

CLASHINDARROCH II

WIND FARM

Ornithology Technical Report
Prepared for: Vattenfall Wind Power Ltd

Technical Appendix 8.1

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Clashindarroch II Wind Farm EIA Report
Chapter 8 Technical Appendix:
8.1. Ornithology Technical Report

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1. INTRODUCTION

1.1 Purpose of this Document

- 1.1.1 This is a technical appendix to Chapter 8 (Ornithology) of the Clashindarroch II wind farm (the 'proposed development') EIA Report. It provides further background information in relation to the various baseline ornithological surveys completed by MBEC between May 2015 and August 2017 the results of which are summarised in Chapter 8.

1.2 Background

- 1.2.1 A suite of surveys was completed in order to systematically assess the use of all habitats within the proposed development area by breeding and non-breeding birds, with a particular focus on species of UK conservation concern and species/groups that are potentially sensitive to wind farm development. All surveys were completed by suitably experienced surveyors following well-established survey methods, largely based on Scottish Natural Heritage (SNH) guidance for surveys of proposed wind farm sites current at the time (SNH 2014).
- 1.2.2 Winter and summer Flight Activity Surveys, from three strategically located vantage points (VPs) (May 2015 to August 2017) with an additional fourth VP being included during April to August 2017 specifically to monitor for common gull activity associated with breeding colonies to the north-west of the proposed wind farm
- 1.2.3 A suite of breeding bird surveys were completed during 2016 and 2017 to determine the presence and distribution of breeding activity of key species of concern. The following surveys were completed:
- Breeding waders (Spring/summer 2016)
 - Breeding woodland songbirds (Spring/summer 2016)
 - Breeding raptors / owls (May – August 2015; March – July 2016; April – July 2017)
 - Black grouse (April 2016 and May 2017)
- 1.2.4 The 2015-17 bird surveys were focused on the potential wind turbine area as defined at that time which was a larger potential development than what is now proposed. Subsequently the wind turbine area has been progressively reduced in extent in response to the emerging engineering and environmental constraints. The ornithological survey areas cover the full extent of the currently proposed development, see Figure 8.1.
- 1.2.5 All areas that were within 500m of the proposed wind turbines, as defined at that time, were also surveyed for all other breeding birds during spring-summer 2016. This included some areas of moorland habitats on the fringes of the conifer plantation areas which had the potential to support breeding moorland waders of conservation concern (e.g. curlew). There are now no habitats, suitable for breeding moorland waders, within 500m of the proposed wind turbine layout. The 2016 breeding bird survey of the conifer plantation areas revealed a suite of breeding woodland songbirds, typical of commercial conifer plantations and is considered sufficient to characterise the woodland songbird assemblage. Following current SNH guidance (SNH 2014) no further surveys of songbirds were considered to be necessary to inform the EIA process.

- 1.2.6 Additional flight activity surveys and breeding raptor and black grouse breeding surveys were completed during spring-summer 2017. The flight activity surveys included additional vantage points to monitor potential movements by common gull within the wind farm and a wider area to the north, related to concerns about potential effects on birds associated with the Tips of Corsemaul and Tom Tor SPA population.

2. SURVEY METHODOLOGIES

2.1 Flight Activity Surveys

- 2.1.1 Flight activity surveys, focusing on certain target species (primarily wildfowl, waders and raptors of conservation concern), were carried out between May 2015 and August 2017. Data on flight activity, flight behaviour, direction and height above ground level for particular focal species were collected during timed watches following the methods described in Band *et al.* (2007¹) and SNH (2014²).
- 2.1.2 The aim of these surveys was to sample and systematically record flight activity relative to the proposed wind turbine area during all periods of the year, covering the breeding season and the spring / autumn migration periods.
- 2.1.3 The flight activity survey findings, periodically collated during the survey period, were used to identify any parts of the survey area where activity by target species was concentrated at a level where the risk of bird collision or displacement from important habitats might be significant. This information was used to inform the design of the wind farm layout and avoid, where possible, potentially significant effects through the placement of wind turbines.
- 2.1.4 Additionally, the data collected during the flight activity surveys were used alongside standard modelling techniques, to provide quantitative estimates of annual bird mortality from collisions, following the methods described in Band *et al.* (2007). The estimates of annual collisions were used to inform the assessment of the potential impacts of the proposed wind farm on target species.
- 2.1.5 For the flight activity survey, species were divided into two groups of 'target' and 'secondary'. Target species were those considered to be of relatively high conservation concern and sensitivity to wind turbines. This list is based on guidance on the sensitivity of different bird species to wind farm development (e.g. Bright *et al.* 2006, SNH 2014), the location of the Proposed Development relative to the known breeding or winter range of the species, and the presence of potentially suitable habitats for the species within and adjacent to the Site.
- 2.1.6 Observers preferentially record target species when both target and secondary species are present in their field of view. The two groups are as follows:

¹ Band, W., Madders, M., and Whitfield, D.P. (2007). Developing field and analytical methods to assess avian collision risk at wind farms. In: de Lucas, M., Janss, G. F. E. and Ferrer, M. (Eds.). *Birds and Wind Farms: Risk Assessment and Mitigation*, pp. 259-275. Quercus, Madrid.

² Scottish Natural Heritage (2014). Recommended bird survey methods to inform impact assessment of onshore wind farms. SNH Guidance Document.

- target species – osprey, golden eagle, goshawk, hen harrier, merlin, peregrine, black grouse, wild geese and swan species, and
- secondary species / groups – divers, grebes, gulls, all other Schedule 1 / Annex I raptor species not listed above, common kestrel and all waders.

2.1.7 The list of the target species for the flight activity surveys and their legal and conservation status is provided in Table 8.1.1.

Table 8.1.1: KeySpecies for the Flight Activity Survey and their Legal and Conservation Status

Common name	Scientific name	Sch. 1 ⁱ	Ann. I ⁱⁱ	UK BoCC ⁱⁱⁱ	BAP ^{iv}	SBL ^v
Greylag goose	<i>Anser anser</i>			Amber		
Pink-footed goose	<i>Anser brachyrhynchus</i>			Amber		
Whooper swan	<i>Cygnus cygnus</i>	✓	✓	Amber		✓
Black grouse	<i>Lyrurus tetrix</i>			Red	✓	✓
Osprey	<i>Pandion haliaetus</i>	✓	✓	Amber		✓
Golden eagle	<i>Aquila chrysaetos</i>	✓	✓	Green		✓
Goshawk	<i>Accipiter gentilis</i>	✓		Green		
Hen harrier	<i>Circus cyaneus</i>	✓	✓	Red		✓
Common gull	<i>Larus canus</i>			Amber		
Merlin	<i>Falco columbarius</i>	✓	✓	Red		✓
Peregrine	<i>Falco peregrinus</i>	✓	✓	Green		✓

i. Species listed on Schedule 1 to the Wildlife and Countryside Act 1981 (as amended).

ii. Species listed on Annex I of the EC Birds Directive (Directive 2009/147/EC on the conservation of wild birds - the codified version).

iii. Birds of Conservation Concern (BoCC) in the UK (Eaton *et al.* 2015³).

iv. Priority species in the 2007 UK Biodiversity Action Plan, The UK BAP has been superseded by the UK Post-2010 Biodiversity Framework (JNCC 2012⁴).

v. Species included on the Scottish Biodiversity List (SBL⁵), which is part of the Scottish Biodiversity Strategy (originally published by the Scottish Government in May 2004).

2.1.8 Bird flight activity data was collected during watches from three VPs (May 2015 to August 2017) which were chosen to provide coverage of the likely wind turbine flight risk area (see Figure 8.2). A fourth VP was added for the summer 2017 period in order to record flight activity that may be associated with breeding populations of common gulls at the Tips of Corsemal and Tom Mor SPA.

³ Eaton, M. A., Aebischer, N. J., Brown, A. F., Hearn, R. D., Lock, L., Musgrove, A. J., Noble, D. G., Stroud, D. A and Gregory, R. D. (2015). Birds of Conservation 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds* 108: 708-746.

⁴ JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. *UK Post-2010 Biodiversity Framework*. July 2012.

