong breeze	>500m	33-66%	good	light showers	none	none		TK
20/02/2020	6	15:30	16:30	1.00	SW	strong breeze	>500m	33-66%	good	light showers	none	none		TK
20/02/2020	6	16:30	17:30	1.00	SW	strong breeze	>500m	66-100%	good	none	none	none		TK
20/02/2020	6	17:30	18:35	1.08	SW	strong breeze	>500m	66-100%	good	none	none	none		TK
21/02/2020	3	12:05	13:05	1.00	SW	strong breeze	>500m	66-100%	good	none	none	none		TK
21/02/2020	3	13:05	14:05	1.00	SW	strong breeze	>500m	66-100%	good	light showers	none	none		TK
21/02/2020	3	14:05	15:05	1.00	SW	strong breeze	>500m	66-100%	good	light showers	none	none		TK
21/02/2020	3	15:35	16:35	1.00	SW	strong breeze	>500m	66-100%	good	light showers	none	none		TK

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
21/02/2020	3	16:35	17:35	1.00	SW	strong breeze	>500m	66-100%	good	light showers	none	none		TK
21/02/2020	3	17:35	18:35	1.00	SW	strong breeze	>500m	66-100%	good	heavy showers	none	none		TK
22/02/2020	2	12:05	13:05	1.00	SW	strong breeze	>500m	66-100%	good	none	none	none		TK
22/02/2020	2	13:05	14:05	1.00	SW	strong breeze	>500m	66-100%	good	none	none	none		TK
22/02/2020	2	14:05	15:05	1.00	SW	strong breeze	150-500m	66-100%	moderate	light showers	none	none		TK
22/02/2020	2	15:35	16:35	1.00	SW	strong breeze	150-500m	66-100%	moderate	light showers	none	none		TK
22/02/2020	2	16:35	17:35	1.00	SW	strong breeze	>500m	33-66%	good	none	none	none	8 Golden Plover in flight	TK
22/02/2020	2	17:35	18:35	1.00	SW	strong breeze	>500m	33-66%	good	none	none	none		TK
03/03/2020	1	06:20	09:20	3.00	W	light breeze	>500m	66-100%	good	heavy showers	none	none	Snow on ground throughout and heavy snow showers	CMc
03/03/2020	1	10:30	13:30	3.00	W	light breeze	>500m	33-66%	good	heavy showers	none	none	Snow on ground throughout and heavy snow showers	CMc
04/03/2020	5	06:15	09:15	3.00	NE	light air	150-500m	66-100%	poor	drizzle	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
04/03/2020	5	11:30	14:30	3.00	NE	light air	150-500m	66-100%	good	none	none	none		CMc
11/03/2020	4	06:00	09:00	3.00	SW	light breeze	>500m	66-100%	good	light showers	none	none		CMc
11/03/2020	4	09:30	12:30	3.00	SW	light breeze	>500m	66-100%	good	light showers	none	none		CMc
19/03/2020	6	06:00	07:00	1.00	NE	fresh breeze	>500m	33-66%	good	none	none	none		TK
19/03/2020	6	07:00	08:00	1.00	NE	fresh breeze	>500m	33-66%	good	none	none	none		TK
19/03/2020	6	08:00	09:00	1.00	NE	fresh breeze	>500m	33-66%	good	none	none	none		TK
19/03/2020	6	09:30	10:30	1.00	NE	fresh breeze	>500m	33-66%	good	none	none	none		TK
19/03/2020	6	10:30	11:30	1.00	NE	fresh breeze	>500m	33-66%	good	none	none	none		TK
19/03/2020	6	11:30	12:30	1.00	NE	fresh breeze	>500m	33-66%	good	none	none	none		TK
22/03/2020	2	05:50	06:50	1.00	E	fresh breeze	150-500m	66-100%	moderate	none	none	none		TK
22/03/2020	2	06:50	07:50	1.00	E	fresh breeze	150-500m	66-100%	moderate	none	none	none	Golden Plover flock in flight	TK
22/03/2020	2	07:50	08:50	1.00	E	fresh breeze	>500m	66-100%	moderate	none	none	none		TK
22/03/2020	2	09:30	10:30	1.00	E	fresh breeze	>500m	66-100%	good	none	none	none		TK
22/03/2020	2	10:30	11:30	1.00	E	fresh	>500m	66-100%	good	none	none	none		TK

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
						breeze								
22/03/2020	2	11:30	12:30	1.00	E	fresh breeze	>500m	66-100%	good	none	none	none		TK
23/03/2020	3	05:50	06:50	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
23/03/2020	3	06:50	07:50	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
23/03/2020	3	07:50	08:50	1.00	S	fresh breeze	>500m	66-100%	good	none	none	none		TK
23/03/2020	3	09:20	10:20	1.00	S	fresh breeze	>500m	33-66%	good	none	none	none		TK
23/03/2020	3	10:20	11:20	1.00	S	fresh breeze	>500m	33-66%	good	none	none	none		TK
23/03/2020	3	11:20	12:20	1.00	S	fresh breeze	>500m	33-66%	good	none	none	none		TK
22/04/2020	3	18:50	21:50	3.00	NE	light breeze	>500m	66-100%	good	none	none	none		CMc
25/04/2020	1	12:00	15:00	3.00	E	light breeze	>500m	66-100%	good	none	none	none		CMc
25/04/2020	5	08:30	11:30	3.00	E	light breeze	>500m	66-100%	good	none	none	none		CMc
25/04/2020	6	15:30	18:30	3.00	E	light breeze	>500m	66-100%	good	none	none	none		CMc
26/04/2020	6	15:10	18:10	3.00	N	light air	150-500m	66-100%	moderate	none	none	none		CMc
29/04/2020	3	17:00	20:00	3.00	W	light air	150-500m	66-100%	moderate	persistent	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
29/04/2020	5	13:30	16:30	3.00	W	light breeze	>500m	66-100%	good	none	none	none	Visibilty 4 in the final 30 mins with heavy rain	CMc
30/04/2020	2	08:45	11:45	3.00	W	light air	>500m	33-66%	good	none	none	none		CMc
30/04/2020	2	12:15	15:15	3.00	W	light air	>500m	66-100%	good	none	none	none		CMc
30/04/2020	4	15:55	18:55	3.00	NW	light breeze	>500m	66-100%	good	none	none	none		CMc
04/05/2020	6	09:00	12:00	3.00	E	light breeze	>500m	66-100%	good	none	none	none		CMc
04/05/2020	6	12:30	15:30	3.00	E	gentle breeze	>500m	66-100%	good	none	none	none		CMc
07/05/2020	1	08:30	11:30	3.00	S	light breeze	150-500m	66-100%	poor	light showers	none	none		CMc
07/05/2020	1	12:00	15:00	3.00	S	light breeze	>500m	66-100%	good	light showers	none	none		CMc
16/05/2020	2	10:20	13:20	3.00	W	light breeze	>500m	66-100%	good	none	none	none		CMc
16/05/2020	2	13:50	16:50	3.00	W	light air	>500m	66-100%	good	light showers	none	none	RG heard calling N of VP at 12:50 - No visuals	CMc
16/05/2020	5	06:30	09:30	3.00	NW	light air	>500m	66-100%	good	none	none	none	RG heard calling right of the VP at 07:30 - No visuals	CMc
17/05/2020	3	13:00	16:00	3.00	SW	light breeze	>500m	66-100%	good	light showers	none	none		CMc
17/05/2020	5	09:30	12:30	3.00	SW	light	>500m	66-100%	good	none	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
						breeze								
18/05/2020	4	10:30	13:30	3.00	SW	light air	>500m	66-100%	good	none	none	none		CMc
18/05/2020	4	14:00	17:00	3.00	SW	light air	>500m	66-100%	good	none	none	none		CMc
23/05/2020	3	11:45	14:45	3.00	W	moderate breeze	>500m	66-100%	good	light showers	none	none		CMc
01/06/2020	6	08:00	11:00	3.00	E	light air	>500m	0-33%	good	none	none	none	At 10:20 SN was heard drumming near the river/road S of VP, no visuals	CMc
01/06/2020	6	11:30	14:30	3.00	E	light air	>500m	0-33%	good	none	none	none		CMc
03/06/2020	4	10:00	13:00	3.00	N	moderate breeze	>500m	66-100%	good	none	none	none		CMc
03/06/2020	4	13:30	16:30	3.00	N	moderate breeze	>500m	33-66%	good	none	none	none		CMc
06/06/2020	3	08:00	11:00	3.00	NW	gentle breeze	150-500m	66-100%	moderate	drizzle	none	none		CMc
06/06/2020	3	11:30	14:30	3.00	NW	gentle breeze	150-500m	66-100%	moderate	drizzle	none	none		CMc
07/06/2020	1	10:00	13:00	3.00	N	light breeze	>500m	66-100%	good	none	none	none		CMc
07/06/2020	1	13:30	16:30	3.00	N	light breeze	>500m	66-100%	good	none	none	none		CMc
24/06/2020	5	10:00	13:00	3.00	W	light air	>500m	33-66%	good	none	none	none		CMc
24/06/2020	5	13:30	16:30	3.00	W	light air	>500m	66-100%	good	none	none	none		CMc
25/06/2020	2	09:30	12:30	3.00	N	light breeze	>500m	66-100%	good	none	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
25/06/2020	2	13:00	16:00	3.00	N	light breeze	>500m	66-100%	good	none	none	none		CMc
02/07/2020	6	09:00	12:00	3.00	NW	light air	>500m	66-100%	good	light showers	none	none		CMc
02/07/2020	6	12:30	15:30	3.00	NW	light air	>500m	66-100%	good	none	none	none		CMc
03/07/2020	1	08:30	11:30	3.00	SW	light breeze	150-500m	66-100%	moderate	drizzle	none	none		CMc
03/07/2020	1	12:00	15:00	3.00	SW	light breeze	150-500m	66-100%	moderate	drizzle	none	none		CMc
06/07/2020	4	08:20	11:20	3.00	NW	light breeze	>500m	33-66%	good	light showers	none	none		CMc
06/07/2020	4	11:50	14:50	3.00	W	light air	>500m	33-66%	good	none	none	none		CMc
13/07/2020	3	11:00	14:00	3.00	W	light air	150-500m	66-100%	moderate	drizzle	none	none		CMc
13/07/2020	5	14:30	17:30	3.00	W	light breeze	150-500m	66-100%	good	none	none	none		CMc
14/07/2020	3	14:30	17:30	3.00	W	light breeze	>500m	66-100%	good	none	none	none		CMc
14/07/2020	5	11:00	14:00	3.00	W	light breeze	>500m	66-100%	good	none	none	none		CMc
20/07/2020	2	08:30	11:30	3.00	NE	light breeze	>500m	33-66%	good	none	none	none		CMc
20/07/2020	2	12:00	15:00	3.00	N	light breeze	>500m	33-66%	good	none	none	none		CMc
10/08/2020	1	15:40	18:40	3.00	N	light breeze	>500m	33-66%	good	none	none	none		CMc
10/08/2020	1	19:10	22:10	3.00	N	light	>500m	66-100%	good	none	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
						breeze								
11/08/2020	2	15:40	18:40	3.00	N	light air	>500m	33-66%	good	none	none	none		CMc
11/08/2020	2	19:10	22:10	3.00	NW	light breeze	>500m	0-33%	good	none	none	none		CMc
12/08/2020	5	15:40	18:40	3.00	N	light breeze	>500m	33-66%	good	none	none	none		CMc
12/08/2020	5	19:10	22:10	3.00	N	light breeze	>500m	66-100%	good	none	none	none		CMc
18/08/2020	4	15:00	18:00	3.00	W	light breeze	>500m	33-66%	good	none	none	none		CMc
18/08/2020	4	18:55	21:55	3.00	W	light breeze	>500m	33-66%	good	none	none	none	H heard calling from stream behind conifers at 15:27 - no visuals	CMc
27/08/2020	3	15:00	18:00	3.00	W	light air	>500m	66-100%	good	heavy showers	none	none		CMc
27/08/2020	6	18:35	21:35	3.00	N	light air	150-500m	66-100%	good	heavy showers	none	none		CMc
01/09/2020	3	18:25	21:25	3.00	SW	light air	150-500m	66-100%	moderate	none	none	none	August Survey	CMc
01/09/2020	6	14:30	17:30	3.00	SW	light breeze	>500m	66-100%	good	none	none	none	August Survey	CMc
11/09/2020	1	06:10	09:10	3.00	W	gentle breeze	>500m	66-100%	good	none	none	none		CMc
11/09/2020	1	09:40	12:40	3.00	W	gentle breeze	>500m	66-100%	moderate	drizzle	none	none		CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
14/09/2020	3	06:15	09:15	3.00	E	light breeze	>500m	66-100%	good	none	none	none		CMc
14/09/2020	6	09:45	12:45	3.00	E	light breeze	>500m	66-100%	good	light showers	none	none		CMc
15/09/2020	5	06:15	09:15	3.00	S	light air	150-500m	66-100%	limited	none	none	none	Very low cloud base	CMc
15/09/2020	5	09:45	12:45	3.00	S	light air	150-500m	66-100%	moderate	none	none	none	Cloud cleared in the second hour	CMc
17/09/2020	3	13:00	16:00	3.00	E	light breeze	150-500m	66-100%	good	none	none	none	Low cloud base for the first hour limited visibility	CMc
18/09/2020	6	06:20	09:20	3.00	E	light breeze	150-500m	66-100%	moderate	none	none	none	Low cloud base for the first hour limited visibility	CMc
23/09/2020	4	06:30	09:30	3.00	W	light air	>500m	66-100%	good	light showers	none	none		CMc
23/09/2020	4	10:00	13:00	3.00	W	light air	>500m	66-100%	good	light showers	none	none		CMc
27/09/2020	2	06:30	09:30	3.00	E	light breeze	>500m	0-33%	good	none	none	none		CMc
27/09/2020	2	10:00	13:00	3.00	SW	light breeze	>500m	66-100%	good	none	none	none	Two people walking the hill with a gun and a dog at 11:00	CMc

B.2. Hen harrier Roost Survey Effort and Conditions

Table B2: Hen Harrier Roost Survey Effort and Condition

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
23/10/2018	6	17:15	19:30	02:15	NW	moderate breeze	150-500m	33-66%	good	none	none	none	<Null>	JM
24/10/2018	1	16:45	19:00	02:15	NW	gentle breeze	150-500m	33-66%	good	none	none	none	<Null>	JM
26/10/2018	4	16:30	18:45	02:15	NW	strong breeze	150-500m	33-66%	good	light showers	none	none	<Null>	JM
28/10/2018	3	15:30	17:45	02:15	NW	fresh breeze	150-500m	33-66%	good	drizzle	none	none	<Null>	JM
29/10/2018	2	15:30	17:45	02:15	SE	moderate breeze	150-500m	33-66%	moderate	drizzle	none	none	<Null>	JM
31/10/2018	5	15:30	17:45	02:15	NW	light air	150-500m	33-66%	moderate	none	none	none	<Null>	JM
07/11/2018	8	15:30	17:45	02:15	W	fresh breeze	>500m	33-66%	good	none	none	none	OCTOBER SURVEYS	JM
08/11/2018	7	15:30	17:45	02:15	SE	fresh breeze	150-500m	33-66%	good	none	none	none	OCTOBER SURVEYS	JM
12/11/2018	8	14:50	17:50	03:00	WSW	light breeze	150-500m	66-100%	poor	light showers	none	none	No HH observations	CMc
15/11/2018	5	14:40	17:40	03:00	SE	light breeze	150-500m	66-100%	good	none	none	none	No HH observations	CMc
19/11/2018	7	14:40	17:40	03:00	E	gentle breeze	150-500m	66-100%	good	none	none	none	No HH observations	CMc
20/11/2018	3	14:40	17:40	03:00	NE	gentle breeze	150-500m	66-100%	moderate	light showers	none	none	No HH observations	CMc
21/11/2018	1	14:40	17:04	02:24	NE	light breeze	150-500m	66-100%	moderate	light showers	none	none	No HH observations	CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
22/11/2018	4	14:40	17:40	03:00	E	gentle breeze	150-500m	66-100%	moderate	light showers	none	none	No HH observations, drizzle/mist in the final hour	CMc
27/11/2018	2	14:15	15:15	01:00	S	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
27/11/2018	2	15:15	16:15	01:00	S	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
27/11/2018	2	16:15	17:15	01:00	S	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
29/11/2018	6	14:20	15:20	01:00	SW	strong breeze	>500m	66-100%	good	light showers	none	none	<Null>	TK
29/11/2018	6	15:20	16:20	01:00	SW	strong breeze	>500m	66-100%	good	light showers	none	none	<Null>	TK
29/11/2018	6	16:20	17:20	01:00	SW	strong breeze	>500m	66-100%	good	light showers	none	none	<Null>	TK
05/12/2018	2	14:30	16:50	02:20	S	gentle breeze	150-500m	33-66%	moderate	none	none	none	<Null>	JM
12/12/2018	1	14:30	16:50	02:20	SE	strong breeze	150-500m	66-100%	moderate	heavy showers	none	none	<Null>	JM
14/12/2018	3	14:30	16:45	02:15	S	gentle breeze	150-500m	66-100%	poor	drizzle	none	none	<Null>	JM
19/12/2018	4	14:30	16:45	02:15	W	moderate breeze	150-500m	66-100%	moderate	none	none	none	<Null>	JM
21/12/2018	6	14:30	16:45	02:15	SE	moderate breeze	150-500m	66-100%	moderate	drizzle	none	none	<Null>	JM
22/12/2018	7	14:30	16:45	02:15	W	light breeze	>500m	33-66%	good	none	none	none	<Null>	JM