⁵ Scottish Biodiversity List. Available at: <https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy/scottish-biodiversity-list>

- 2.1.9 It was intended that a total of minimum of 36 hours of observations were to be completed from each VP during each survey period: i.e. May to August 2015, September 2015 to March 2016, April to July 2016 and April to August 2017 (i.e. minimum of 144 hours of observation in total for VPs 1-3).
- 2.1.10 A total of 638 hours of observation were completed during the 28 month survey (see Table 8.1.2). Of this total time, 395.5 hours were completed during the summer periods (May to August 2015; April to July 2016; April to August 2017) and 242.5 hours during the winter months (September 2015 to March 2016).
- 2.1.11 Watches were also timed to ensure that observations from the VP were spread evenly through different times of day (including dawn and dusk) across the survey period as a whole. To assist with this distribution of the timing of the watches a schedule was used which divided days into survey periods, dependent upon day length. In the summer months, with longer day lengths, five survey periods were adopted, whilst in the autumn and spring passage periods this was reduced to four. Over the winter period, with the shortest day lengths, three survey periods were used.
- 2.1.12 Flight activity surveys were carried out in a variety of weather conditions, only being curtailed when persistent poor visibility or high wind speeds adversely affected flight activity by target or secondary species.
- 2.1.13 During each watch the area in view (also referred to as the viewshed) was scanned constantly, by eye and by using binoculars and telescope, until a target species was detected in flight. Once detected, the target bird was followed until it ceased flying or was lost to view. The routes taken by the birds (flight lines) were plotted in the field onto appropriately scaled maps. The time the bird(s) was first detected, the approximate height (in pre-defined height bands, see below) and the duration of the flight, while in view, were recorded on standardised forms.
- 2.1.14 Flight height categories were recorded for every bird observed, corresponding to flights below, within and above the proposed wind turbine blades. Height bands were selected to encompass all possible heights, down to ground level, and to account for observer recording accuracy. The height bands used for the flight activity surveys were as follows:
- Very high > 250 m (above ground level)
 - High 150 - 250 m
 - Medium 20 - 150 m
 - Low 5 - 20 m
 - Very Low < 5 m
- 2.1.15 The medium height band encompasses the maximum and minimum swept heights of the proposed wind turbine blades and is also referred to as 'collision risk height'.
- 2.1.16 Following the SNH 'Band method' these data can be used to estimate bird collision risk from the proposed wind turbines (Band *et al.* 2007).
- 2.1.17 In addition to gathering timed observations of flight activity by target or secondary species, summaries of all bird activity during five-minute intervals throughout a watch were also made. However, priority was given to watching for and recording flight activity by target species as accurately as possible.

Table 8.1.2: Hours of Observation Completed at each Vantage Point (May 2015 to August 2017)

Year	Season	Month	VP1	VP2	VP3	VP4	Total
2015	Summer	May	6	6	6	-	18
		June	9	9	9	-	27
		July	6	6	6		18
		August	6	9	9	-	24
	Autumn Passage (mid-Sept-end Nov) / Winter	September	9	9	9	-	27
		October	18	18	15	-	51
		November	18	18	20.5	-	56.5
	Winter	December	6	9	6	-	21
		January	9	9	9	-	27
	2016	Winter	February	9	9	9	-
March			12	9	12	-	33
April			18	21	18	-	57
Summer		May	18	18	18	-	54
		June	12	12	12	-	36
		July	6	5	6.5	-	17.5
		August	6	6	5	6	23
2017	Summer	May	6	6	7	6	25
		June	6	6	0	6	18
		July	9	9	15	9	42
		August	9	9	9	9	36
		Totals		198	203	201	36

2.2 Breeding Wader and Songbird Surveys

2.2.1 Moorland breeding wader surveys followed an adapted version of the method described by Brown and Shepherd (1993⁶) to census upland breeding waders. Surveys of all suitable habitats within the core survey area (see Figure 9.1a and b) were carried out between April and July 2016 and included four repeat visits. Fieldwork was generally conducted between 0830-1800 and not undertaken in high winds (greater than Beaufort force 5), in persistent rain / snow or when visibility was poor (< 300 m).