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
30/12/2018	5	14:30	16:45	02:15	SW	light breeze	150-500m	66-100%	good	none	none	none	<Null>	JM
31/12/2018	8	14:30	16:45	02:15	NE	light breeze	150-500m	66-100%	moderate	none	none	none	<Null>	JM
09/01/2019	1	14:30	17:00	02:30	NW	gentle breeze	<150m	66-100%	poor	drizzle	none	none	<Null>	JM
11/01/2019	2	14:30	17:00	02:30	W	moderate breeze	150-500m	66-100%	good	light showers	none	none	<Null>	JM
16/01/2019	3	14:30	17:00	02:30	NW	near gale	150-500m	66-100%	good	heavy showers	none	none	<Null>	JM
18/01/2019	4	14:30	17:00	02:30	W	strong breeze	<150m	66-100%	moderate	drizzle	none	none	<Null>	JM
23/01/2019	5	15:00	17:30	02:30	W	moderate breeze	150-500m	66-100%	good	none	none	none	<Null>	JM
25/01/2019	6	15:00	17:30	02:30	W	fresh breeze	150-500m	66-100%	moderate	none	none	none	<Null>	JM
30/01/2019	7	15:00	17:30	02:30	NW	strong breeze	>500m	33-66%	good	none	heavy	on ground	<Null>	JM
31/01/2019	8	15:00	17:30	02:30	NW	strong breeze	150-500m	66-100%	good	none	light	on ground	<Null>	JM
04/02/2019	2	07:40	10:10	02:30	W	light breeze	>500m	0-33%	good	none	none	none	<Null>	CMc
08/02/2019	8	07:30	10:00	02:30	W	fresh breeze	150-500m	66-100%	moderate	heavy showers	none	none	<Null>	CMc
15/02/2019	7	07:35	09:55	02:20	SW	light breeze	150-500m	66-100%	moderate	none	none	none	<Null>	CMc
19/02/2019	4	07:15	09:45	02:30	S	light	150-	66-100%	poor	light	none	none	<Null>	CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
						breeze	500m			showers				
20/02/2019	6	07:15	09:45	02:30	SSW	light breeze	<150m	66-100%	poor	drizzle	none	none	<Null>	CMc
22/02/2019	3	07:10	10:40	03:30	SSE	gentle breeze	150-500m	66-100%	moderate	light showers	none	none	<Null>	CMc
26/02/2019	5	07:00	09:30	02:30	SE	light breeze	>500m	66-100%	moderate	none	none	none	<Null>	CMc
27/02/2019	1	07:00	10:30	03:30	ESE	light air	>500m	0-33%	moderate	none	none	none	<Null>	CMc
11/03/2019	1	16:30	19:00	02:30	NW	strong breeze	150-500m	66-100%	moderate	drizzle	none	none	<Null>	JM
14/03/2019	3	16:30	19:00	02:30	W	strong breeze	150-500m	66-100%	good	drizzle	none	none	<Null>	JM
18/03/2019	2	16:45	19:15	02:30	W	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	JM
21/03/2019	6	16:45	19:15	02:30	SW	gentle breeze	150-500m	66-100%	moderate	drizzle	none	none	<Null>	JM
22/03/2019	4	16:45	19:15	02:30	N	moderate breeze	<150m	66-100%	limited	none	none	none	<Null>	JM
25/03/2019	7	17:00	19:30	02:30	NW	gentle breeze	>500m	66-100%	moderate	drizzle	none	none	<Null>	JM
28/03/2019	5	17:00	19:30	02:30	SW	gentle breeze	>500m	0-33%	good	none	none	none	<Null>	JM
29/03/2019	8	17:00	19:30	02:30	SW	gentle breeze	>500m	0-33%	good	none	none	none	<Null>	JM
02/10/2019	7	16:30	17:30	01:00	SE	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	TK
02/10/2019	7	17:30	18:30	01:00	SE	fresh	>500m	33-66%	good	none	none	none	<Null>	TK

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
						breeze								
02/10/2019	7	18:30	19:35	01:05	SE	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	TK
05/10/2019	1	16:30	17:30	01:00	W	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	TK
05/10/2019	1	17:30	18:30	01:00	W	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	TK
05/10/2019	1	18:30	19:30	01:00	W	fresh breeze	>500m	0-33%	good	none	none	none	<Null>	TK
08/10/2019	2	16:30	17:30	01:00	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
08/10/2019	2	17:30	18:30	01:00	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
08/10/2019	2	18:30	19:30	01:00	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
09/10/2019	3	16:30	17:30	01:00	W	strong breeze	150-500m	66-100%	moderate	none	none	none	<Null>	TK
09/10/2019	3	17:30	18:30	01:00	W	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
09/10/2019	3	18:30	19:30	01:00	W	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
12/10/2019	6	16:20	17:20	01:00	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
12/10/2019	6	17:20	18:20	01:00	SW	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
12/10/2019	6	18:20	19:25	01:05	SW	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
13/10/2019	5	16:25	17:25	01:00	SW	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
13/10/2019	5	17:25	18:25	01:00	SW	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
13/10/2019	5	18:25	19:25	01:00	SW	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
14/10/2019	8	16:25	17:25	01:00	W	moderate breeze	150-500m	66-100%	moderate	none	none	none	<Null>	TK
14/10/2019	8	17:25	18:25	01:00	W	moderate breeze	150-500m	66-100%	moderate	none	none	none	<Null>	TK
14/10/2019	8	18:25	19:25	01:00	W	moderate breeze	150-500m	66-100%	moderate	none	none	none	<Null>	TK
18/10/2019	4	16:05	17:05	01:00	W	strong breeze	150-500m	66-100%	moderate	none	none	none	<Null>	TK
18/10/2019	4	17:05	18:05	01:00	W	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
18/10/2019	4	18:05	19:10	01:05	W	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
18/11/2019	3	15:20	17:20	02:00	SW	near gale	150-500m	66-100%	moderate	none	none	none	<Null>	CD
19/11/2019	4	15:30	17:30	02:00	S	moderate breeze	150-500m	66-100%	good	drizzle	none	none	K seen on drive in flying. K seen at 15.57 for 150s hunting. Dove once, fought a bit on the ground. Maybe 20s later, flew	CD

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
													again and dove again. 1 sika doe seen grazing	
20/11/2019	8	15:30	16:30	01:00	SE	moderate breeze	<150m	66-100%	moderate	heavy showers	none	none	<Null>	CD
20/11/2019	8	16:30	17:20	00:50	SE	fresh breeze	<150m	66-100%	good	light showers	none	none	<Null>	CD
21/11/2019	5	15:25	17:25	02:00	E	moderate breeze	150-500m	66-100%	good	none	none	none	Not completed at VP mark as very remote and difficult descent. Decided with consultation from office staff. Recorded from private road and looked uphill. Surveyed just past Gate (150m and up hill 50m). Met Land lord in Silver Toyota Land Cruiser, was happy to have me surveying here. In future, survey from slightly	CD

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
													further in road with possible better viewshed.	
22/11/2019	2	15:00	16:00	01:00	NE	moderate breeze	<150m	66-100%	good	drizzle	none	none	3XGP flushed calling off heath on approach. RG occasionally calling from sunset (16.36)	CD
22/11/2019	2	16:00	17:00	01:00	NE	moderate breeze	<150m	66-100%	limited	drizzle	none	none	3XGP flushed calling off heath on approach. RG occasionally calling from sunset (16.36)	CD
22/11/2019	6	07:10	09:10	02:00	NE	light breeze	<150m	66-100%	limited	none	none	none	Foggy, no HH observations. 07:15 GP heard calling. 07:30 RG heard calling, marked on map. 07:38 2 waders flying past, GP? 07:39 RG in flight past observer-marked. 07:49 2GP flying past.	CD

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
													Bird heard calling at 07:30, recorded and in project folder.	
25/11/2019	1	15:30	17:30	02:00	W	moderate breeze	150-500m	66-100%	good	none	none	none	1xSN seen at 16:20	CD
26/11/2019	7	08:30	09:30	01:00	E	strong breeze	150-500m	66-100%	good	heavy showers	none	none	<Null>	CD
26/11/2019	7	07:30	08:30	01:00	E	strong breeze	<150m	66-100%	poor	heavy showers	none	none	4 hares seen on drive in and out, individually. 2 snipe flushed on approach in.	CD
05/12/2019	5	14:30	15:30	01:00	SW	strong breeze	150-500m	66-100%	moderate	light showers	none	none	<Null>	TK
05/12/2019	5	15:30	16:30	01:00	SW	strong breeze	150-500m	66-100%	moderate	light showers	none	none	<Null>	TK
05/12/2019	5	16:30	17:10	00:40	SW	strong breeze	150-500m	66-100%	moderate	light showers	none	none	<Null>	TK
07/12/2019	8	14:30	15:30	01:00	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
07/12/2019	8	15:30	16:30	01:00	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
07/12/2019	8	16:30	17:10	00:40	SW	strong breeze	>500m	66-100%	moderate	drizzle	none	none	<Null>	TK
09/12/2019	4	07:45	08:45	01:00	NW	moderate breeze	>500m	66-100%	good	none	none	none	<Null>	TK