2.2.2 The core survey area was covered by a defined walked route to ensure that all ground was visible, pausing (approximately every 100 m) at appropriate vantage points to visually scan and to listen. All accessible areas were approached to within c. 100 m. Standard Common Birds Census recording codes were used to annotate field maps (Marchant 1983⁷). Breeding registrations from each of the four visits were compared and compiled (following standard criteria to allocate registrations from different visits to one

⁶ Brown, A.F., & Shepherd, H.B., (1993). A method for censusing upland breeding waders. *Bird Study* 40: 189-195.

⁷ Marchant (1983). BTO Common Birds Census Instructions. BTO, Tring.

or more apparent territories) onto a single map showing apparent breeding territories for the survey area.

- 2.2.3 For areas of unenclosed moorland an adapted version of the Brown & Shepherd (1993) method for censusing upland waders was followed. This method requires the surveyor to systematically cover the survey area by walking at a steady pace, stopping periodically to scan with binoculars and listen for birds exhibiting breeding behaviours. The surveyor must aim to walk to within 100 m of all suitable habitats spending a set length of time searching each 500 x 500 m area. The survey is only carried out in wind speeds of Beaufort force 4 or less, and in dry weather.
- 2.2.4 Birds were assumed to be breeding or holding territory if one or more of the following was noted:
- A bird displaying or singing;
 - nests, eggs or young seen;
 - adults repeatedly alarm-calling;
 - distraction displays; and/or
 - territorial disputes.
- 2.2.5 Any additional details of observations were noted onto recording forms. Any areas not surveyed (e.g. due to access constraints) were clearly marked on the map and an explanation provided as to why the area was not surveyed.
- 2.2.6 Estimates of the number of apparent territories were derived by comparing the results from the separate visits (see Gilbert *et al.* 1998⁸ for further details). The central location of each apparently occupied territory (i.e. this is not necessarily the location of a nest) after comparing the mapped data between the survey visits, was plotted on a final map for presentation. It is important to note that for many species these estimates are not a full census of the entire population within a survey area, but confirm presence of breeding pairs and provide an indication of breeding density and the spatial distribution of territories.
- 2.2.7 Walked transects of the conifer plantation woodland, along the plantation edges, dominant forestry rides and tracks where the plantation was too dense to walk within, were also completed. All bird species of conservation concern observed or heard exhibiting breeding behaviour were recorded following an adapted version of the Common Bird Census methodology outlined in Gilbert *et al.* (1998).

2.3 Breeding Raptors and Owls

- 2.3.1 The main objective of the breeding raptors and owl surveys was to systematically search for and record any behaviour indicative of breeding attempts by raptor and owl species of conservation concern within suitable habitats in the core and, for certain species, the wider raptor survey areas (see Figure 8.1).
- 2.3.2 Surveys to determine the presence and status of raptor species in the raptor survey area have been carried out (focusing on Schedule 1 species) over four visits between May and August 2015, five visits between April and July 2016, and three visits between April

⁸ Gilbert, G., Gibbons, D.W. and Evans, J. (1998). Bird Monitoring Methods. Royal Society for the Protection of Birds, Sandy.

and July 2017. A number of focal species were identified for the raptor survey, based on the presence of potentially suitable habitats, and the distribution of the species in Scotland relative to the site location. The focal species of interest for this survey were those that are relatively rare (i.e. less than 300 pairs in the UK), and/or of a high conservation concern status and/or listed on Schedule 1 of the Wildlife & Countryside Act 1981 (amended) and/or Annex I of the EC Birds Directive, such as hen harrier (*Circus cyaneus*), goshawk (*Accipiter gentilis*), merlin (*Falco columbarius*), peregrine falcon (*Falco peregrinus*), short-eared owl (*Asio flammeus*) and barn owl (*Tyto alba*).