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
09/12/2019	4	08:45	10:00	01:15	NW	moderate breeze	>500m	66-100%	good	none	none	none	<Null>	TK
13/12/2019	7	07:45	08:45	01:00	NW	strong breeze	150-500m	66-100%	moderate	none	none	none	<Null>	TK
13/12/2019	7	08:45	10:00	01:15	NW	strong breeze	150-500m	66-100%	moderate	none	none	none	<Null>	TK
17/12/2019	3	07:55	08:55	01:00	SE	moderate breeze	150-500m	66-100%	good	none	none	none	<Null>	TK
17/12/2019	3	08:55	10:10	01:15	SE	moderate breeze	150-500m	66-100%	good	none	none	none	<Null>	TK
28/12/2019	6	07:55	08:55	01:00	S	strong breeze	>500m	33-66%	good	none	none	none	<Null>	TK
28/12/2019	6	08:55	10:10	01:15	S	strong breeze	>500m	33-66%	good	none	none	none	<Null>	TK
29/12/2019	1	07:55	08:55	01:00	S	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
29/12/2019	1	08:55	10:10	01:15	S	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
30/12/2019	2	07:55	08:55	01:00	S	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
30/12/2019	2	08:55	10:10	01:15	S	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
03/01/2020	1	14:30	15:30	01:00	W	fresh breeze	>500m	33-66%	good	none	none	none	No HH	TK
03/01/2020	1	15:30	16:30	01:00	W	fresh breeze	>500m	33-66%	good	none	none	none	No HH	TK
03/01/2020	1	16:30	17:15	00:45	W	fresh	>500m	33-66%	good	none	none	none	No HH	TK

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
						breeze								
04/01/2020	7	14:25	15:25	01:00	S	fresh breeze	>500m	33-66%	good	none	none	none	No HH	TK
04/01/2020	7	15:25	16:25	01:00	S	fresh breeze	>500m	33-66%	good	none	none	none	No HH	TK
04/01/2020	7	16:25	17:18	00:53	S	fresh breeze	>500m	33-66%	good	none	none	none	No HH	TK
06/01/2020	4	14:40	15:40	01:00	SW	strong breeze	>500m	66-100%	good	none	none	none	No HH	TK
06/01/2020	4	15:40	16:40	01:00	SW	strong breeze	>500m	66-100%	good	none	none	none	No HH	TK
06/01/2020	4	16:40	17:25	00:45	SW	strong breeze	>500m	66-100%	good	none	none	none	No HH	TK
12/01/2020	2	15:00	16:00	01:00	SW	strong breeze	>500m	33-66%	good	none	none	none	No HH	TK
12/01/2020	2	16:00	17:00	01:00	SW	strong breeze	>500m	33-66%	good	none	none	none	No HH	TK
12/01/2020	2	17:00	17:35	00:35	SW	strong breeze	>500m	33-66%	good	none	none	none	No HH	TK
15/01/2020	3	14:30	15:30	01:00	S	fresh breeze	150-500m	66-100%	good	none	none	none	No HH	TK
15/01/2020	3	15:30	16:30	01:00	S	fresh breeze	>500m	66-100%	good	none	none	none	No HH	TK
15/01/2020	3	16:30	17:40	01:10	S	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
19/01/2020	6	14:45	15:45	01:00	SE	moderate breeze	>500m	33-66%	good	none	none	none	No HH	TK

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
19/01/2020	6	15:45	16:45	01:00	SE	moderate breeze	>500m	33-66%	good	none	none	none	No HH	TK
19/01/2020	6	16:45	17:40	00:55	SE	moderate breeze	>500m	33-66%	good	none	none	none	No HH	TK
25/01/2020	8	15:00	16:00	01:00	S	fresh breeze	>500m	66-100%	good	none	none	none	No HH	TK
25/01/2020	8	16:00	17:00	01:00	S	fresh breeze	>500m	66-100%	good	none	none	none	No HH	TK
25/01/2020	8	17:00	17:50	00:50	S	fresh breeze	>500m	66-100%	good	none	none	none	No HH	TK
26/01/2020	5	15:00	16:00	01:00	S	strong breeze	>500m	66-100%	good	none	none	none	No HH	TK
26/01/2020	5	16:00	17:00	01:00	S	strong breeze	>500m	66-100%	good	none	none	none	No HH	TK
26/01/2020	5	17:00	17:50	00:50	S	strong breeze	>500m	66-100%	good	heavy showers	none	none	No HH	TK
01/02/2020	1	15:15	16:15	01:00	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
01/02/2020	1	16:15	17:15	01:00	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
01/02/2020	1	17:15	18:05	00:50	SW	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
03/02/2020	7	15:10	16:10	01:00	W	strong breeze	>500m	33-66%	good	none	none	none	<Null>	TK
03/02/2020	7	16:10	17:10	01:00	W	strong breeze	>500m	33-66%	good	none	none	none	<Null>	TK
03/02/2020	7	17:10	18:10	01:00	W	strong	>500m	0-33%	good	none	none	none	Male Kestrel	TK

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
						breeze							hunting	
04/02/2020	8	15:10	16:10	01:00	W	near gale	>500m	33-66%	good	none	none	none	<Null>	TK
04/02/2020	8	16:10	17:10	01:00	W	near gale	>500m	33-66%	good	none	none	none	<Null>	TK
04/02/2020	8	17:10	18:10	01:00	WNW	near gale	>500m	33-66%	good	none	none	none	<Null>	TK
07/02/2020	5	15:30	16:30	01:00	S	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
07/02/2020	5	16:30	17:30	01:00	S	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
07/02/2020	5	17:30	18:20	00:50	S	strong breeze	>500m	66-100%	moderate	drizzle	none	none	<Null>	TK
18/02/2020	3	15:30	16:30	01:00	W	near gale	>500m	66-100%	good	heavy showers	none	none	Flock of 16 Golden Plover seen in flight.	<Null>
18/02/2020	3	16:30	17:30	01:00	W	near gale	>500m	66-100%	good	heavy showers	none	none	Kestrel seen in flight.	TK
18/02/2020	3	17:30	18:27	00:57	W	near gale	>500m	66-100%	good	heavy showers	none	none	<Null>	TK
23/02/2020	2	15:35	16:35	01:00	W	fresh breeze	>500m	33-66%	good	none	none	none	Flock of 42 Golden Plover seen in flight.	TK
23/02/2020	2	16:35	17:35	01:00	W	moderate breeze	>500m	66-100%	good	light showers	none	none	<Null>	TK
23/02/2020	2	17:35	18:40	01:05	W	moderate breeze	150-500m	66-100%	moderate	light showers	none	none	<Null>	TK
24/02/2020	4	15:40	16:40	01:00	W	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
24/02/2020	4	16:40	17:40	01:00	W	strong	>500m	66-100%	good	none	none	none	<Null>	TK

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
						breeze								
24/02/2020	4	17:40	18:40	01:00	W	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
25/02/2020	6	15:40	16:40	01:00	WNW	strong breeze	>500m	66-100%	good	light showers	none	on ground	<Null>	TK
25/02/2020	6	16:40	17:40	01:00	WNW	strong breeze	>500m	66-100%	good	light showers	none	on ground	<Null>	TK
25/02/2020	6	17:40	18:40	01:00	WNW	strong breeze	>500m	66-100%	good	light showers	none	on ground	<Null>	TK
03/03/2020	4	16:20	19:00	02:40	W	light air	>500m	66-100%	good	none	none	none	No HH observations	CMc
04/03/2020	1	16:00	19:20	03:20	NW	light air	>500m	33-66%	good	none	none	none	No HH observations	CMc
05/03/2020	5	16:15	17:15	01:00	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
05/03/2020	5	17:15	18:15	01:00	SW	strong breeze	>500m	66-100%	good	light showers	none	none	<Null>	TK
05/03/2020	5	18:15	19:05	00:50	SW	strong breeze	150-500m	66-100%	moderate	heavy showers	none	none	<Null>	TK
13/03/2020	7	16:15	17:15	01:00	SE	fresh breeze	>500m	66-100%	good	light showers	none	none	<Null>	TK
13/03/2020	7	17:15	18:15	01:00	SE	fresh breeze	>500m	66-100%	good	none	none	none	Female Kestrel seen hunting.	TK
13/03/2020	7	18:15	19:15	01:00	SE	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
17/03/2020	8	16:30	17:30	01:00	SW	strong breeze	150-500m	66-100%	moderate	none	none	none	Male Hen Harrier seen	TK