- 2.3.3 Secondary species included those that are generally more widespread and common, but may include species whose national populations are of conservation concern such as common kestrel (*Falco tinnunculus*) and tawny owl (*Strix aluco*). However the survey for these species was focused only on the core survey area. Finally, common and widespread species, whose national populations are not of current conservation concern, were not surveyed systematically but breeding observations were noted during surveys for the focal species, for example common buzzard (*Buteo buteo*) and sparrowhawk (*Accipiter nisus*).
- 2.3.4 The area surveyed extended up to 2 km from the site boundary where there was suitable habitat for the focal species. Surveyors followed species-specific methods detailed in Hardey *et al.* (2013⁹). A summary of the general approach to the species-specific surveys and the objectives for the various site visits is provided in Table 9.3 below. The timing and number of visits varied in terms of the focal species with survey visits carried out during the period April to July 2014. If it was established there was no evidence of occupancy or breeding activity during the first 1-2 visits to an area then follow-up visits were not carried out.
- 2.3.5 The raptor surveys were concentrated on areas of suitable habitat (see Table 8.1.3 below), based on a review of OS maps and during the initial site visit to confirm the presence of suitable habitats and determine the logistics of completing the survey as accurately and efficiently as possible. Where available any existing information about breeding by the focal species in the general area was also taken into consideration (e.g. 'traditional' nest sites or breeding records known to the local raptor study group). The surveyor covered the areas of suitable habitat with a combination of walked routes and specially selected vantage points, which allowed monitoring of an area for any evidence of territory occupancy and breeding behaviour (e.g. display flights, pair bonding, mating etc. during the early part of the breeding season).

⁹ Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013). *Raptors: a field guide to survey and monitoring (3rd Edition)*. The Stationery Office, Edinburgh.

Table 8.1.3: Indicative Focal Species Survey Visit Schedule and Breeding Habitat Preferences for Species Relevant to the Study Area (source: Hardey *et al.* 2013)

Species	Summary visit schedule (with primary objective in parentheses)				Breeding habitat
	Visit 1	Visit 2	Visit 3	Visit 4	
Hen harrier	March to mid-April (check for occupancy)	Mid-April to late May (locate incubating females)	Late May to late June (check for young / evidence of breeding)	Late June to late August (check for fledged young)	Moorland (below c. 600 m) with abundance of old, deep heather; also heather in young conifer plantations.
Goshawk	March to April (check for occupancy)	Late April to May (check nests briefly)	June to early July (check for young at nests)	Late June to early August (check for fledged young)	Mature forests with high density of mature trees (height > 20 m) and well-developed canopy cover.
Merlin	Late March to April (check for occupancy)	Early May to early June (locate active nests)	Mid- to late June (check for young)	July to early August (check for fledged young)	Open, upland heather moorland. May nest on ground in heather, rocky outcrop or in old crow's nest in tree, if open moorland is close by.
Peregrine	March to early April (check for occupancy)	Late March to early May (locate active eyries)	Late May to mid-June (check for young / evidence of breeding)	Mid-June to early July (check for fledged young)	Wide range of habitats with suitable supply of birds to hunt. Nests are typically on undisturbed cliffs and crags; or quarries, open-cast coal workings and mines excavations, suitable tall buildings / structures.
Barn owl	November to January (check for suitable nesting sites and signs of occupancy)	April to June (locate active nests with eggs)	May to June (check for young and late/second clutches)	July to August (check for fledged young and late nests/second clutches)	Variety of open enclosed farmland habitats and young conifer plantations
Short-eared owl	Early March to mid-April (check for occupancy)	Mid-April to May (locate activity nests)	June (check for young, dispersed or still in nest)	July (check for fledged young and any late nests)	Extensive areas of open moorland or rough grassland, young forestry plantations, bogs, sand dunes and salt marshes.

- 2.3.6 The detailed methodological approaches to the raptor survey varied in relation to the target species and habitats to be covered within the survey area. In general terms surveys required a mixture of walked routes (e.g. to within c. 250 m of suitable breeding/nesting habitat for upland moorland species) searching for evidence of occupancy/breeding activity, coupled with periodic watches over areas of suitable nesting habitat from carefully selected vantage points at a distance and location that minimises the risk of disturbance to any nesting birds.
- 2.3.7 All survey work was conducted during good weather conditions (that is, in good visibility, avoiding persistently wet, low-cloud and windy conditions). Care was taken to avoid/minimise disturbance to birds at their breeding sites, in particular during the sensitive early phases of the season when disturbance may cause birds to move on and during incubation and early brood-rearing.
- 2.3.8 On the maps and forms provided, the details and location of all key species, or relevant field signs, seen or heard were recorded as accurately as possible using standard BTO

species codes and target notes. On the fieldwork maps, any parts of the defined survey area that were not surveyed due to lack of suitable habitat or access constraints were clearly recorded.