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
													hunting	
17/03/2020	8	17:30	18:30	01:00	SW	strong breeze	150-500m	66-100%	moderate	none	none	none	<Null>	TK
17/03/2020	8	18:30	19:30	01:00	SW	strong breeze	150-500m	66-100%	moderate	drizzle	none	none	<Null>	TK
19/03/2020	3	16:30	17:30	01:00	NE	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	TK
19/03/2020	3	17:30	18:30	01:00	NE	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	TK
19/03/2020	3	18:30	19:30	01:00	NE	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	TK
21/03/2020	2	16:30	17:30	01:00	E	fresh breeze	>500m	66-100%	good	light showers	none	none	<Null>	TK
21/03/2020	2	17:30	18:30	01:00	E	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
21/03/2020	2	18:30	19:30	01:00	E	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
22/03/2020	6	16:30	17:30	01:00	E	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
22/03/2020	6	17:30	18:30	01:00	E	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
22/03/2020	6	18:30	19:30	01:00	E	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
16/10/2020	8	16:40:00	19:20:00	02:40	E	light breeze	>500m	33-66%	good	none	none	none	<Null>	CMc
21/10/2020	5	16:35:00	19:15:00	02:40	SW	light breeze	>500m	66-100%	good	none	none	none	<Null>	CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
24/10/2020	6	16:30:00	19:10:00	02:40	SW	light breeze	>500m	66-100%	good	none	none	none	<Null>	CMc
28/10/2020	3	06:50:00	09:20:00	02:30	W	gentle breeze	>500m	66-100%	good	light showers	none	none	<Null>	CMc
28/10/2020	1	15:15:00	17:45:00	02:30	W	gentle breeze	>500m	66-100%	good	heavy showers	none	none	<Null>	CMc
29/10/2020	7	06:50:00	09:20:00	02:30	SW	moderate breeze	150-500m	66-100%	moderate	heavy showers	none	none	<Null>	CMc
29/10/2020	4	15:15:00	17:45:00	02:30	SW	moderate breeze	150-500m	66-100%	moderate	persistent	none	none	<Null>	CMc
30/10/2020	2	15:15:00	17:45:00	02:30	SE	gentle breeze	>500m	33-66%	good	none	none	none	<Null>	CMc
03/11/2020	3	15:00:00	17:40:00	02:40	NW	light breeze	150-500m	66-100%	moderate	heavy showers	none	none	<Null>	CMc
09/11/2020	1	15:00:00	17:45:00	02:45	W	light air	150-500m	66-100%	moderate	heavy showers	none	none	<Null>	CMc
10/11/2020	8	15:10:00	17:45:00	02:35	S	gentle breeze	150-500m	66-100%	good	none	none	none	<Null>	CMc
17/11/2020	6	14:45:00	17:10:00	02:25	SW	gentle breeze	150-500m	66-100%	moderate	persistent	none	none	<Null>	CMc
19/11/2020	4	14:45:00	17:10:00	02:25	W	light air	>500m	66-100%	good	none	none	none	<Null>	CMc
25/11/2020	2	14:30:00	17:10:00	02:40	N	gentle breeze	>500m	66-100%	good	none	none	on ground	<Null>	CMc
30/11/2020	7	14:30:00	17:00:00	02:30	W	light breeze	>500m	66-100%	moderate	drizzle	none	none	<Null>	CMc
20/11/2020	5	14:45:00	17:10:00	02:25	W	light air	150-	66-100%	poor	drizzle	none	none	<Null>	CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
		00:00	00:00				500m							
08/12/2020	8	08:00:00	10:00:00	02:00	NW	light air	>500m	66-100%	good	light showers	none	none	<Null>	CMc
09/12/2020	7	08:00:00	10:00:00	02:00	S	light breeze	150-500m	66-100%	poor	persistent	none	none	<Null>	CMc
10/12/2020	3	14:30:00	17:00:00	02:30	S	light breeze	>500m	66-100%	good	none	none	none	<Null>	CMc
10/12/2020	4	14:30:00	17:00:00	02:30	S	light breeze	150-500m	66-100%	moderate	persistent	none	none	<Null>	CMc
11/12/2020	1	14:30:00	17:00:00	02:30	NW	light breeze	150-500m	66-100%	good	heavy showers	none	none	<Null>	CMc
14/12/2020	2	08:10:00	10:10:00	02:00	S	gentle breeze	150-500m	66-100%	good	heavy showers	none	none	<Null>	CMc
15/12/2020	6	14:30:00	17:10:00	02:40	S	gentle breeze	150-500m	66-100%	moderate	none	none	none	Cloud lowered in the last hour reducing visibility	CMc
16/12/2020	5	08:10:00	10:10:00	02:00	SW	gentle breeze	150-500m	66-100%	poor	heavy showers	none	none	<Null>	CMc
04/01/2021	1	14:45:00	17:15:00	02:30	N	light breeze	>500m	66-100%	good	none	heavy	none	<Null>	CMc
05/01/2021	2	14:45:00	17:15:00	02:30	N	gentle breeze	>500m	0-33%	good	none	none	none	<Null>	CMc
11/01/2021	6	15:00:00	17:30:00	02:30	W	light breeze	150-500m	66-100%	poor	drizzle	none	none	<Null>	CMc
14/01/2021	3	15:00:00	17:30:00	02:30	W	gentle breeze	>500m	66-100%	good	none	none	none	<Null>	CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
20/01/2021	7	15:05:00	17:40:00	02:35	NW	light breeze	>500m	66-100%	good	light showers	none	none	<Null>	CMc
21/01/2021	8	15:10:00	17:40:00	02:30	W	light breeze	>500m	66-100%	good	none	none	none	<Null>	CMc
25/01/2021	4	15:15:00	18:45:00	03:30	S	light air	>500m	66-100%	good	none	light	falling	About 10cm of snow on site	CMc
29/01/2021	5	15:20:00	18:50:00	03:30	N	light breeze	>500m	66-100%	good	none	light	on ground	<Null>	CMc
02/02/2021	1	15:30	18:08	02:38	W	light breeze	150-500m	66-100%	moderate	light showers	none	none	<Null>	CMc
08/02/2021	5	07:30	10:00	02:30	E	gentle breeze	>500m	66-100%	good	none	light	none	<Null>	CMc
08/02/2021	7	15:40	18:10	02:30	E	gentle breeze	>500m	66-100%	good	none	none	none	<Null>	CMc
18/02/2021	2	16:00	18:30	02:30	S	light breeze	>500m	66-100%	good	none	none	on ground	very light snow sticking in patches	CMc
23/02/2021	3	16:10	18:40	02:30	S	moderate breeze	>500m	66-100%	good	persistent	none	none	<Null>	CMc
25/02/2021	8	07:00	10:30	03:30	W	light breeze	>500m	66-100%	good	light showers	none	none	<Null>	CMc
25/02/2021	4	16:10	18:40	02:30	W	light breeze	>500m	66-100%	good	light showers	none	none	<Null>	CMc
26/02/2021	6	16:10	18:40	02:30	W	light breeze	>500m	66-100%	good	light showers	none	none	<Null>	CMc
09/03/2021	1	16:30	19:00	02:30	S	gentle breeze	150-500m	66-100%	moderate	persistent	none	none	<Null>	CMc

Date	VP	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
10/03/2021	2	16:30	19:00	02:30	SW	fresh breeze	150-500m	66-100%	good	heavy showers	none	none	<Null>	CMc
11/03/2021	3	16:30	19:00	02:30	W	gentle breeze	>500m	66-100%	good	heavy showers	none	none	<Null>	CMc
12/03/2021	5	16:30	19:00	02:30	W	light breeze	>500m	66-100%	good	heavy showers	none	none	<Null>	CMc
16/03/2021	4	16:30	19:00	02:30	N	light breeze	>500m	0-33%	good	none	none	none	<Null>	CMc
23/03/2021	8	17:10	19:40	02:30	W	light breeze	>500m	66-100%	good	light showers	none	none	<Null>	CMc
25/03/2021	6	16:55	19:35	02:40	SW	gentle breeze	>500m	66-100%	good	heavy showers	none	none	<Null>	CMc
31/03/2021	7	17:10	19:40	02:30	E	light air	>500m	66-100%	good	none	none	none	<Null>	CMc

B.3. Breeding Raptor Survey Effort and Conditions

Table B3: Breeding Raptors Survey Effort and Conditions

Date	Location	Start Time	Stop Time	Duration	Visit Number	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
04/04/2019	Area 1 NorthWest	08:00	14:00	06:00	1.00	NW	strong breeze	>500m	66-100%	good	none	none	none		JM