- 2.3.9 At the end of the survey the information gathered during the various visits, and relevant observations from other surveys (e.g. breeding behaviour noted during the flight activity surveys), was collated and any identified raptor activity or breeding evidence was categorised as being a possible, probable or confirmed breeding territory/nest site following the species-specific methods detailed in Hardey *et al.* (2013).

2.4 Black Grouse Surveys

- 2.4.1 Black grouse reconnaissance and potential lek surveys were carried out in April 2016 and May 2017 within areas of suitable habitat within 1.5 km of the site boundary. Preparatory visits to assess habitat suitability and identify potential lekking locations were made during a walk the day. A walkover survey was carried out to search for any signs indicating the presence of this species, including droppings and feathers. This included any areas where black grouse were observed during other survey work or where there were historical records within the study area.
- 2.4.2 Areas considered to provide potentially suitable habitat were visited at dawn in suitable weather conditions on at least two occasions between late March and mid-May to listen for lekking males and to search for any signs indicating the presence of black grouse.
- 2.4.3 In locations where lekking activity was identified during the reconnaissance survey, a follow-up survey to count males and females attending the lek was carried out following the method described in *Gilbert et al.* (1998). Surveys to count birds attending any identified leks (not required in this case) were undertaken in calm, dry conditions with good visibility within two hours of dawn. Leks were surveyed from a suitable vantage point, which avoided disturbing the lek site, to determine the number of males and females attending. The maximum number of males attending the lek was counted in the period between one hour before and one hour after sunrise. All males (not just those displaying) and all females were counted. Lekking areas that were > 200 m apart were considered to be separate leks.

3. SUMMARY OF SURVEY FINDINGS

3.1 2015-17 Flight Activity Surveys

- 3.1.1 The location of the VPs selected for the flight activity survey of the Site are shown on Figure 8.1. The VP viewsheds are shown on Figure 8.2 and the mapped flight lines, for target species, relative to the location of the proposed wind turbines are shown on Figures 8.3 to 8.6. Further details of the results of the flight activity surveys is provided in 3. A summary of the number of observations of target species with flights wholly or partially at risk height within the wind turbine envelope (i.e. the 'flight risk area', within 500 m of the outermost proposed wind turbines) are provided in Table 8.1.4.

Table 8.1.4: Number of Flights of Target Raptor and Owl Species at Risk Height (total number of birds in parentheses)

Year	Month	Target species flight lines recorded
2015	May	No target species recorded
	Jun.	1 (1) honey buzzard; 1(1) osprey
	Jul.	No target species recorded
	Aug.	No target species recorded
	Sep.	No target species recorded
	Oct.	No target species recorded
	Nov.	1 (1) goshawk; 1(1) hen harrier
	Dec.	1 (45) golden plover
2016	Jan.	1 (25) golden plover
	Feb.	1 (1) goshawk
	Mar.	10 (10) goshawk, 1 (55) pink-footed goose.
	Apr.	1 (1) goshawk, 4 (484) pink-footed goose, 1 (2) curlew
	May	2 (2) goshawk, 1 (17) pink-footed goose
	Jun.	1 (1) goshawk
	Jul.	No target species recorded
2017	Apr.	1 (37) pink-footed goose
	May	No target species recorded
	Jun.	No target species recorded
	Jul.	1 (1) osprey

- 3.1.2 The flight activity surveys did not reveal locations or ‘corridors’ where flight activity by key species was concentrated to such an extent that it would be appropriate to consider the wind farm design to reduce collision risk in those areas. In relation to goshawk it was also necessary to consider that the pattern and level of flight activity would be expected to decrease markedly once trees had been cleared to accommodate the construction and operation of the wind turbines.
- 3.1.3 Goshawk was the most frequently recorded target raptor species during the flight activity surveys, with 22 flights recorded as a whole, all but one of these flights occurred between February and June, coinciding with the breeding season and peak display period for this species.
- 3.1.4 One hen harrier was recorded during the winter 2015/16 flight activity surveys. This was of a male bird on the eastern edge of the flight activity survey area, flying partly at collision risk height in November 2015.
- 3.1.5 A single osprey was recorded during the flight activity survey in June 2015. The record was of an adult bird flying across the Red Hill/Craigie Beg area, partly at collision risk height.