Date	Location	Start Time	Stop Time	Duration	Visit Number	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
10/04/2019	Area 2 NorthEast	09:00	15:00	06:00	1.00	SE	gentle breeze	150-500m	66-100%	good	none	none	none		JM
17/04/2019	Area 4 SouthEast	08:00	14:00	06:00	1.00	SE	moderate breeze	150-500m	66-100%	moderate	drizzle	none	none		JM
23/04/2019	Area 2 SouthWest	08:00	14:30	06:30	1.00	SE	fresh breeze	>500m	33-66%	good	none	none	none		JM
26/04/2019	Area 1 NorthWest	08:00	14:30	06:30	1.00	SE	moderate breeze	>500m	66-100%	good	none	none	none		JM
02/05/2019	Area 2 NorthEast	08:00	14:00	06:00	1.00	NW	gentle breeze	>500m	66-100%	good	none	none	none		JM
17/05/2019	Area 4 SouthEast	13:00	20:00	07:00	2.00	W	fresh breeze	>500m	66-100%	good	none	none	none		JM

Date	Location	Start Time	Stop Time	Duration	Visit Number	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
23/05/2019	Area 1 NorthWest	08:00	14:00	06:00	2.00	S	moderate breeze	>500m	66-100%	good	none	none	none		JM
28/05/2019	Area 2 NorthEast	07:00	13:00	06:00	2.00	NW	light breeze	>500m	33-66%	good	none	none	none		JM
30/05/2019	Area 3 SouthWest	13:00	19:00	06:00	2.00	SW	fresh breeze	>500m	66-100%	good	none	none	none		JM
03/06/2019	Area 2 NorthEast	08:00	14:00	06:00	3.00	NW	gentle breeze	>500m	66-100%	good	drizzle	none	none		JM
21/06/2019	Area 1 NorthWest	08:00	14:00	06:00	3.00	W	gentle breeze	>500m	0-33%	good	none	none	none		JM
24/06/2019	Area 4 SouthEast	08:00	14:00	06:00	3.00	NW	light breeze	>500m	0-33%	good	none	none	none		JM

Date	Location	Start Time	Stop Time	Duration	Visit Number	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
26/06/2019	Area 2 NorthEast	08:00	14:00	06:00	3.00	W	moderate breeze	>500m	33-66%	good	none	none	none		JM
28/06/2019	Area 3 SouthWest	08:00	14:00	06:00	3.00	SW	fresh breeze	>500m	66-100%	good	none	none	none		JM
07/07/2019	Area 2 NorthEast	08:00	14:00	06:00	4.00	NW	gentle breeze	>500m	66-100%	good	none	none	none		JM
16/07/2019	Area 1 NorthWest	08:00	14:00	06:00	4.00	W	light breeze	>500m	33-66%	good	none	none	none		JM
22/07/2019	Area 4 SouthEast	08:00	14:00	06:00	4.00	SW	strong breeze	150-500m	66-100%	good	none	none	none		JM
29/07/2019	Area 3 SouthWest	09:00	15:00	06:00	4.00	N	moderate breeze	>500m	66-100%	good	drizzle	none	none		JM

Date	Location	Start Time	Stop Time	Duration	Visit Number	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
31/07/2019	Area 4 SouthEast	08:00	14:00	06:00	4.00	NW	gentle breeze	>500m	33-66%	good	none	none	none		JM
08/05/2020	1	10:10	10:40	00:30	5.00	SE	light breeze	>500m	66-100%	good	none	none	none	Transect area is the walk from car parking area to VP at Lough Glannafreaghaun	TN
08/05/2020	1	10:40	13:40	03:00	5.00	SE	light breeze	>500m	66-100%	good	none	none	none	VP is at Lough Glannafreaghaun	TN
08/05/2020	4	14:50	17:50	03:00	5.00	SE	light breeze	>500m	33-66%	good	none	none	none	VP is at Knockullane	TN
12/05/2020	2	09:20	12:20	03:00	5.00	NE	gentle breeze	>500m	0-33%	good	none	none	none	VP is at Knocknagowan	TN
12/05/2020	2	12:25	12:50	00:25	5.00	NE	gentle breeze	>500m	33-66%	good	none	none	none	Transect is at Knocknagowan	TN

Date	Location	Start Time	Stop Time	Duration	Visit Number	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
12/05/2020	2	12:50	15:50	03:00	5.00	NE	gentle breeze	>500m	33-66%	good	none	none	none	VP is at Knocknagowan	TN
19/05/2020	5	09:45	12:45	03:00	5.00	SW	light breeze	>500m	66-100%	good	none	none	none	VP is at Garranearney	TN
19/05/2020	5	13:15	16:15	03:00	5.00	SW	light breeze	>500m	0-33%	good	none	none	none	VP is at Garranearney	TN
19/05/2020	5	16:15	16:52	00:37	5.00	SW	light breeze	>500m	0-33%	good	none	none	none	Transect is east of VP5	TN
20/05/2020	3	09:25	12:25	03:00	5.00	S	gentle breeze	>500m	33-66%	good	none	none	none	VP changed to W19623-80357	TN
20/05/2020	4	12:35	13:15	00:40	5.00	S	gentle breeze	>500m	66-100%	good	none	none	none	Transect is at Glendav	TN

Date	Location	Start Time	Stop Time	Duration	Visit Number	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
20/05/2020	3	13:20	16:20	03:00	5.00	S	gentle breeze	>500m	66-100%	good	none	none	none	VP changed to W19623-80357	TN
25/05/2020	1	09:40	10:10	00:30	5.00	S	moderate breeze	>500m	33-66%	good	none	none	none	Transect area is the walk from car parking area to VP at Lough Glannafreaghaun	TN
25/05/2020	1	10:15	13:15	03:00	5.00	S	moderate breeze	>500m	66-100%	good	none	none	none	VP is at Lough Glannafreaghaun	TN
25/05/2020	4	14:05	17:05	03:00	5.00	S	moderate breeze	>500m	66-100%	good	none	none	none	VP is at Knockullane	TN
08/06/2020	2 (Knocknagowan)	09:25	12:25	03:00	6.00	NW	light air	>500m	66-100%	good	none	none	none	VP is at Knocknagowan	TN
08/06/2020	Knocknagowan	13:25	16:25	03:00	6.00	NW	light air	>500m	66-100%	good	none	none	none	Transect is at Knocknagowan	TN

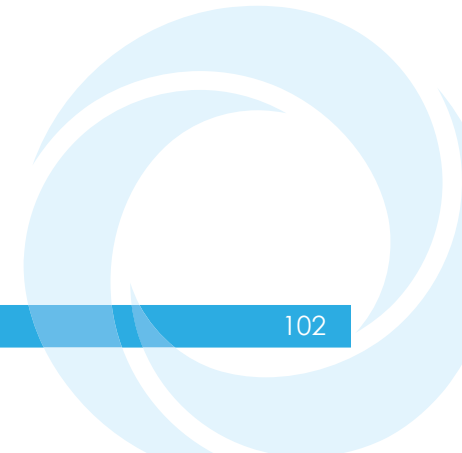
Date	Location	Start Time	Stop Time	Duration	Visit Number	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
08/06/2020	3	10:40	13:40	03:00	6.00	E	light air	>500m	66-100%	good	none	none	none	VP is at Coomnaclohy	TN
16/06/2020	Greeves	07:30	10:30	03:00	6.00	NW	light breeze	150-500m	66-100%	good	none	none	none	Transect is at Greeves	TN
16/06/2020	5	10:45	13:45	03:00	6.00	NW	light breeze	150-500m	66-100%	good	none	none	none	VP is at Garranecarney	TN
24/06/2020	Derrynafinnia	09:20	10:15	00:55	6.00	N	light breeze	>500m	0-33%	good	none	none	none	Transect is at Derrynafinnia	TN
24/06/2020	1	10:20	13:20	03:00	6.00	N	light breeze	>500m	0-33%	good	none	none	none	VP is at Lough Glannafreaghaun	TN
24/06/2020	Derrynafinnia	14:20	15:40	01:20	6.00	N	light breeze	>500m	0-33%	good	none	none	none	Transect is at Derrynafinnia South	TN

Date	Location	Start Time	Stop Time	Duration	Visit Number	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
26/06/2020	Claragh	06:40	08:50	02:10	6.00	SW	light air	150-500m	66-100%	good	none	none	none	Transect is NW of Claragh Mountain	TN
26/06/2020	Gortavehy West	09:25	13:25	04:00	6.00	SW	light air	>500m	66-100%	good	none	none	none	Transect is N of Stoukeen	TN
15/07/2020	Derrynafinnia	10:35	11:55	01:20	7.00	NW	gentle breeze	150-500m	66-100%	moderate	drizzle	none	none	Transect is both sides of river south of Derrynafinnia	TN
15/07/2020	Slieveareagh	12:10	13:30	01:20	7.00	NW	gentle breeze	150-500m	66-100%	good	none	none	none	Transect is 1.5km NW of Ballyvourney	TN
15/07/2020	Cappagh West	13:55	14:35	00:40	7.00	NW	gentle breeze	>500m	66-100%	good	none	none	none	Transect is 0.5km N of Ballyvourney	TN
15/07/2020	Coomnaclohy	14:45	15:50	01:05	7.00	NW	gentle breeze	>500m	66-100%	good	none	none	none	Transect is 1km NW of Ballyvourney	TN

Date	Location	Start Time	Stop Time	Duration	Visit Number	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
15/07/2020	Knockullane	16:00	17:00	01:00	7.00	NW	gentle breeze	>500m	66-100%	good	none	none	none		TN
20/07/2020	Carrigalissy	11:40	14:40	03:00	7.00	SW	light breeze	>500m	33-66%	good	none	none	none		TN
20/07/2020	Curraleigh	15:10	15:25	00:15	7.00	SW	light breeze	>500m	33-66%	good	none	none	none	Transect is 6km NE of Ballyvourney	TN
20/07/2020	Liscarrigane	15:25	15:50	00:25	7.00	SW	light breeze	>500m	33-66%	good	none	none	none	Transect is 5km NE of Ballyvourney	TN
20/07/2020	Labbadermody	16:00	17:45	01:45	7.00	SW	light breeze	>500m	33-66%	good	none	none	none	Transect is 3.5km NE of Ballyvourney	TN
21/07/2020	Derrynafinnia	10:23	11:15	00:52	7.00	SW	light breeze	>500m	33-66%	good	none	none	none	Transect is track to L. Glannafreaghaun	TN

Date	Location	Start Time	Stop Time	Duration	Visit Number	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
21/07/2020	Lough Glanafreaghau	11:20	14:45	03:25	7.00	SW	light breeze	>500m	33-66%	good	none	none	none	2 Peregrine chicks heard and 1 fledged chick seen briefly making a short flight.	TN
21/07/2020	Knocknagowan	15:40	16:25	00:45	7.00	SW	light breeze	>500m	33-66%	good	none	none	none		TN
27/07/2020	Glantane West Forest	10:10	12:30	02:20	7.00	NW	moderate breeze	>500m	66-100%	good	drizzle	none	none	Transect is through Glantane West Forest	TN
27/07/2020	Carrigcooleen	12:45	13:30	00:45	7.00	NW	moderate breeze	>500m	66-100%	good	none	none	none	Transect is road immediately west of R582	TN
27/07/2020	Ballynatona	14:00	15:30	01:30	7.00	NW	moderate breeze	>500m	66-100%	good	none	none	none		TN
28/07/2020	Derryleigh	10:15	11:15	01:00	7.00	NW	gentle breeze	>500m	0-33%	good	none	none	none	Transect is 5km ENE of Ballyvourney	TN

Date	Location	Start Time	Stop Time	Duration	Visit Number	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
28/07/2020	Derryleigh Forest	11:30	12:55	01:25	7.00	NW	gentle breeze	>500m	33-66%	good	none	none	none	Transect is 6km ENE of Ballyvourney	TN
28/07/2020	Dangansallagh	13:15	14:25	01:10	7.00	NW	gentle breeze	>500m	33-66%	good	none	none	none	Transect is 3km E of Ballyvourney	TN
28/07/2020	Garranearney/Carrigalissy	14:40	15:50	01:10	7.00	NW	gentle breeze	>500m	33-66%	good	none	none	none		TN
28/07/2020	Glantane West Forest	16:05	17:20	01:15	7.00	NW	gentle breeze	>500m	33-66%	good	none	none	none		TN



B.4. Breeding Bird Survey Effort and Conditions

Table B4: Breeding Bird Survey Effort and Conditions

Date	Visit Number	Start Time	Stop Time	Total Time	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
03/04/2019	1	08:00	14:00	06:00	NW	near gale	>500m	33-66%	good	heavy showers	light	on ground	<Null>	JM
22/04/2019	1	08:00	15:00	07:00	SE	gentle breeze	>500m	33-66%	good	none	none	none	<Null>	JM
25/04/2019	1	08:00	15:00	07:00	SE	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	JM
03/05/2019	2	07:30	12:30	05:00	N	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	JM
06/05/2019	2	08:00	14:00	06:00	S	light breeze	>500m	66-100%	good	none	none	none	<Null>	JM
07/05/2019	2	08:00	14:00	06:00	S	light breeze	>500m	33-66%	good	none	none	none	<Null>	JM
05/06/2019	3	08:00	14:00	06:00	N	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	JM
08/06/2019	3	09:00	14:00	05:00	W	moderate breeze	>500m	33-66%	good	none	none	none	<Null>	JM
10/06/2019	3	08:00	14:00	06:00	N	moderate breeze	>500m	33-66%	good	none	none	none	<Null>	JM
22/07/2019	4	12:00	17:30	05:30	SW	light breeze	150-500m	66-100%	poor	light showers	none	none	<Null>	CMc
23/07/2019	4	11:00	17:00	06:00	S	gentle breeze	150-500m	66-100%	limited	none	none	none	Low cloud base reducing visibility	CMc
24/07/2019	4	10:00	13:00	03:00	S	light breeze	150-500m	66-100%	moderate	none	none	none	<Null>	CMc
29/07/2019	4	17:30	18:30	01:00	NW	gentle breeze	>500m	66-100%	moderate	none	none	none	Finishing off T6 and 7	CMc

Date	Visit Number	Start Time	Stop Time	Total Time	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
08/05/2020	1	10:00	15:00	05:00	S	gentle breeze	>500m	33-66%	good	none	none	none	<Null>	CMc
09/05/2020	1	10:00	15:00	05:00	E	light breeze	>500m	0-33%	good	none	none	none	<Null>	CMc
10/05/2020	1	10:00	15:00	05:00	E	gentle breeze	>500m	66-100%	good	none	none	none	<Null>	CMc
17/06/2020	2	12:00	18:00	06:00	N	light air	150-500m	66-100%	good	drizzle	none	none	<Null>	CMc
24/06/2020	2	16:40	19:20	02:40	W	light air	>500m	66-100%	good	none	none	none	<Null>	CMc
26/06/2020	2	09:30	14:30	05:00	W	light breeze	>500m	66-100%	good	none	none	none	<Null>	CMc
17/07/2020	3	10:00	15:00	05:00	SW	light breeze	150-500m	66-100%	moderate	drizzle	none	none	<Null>	CMc
21/07/2020	3	08:30	14:00	05:30	W	light air	>500m	33-66%	good	none	none	none	<Null>	CMc
27/07/2020	3	08:30	13:30	05:00	W	moderate breeze	150-500m	66-100%	poor	drizzle	none	none	<Null>	CMc

B.5. Wintering Bird Survey Effort and Conditions

Table B5: Wintering Bird Survey Effort and Conditions

Date	Visit Number	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
23/10/2018	1	08:00	15:00	07:00	NW	moderate breeze	150-500m	33-66%	moderate	none	none	none	<Null>	JM
08/11/2018	1	08:00	15:00	07:00	SE	fresh breeze	>500m	33-66%	good	none	none	none	OCTOBER SURVEYS	JM

Date	Visit Number	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
12/12/2018	2	08:30	13:30	05:00	SE	fresh breeze	150-500m	66-100%	moderate	heavy showers	none	none	<Null>	JM
19/12/2018	2	09:00	13:30	04:30	W	moderate breeze	150-500m	66-100%	moderate	none	none	none	<Null>	JM
21/12/2018	2	09:00	13:30	04:30	SE	moderate breeze	150-500m	66-100%	moderate	heavy showers	none	none	<Null>	JM
08/01/2019	3	10:00	16:00	06:00	NW	light air	150-500m	66-100%	moderate	none	none	none	T21, T22, T23, T12, T8 - There was logging in T8	CMc
10/01/2019	3	10:00	16:00	06:00	NW	light air	<150m	66-100%	limited	none	none	none	T4, T1, T2, T3, T5, T24 - Low cloud base limiting visibility	CMc
22/01/2019	3	09:30	14:30	05:00	NW	gentle breeze	150-500m	66-100%	poor	heavy showers	none	none	T9, T10, T11, T13, T14, T15, T16, T17, T18, T19 - Heavy hail showers during the first 3 hours	CMc
13/03/2019	4	09:30	12:30	03:00	WN W	gentle breeze	150-500m	33-66%	moderate	light showers	none	none	<Null>	CMc
13/03/2019	4	13:30	16:30	03:00	W	light breeze	150-500m	66-100%	moderate	none	none	none	<Null>	CMc
27/03/2019	4	10:00	13:00	03:00	WS W	light air	>500m	0-33%	good	none	none	none	Disturbance at the start and end of T12	CMc
27/03/2019	4	13:00	16:00	03:00	W	light air	>500m	0-33%	good	none	none	none	Frequent traffic through the site	CMc
28/03/2019	4	10:00	13:00	03:00	W	light air	>500m	0-33%	good	none	none	none	<Null>	CMc
28/03/2019	4	13:00	16:00	03:00	SW	light air	>500m	0-33%	good	none	none	none	<Null>	CMc
02/10/2019	1	10:00	11:15	01:15	SE	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	TK