- 3.1.6 A single female honey buzzard was recorded once during the flight activity surveys in June 2015, entirely within the collision risk height band. This was a notable record given the relative rarity of this species in the UK. Following this observation, the potential for a breeding attempt to occur in the area was carefully considered during the 2015 and 2016 raptor surveys. No further evidence of the use of the survey area by this species was found.
- 3.1.7 Common kestrel (secondary species, not included in the summary tables above), was the most frequently recorded raptor species during the flight activity surveys, with a total of 34 flight lines. This species was recorded in both the summer and winter periods, with the majority of flight activity occurring at and below collision risk height. Flight activity was concentrated in two key areas: at Craigie Beg /Red Hill towards the northern end of the flight activity survey area, and over the area of clear-fell north of The Shank, where birds were seen hunting on several occasions.

Common Gull

- 3.1.8 Common gull does not breed within the site or surrounding area, the nearest breeding colonies are associated with the Tips of Corsemaul and Tom Mor SSSI and SPA, located c. 6km northwest of the nearest proposed wind turbine.
- 3.1.9 Occasional flights of common gull were recorded during the flight activity surveys in May and June 2015. These were mainly of individual birds, with a small number of groups of two or three. During the spring-summer 2017 flight activity survey, when this was a focal species, a total of 2 flights (total of 2 birds) were recorded within the proposed development flight risk area and 10 flights (comprising 22 birds) were recorded well to the north of the of the proposed development. There was no evidence of a regularly used flight corridor by this species within the proposed wind turbine area. There was an apparent flight corridor to the north, similar to the pattern of activity recorded during baseline surveys for the existing Clashindarroch wind farm (see Technical Appendix 8.3 for further information).

3.2 Breeding Raptors

- 3.2.1 The key findings from the breeding raptor and owl surveys during 2015, 2016 and 2017 are provided in Table 8.1.5. The mapped locations are provided on a figure within the Confidential Ornithological Annex to the EIA Report that will be provided to SNH (this information is confidential due to the potential risk to some species from human persecution, egg collectors etc.).

Table 8.1.5: Summary of Breeding Raptor and Owl Survey Results 2015-17

Species	Breeding Status (surveyed area)			Notes
	2015	2016	2017	
Goshawk	Confirmed (1) Probable (1) Possible /unknown (1)	Possible (1)	No evidence of breeding	Confirmed breeding in 2015 at one location within the site, with probable and possible breeding attempts in the wider survey area (see Confidential Annex for further details). Some evidence of an early breeding attempt in 2016 but appears to have failed. FLS ranger confirmed one breeding goshawk pair in the survey area during 2019.
Sparrowhawk	Confirmed (1)	Probable	Confirmed (1)	One confirmed sparrowhawk territory in 2015, but none confirmed in 2016. One breeding attempt confirmed in 2017. (NB this was not a focal species due to its relative abundance).
Common buzzard	Confirmed (1)	Probable	Probable	One confirmed common buzzard territory in 2015, but none confirmed in 2016 or 2017 (NB this was not a focal species due to its relative abundance).
Common kestrel	Confirmed (1)	Probable	Confirmed (1)	One successful common kestrel breeding attempt in 2015 with adults feeding young. None confirmed in 2016. One confirmed successful breeding attempt in 2017. (NB this was not a focal species due to its relative abundance).
Long-eared owl	Probable			An adult bird was flushed in 2015 from the south of the 2km survey area and was probably nesting in the surrounding area. No evidence of this species breeding in 2016.
Hen harrier		Confirmed (1)		The 2016 confirmed breeding attempt was outwith the 2km survey area (see Confidential Annex for further details).
Tawny owl	Probable	Probable (6)	Probable	Approximately six breeding territories were recorded (calling males) in 2016. (NB this was not a focal species due to its relative abundance).

3.2.2 No goshawk pairs were confirmed as breeding within the 1km raptor survey area in 2016 or 2017, however there was one probable breeding attempt. An adult male was heard alarm-calling close to an old nest, however that nest was confirmed not to have been used as a breeding site in 2016.