Date	Visit Number	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
02/10/2019	1	11:20	12:30	01:10	SE	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	TK
02/10/2019	1	13:20	14:30	01:10	SE	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	TK
02/10/2019	1	14:35	15:45	01:10	SE	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	TK
09/10/2019	1	09:15	10:45	01:30	W	strong breeze	150-500m	66-100%	good	none	none	none	<Null>	TK
09/10/2019	1	11:20	12:15	00:55	W	strong breeze	150-500m	66-100%	good	none	none	none	<Null>	TK
09/10/2019	1	12:25	13:50	01:25	W	strong breeze	150-500m	66-100%	good	none	none	none	<Null>	TK
09/10/2019	1	14:10	15:30	01:20	W	strong breeze	150-500m	66-100%	good	none	none	none	<Null>	TK
18/10/2019	1	09:30	10:40	01:10	W	near gale	150-500m	66-100%	good	none	none	none	<Null>	TK
18/10/2019	1	10:45	11:50	01:05	W	near gale	150-500m	66-100%	moderate	none	none	none	<Null>	TK
18/10/2019	1	12:05	12:45	00:40	W	strong breeze	150-500m	66-100%	moderate	none	none	none	<Null>	TK
18/10/2019	1	13:30	14:50	01:20	W	strong breeze	150-500m	66-100%	good	none	none	none	<Null>	TK
05/12/2019	2	08:30	09:55	01:25	SW	strong breeze	>500m	66-100%	good	light showers	none	none	<Null>	TK
05/12/2019	2	10:00	11:05	01:05	SW	strong breeze	>500m	66-100%	good	light showers	none	none	<Null>	TK
05/12/2019	2	11:25	12:40	01:15	SW	strong breeze	>500m	66-100%	good	light showers	none	none	<Null>	TK

Date	Visit Number	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
05/12/2019	2	12:50	13:40	00:50	SW	strong breeze	>500m	66-100%	good	light showers	none	none	<Null>	TK
07/12/2019	2	08:45	09:50	01:05	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
07/12/2019	2	10:15	10:55	00:40	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
07/12/2019	2	11:00	12:05	01:05	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
07/12/2019	2	12:25	13:35	01:10	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
08/12/2019	2	08:25	09:40	01:15	W	near gale	150-500m	66-100%	moderate	drizzle	none	none	<Null>	TK
08/12/2019	2	09:35	10:30	00:55	W	near gale	150-500m	66-100%	moderate	none	none	none	<Null>	TK
08/12/2019	2	10:45	11:55	01:10	W	near gale	150-500m	66-100%	moderate	light showers	none	none	<Null>	TK
08/12/2019	2	12:30	13:35	01:05	W	near gale	150-500m	66-100%	poor	heavy showers	none	none	<Null>	TK
04/01/2020	3	09:05	10:00	00:55	S	fresh breeze	>500m	33-66%	good	light showers	none	none	<Null>	TK
04/01/2020	3	10:05	11:10	01:05	S	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	TK
04/01/2020	3	11:25	12:15	00:50	S	strong breeze	>500m	33-66%	good	none	none	none	<Null>	TK
04/01/2020	3	13:00	13:35	00:35	S	fresh breeze	>500m	33-66%	good	none	none	none	<Null>	TK
06/01/2020	3	09:10	10:00	00:50	SW	strong breeze	>500m	66-100%	good	heavy showers	none	none	<Null>	TK

Date	Visit Number	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
06/01/2020	3	10:25	11:35	01:10	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
06/01/2020	3	11:55	12:55	01:00	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
06/01/2020	3	13:20	14:15	00:55	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
15/01/2020	3	09:00	10:15	01:15	S	strong breeze	150-500m	66-100%	moderate	none	none	none	<Null>	TK
15/01/2020	3	10:40	12:05	01:25	S	strong breeze	150-500m	66-100%	moderate	none	none	none	<Null>	TK
15/01/2020	3	12:35	13:40	01:05	S	strong breeze	150-500m	66-100%	moderate	none	none	none	<Null>	TK
05/03/2020	4	08:35	09:20	00:45	SW	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
05/03/2020	4	09:45	10:35	00:50	SW	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
05/03/2020	4	11:30	12:10	00:40	SW	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
05/03/2020	4	12:15	13:10	00:55	SW	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
05/03/2020	4	14:05	15:25	01:20	SW	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
13/03/2020	4	08:20	09:30	01:10	SE	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
13/03/2020	4	09:30	10:48	01:18	SE	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK
13/03/2020	4	11:25	12:50	01:25	SE	fresh breeze	>500m	66-100%	good	none	none	none	<Null>	TK

Date	Visit Number	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Notes	Surveyor
13/03/2020	4	13:30	14:45	01:15	SE	fresh breeze	>500m	66-100%	good	light showers	none	none	<Null>	TK
17/03/2020	4	10:05	10:50	00:45	SW	strong breeze	>500m	66-100%	good	light showers	none	none	<Null>	TK
17/03/2020	4	11:02	11:48	00:46	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK
17/03/2020	4	12:00	13:23	01:23	SW	strong breeze	>500m	66-100%	good	none	none	none	<Null>	TK

B.6. Red Grouse Survey Effort and Conditions

Table B6: Red Grouse Survey Effort and Conditions

Date	Visit Number	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Surveyor
19/03/2019	1	11:01	11:56	00:55	NW	gentle breeze	>500m	0-33%	good	none	none	none	JC
19/03/2019	2	13:35	17:13	03:38	NW	gentle breeze	>500m	0-33%	good	none	none	none	JC
19/03/2019	3	17:39	18:40	01:01	NW	gentle breeze	>500m	0-33%	good	none	none	none	JC
21/03/2019	4	14:00	15:22	01:22		moderate breeze	>500m	0-33%	good	none	none	none	JC
24/03/2020	4	16:40	17:40	01:00	SW	fresh breeze	150-500m	0-33%	good	none	none	none	JC
24/03/2020	1	17:40	18:35	00:55	SW	fresh breeze	150-500m	0-33%	good	none	none	none	JC
25/03/2020	3	08:15	09:15	01:00	W	moderate breeze	150-500m	0-33%	good	none	none	none	JC
25/03/2020	3	09:15	10:15	01:00	W	moderate breeze	>500m	0-33%	good	none	none	none	JC
25/03/2020	3	10:15	11:15	01:00	W	moderate breeze	150-500m	0-33%	good	none	none	none	JC
25/03/2020	3	11:15	12:15	01:00	W	gentle breeze	150-500m	0-33%	good	none	none	none	JC
25/03/2020	2	12:25	13:25	01:00	W	gentle breeze	150-500m	0-33%	moderate	none	none	none	JC
26/03/2020	2	13:25	14:25	01:00	W	moderate breeze	150-500m	0-33%	moderate	none	none	none	JC
27/03/2020	2	14:25	15:25	01:00	W	moderate breeze	150-500m	0-33%	moderate	none	none	none	JC
28/03/2020	2	15:25	16:25	01:00	W	moderate breeze	150-500m	0-33%	good	none	none	none	JC

B.7. Breeding Woodcock Survey Effort and Conditions

Table B7: Breeding Woodcock Survey Effort and Conditions

Date	Transect	Start Time	Stop Time	Hours	Wind Direction	Wind Speed	Cloud Height	Cloud Cover	Visibility	Rain	Frost	Snow	Surveyor
16/05/2019	East	20:00	22:20	02:20	NE	fresh breeze	150-500m	66-100%	good	none	none	none	JM
30/05/2019	West	20:00	22:30	02:30	SW	moderate breeze	150-500m	66-100%	good	none	none	none	JM
08/06/2019	East	20:00	22:30	02:30	W	fresh breeze	150-500m	33-66%	good	none	none	none	JM
10/06/2019	West	20:00	22:30	02:30	N	moderate breeze	>500m	33-66%	good	none	none	none	JM
20/06/2019	East	20:00	22:30	02:30	W	gentle breeze	>500m	66-100%	good	none	none	none	JM
28/06/2019	West	20:00	22:30	02:30	SW	moderate breeze	150-500m	66-100%	good	none	none	none	JM