3.2.3 However, there was activity recorded during the early part of the breeding season at another site, but not enough evidence to confirm a breeding attempt. As the goshawk survey effort was prioritised to suitable nesting habitat within the 1km survey area, less evidence was obtained from outwith the survey area. There was no other breeding evidence from within the 2km raptor survey area.

- 3.2.4 Outwith the 1km goshawk survey area but within the 2km raptor survey area, goshawk was confirmed as successfully breeding in 2015 and 2017; with nest sites located to the east and south of the 2km raptor survey area. An adult female bird was observed with possibly two juveniles in close proximity to an empty nest that was considered likely to have been used by goshawk. A possible goshawk nest was identified towards the eastern 2km raptor survey boundary; however there was insufficient evidence to confirm a breeding attempt at this location.
- 3.2.5 Whilst there is suitable habitat for hen harrier in a small number of locations to the west and south of the 2km raptor survey area, the only sighting of hen harrier in 2015 was a male bird recorded during the flight activity surveys.
- 3.2.6 Hen harrier were observed in the same location where breeding was suspected in 2015, which is outside of the 2km raptor survey area. In June 2016 a female was observed leaving and returning the same location on the ground, a food pass was recorded in the same area, and the birds were seen to chase a kestrel from this location, which strongly suggests that there was a nest in this area.
- 3.2.7 Evidence of the presence of breeding merlin was searched for during surveys in 2015, 2016 and 2017. No evidence indicating breeding or potential breeding was found within the raptor survey area in any of these years.
- 3.2.8 There was no evidence of breeding by short-eared owl occurring within the survey area during 2015 or 2016. A single bird was observed in flight within the site on one occasion during November 2015.

3.3 Black Grouse

- 3.3.1 The black grouse surveys were carried out in 2016 and 2017 in areas that were considered to be suitable habitat for the species including potentially suitable lekking sites. No observations of this species were made during any of the surveys.

3.4 Breeding Birds (excluding raptors and owls)

- 3.4.1 During the breeding woodland bird surveys that were carried out in 2016, a range of bird species were recorded that were considered to be typical of the habitats which are present in the proposed development area. Further details are provided in Appendix 4.
- 3.4.2 On the whole there was a relatively low density of breeding territories recorded, across both the open and wooded habitats within the survey area. There was also an absence of evidence of any breeding waders from the open moorland areas (and very few waders recorded during other surveys). Similarly, the number of red grouse and moorland passerines was also low overall.
- 3.4.3 Table 8.1.6 lists all bird species (with the exception of raptors and owls) that were recorded during the 2016 woodland breeding bird surveys, as well as their conservation status.

Table 6: List of all Species Recorded during Breeding Bird Surveys (excluding raptor and owls) and their Conservation Status

Common Name	Scientific Name	Sch.1 ⁱ	BoCC ⁱⁱⁱ	UK BAP ^{iv}	SBL ^v
Red grouse	<i>Lagopus lagopus</i>		Amber	✓	
Woodpigeon	<i>Columba palumbus</i>		Green		✓
Great spotted woodpecker	<i>Dendrocopos major</i>		Green		✓
Jay	<i>Garrulus glandarius</i>		Green		
Goldcrest	<i>Regulus regulus</i>		Green		✓
Coal tit	<i>Parus ater</i>		Green		
Chiffchaff	<i>Phylloscopus collybita</i>		Green		
Willow warbler	<i>Phylloscopus trochilus</i>		Amber		
Wren	<i>Troglodytes troglodytes</i>		Green		
Blackbird	<i>Turdus merula</i>		Green		
Song thrush	<i>Turdus philomelos</i>		Red		
Mistle thrush	<i>Turdus viscivorus</i>		Red		
Robin	<i>Erithacus rubecula</i>		Green	✓	✓
Dunnock	<i>Prunella modularis</i>		Amber		
Meadow pipit	<i>Anthus pratensis</i>		Amber		✓
Chaffinch	<i>Fringilla coelebs</i>		Green	✓	
Bulfinch	<i>Pyrrhula pyrrhula</i>		Amber		
Common crossbill ^{vi}	<i>Loxia curvirostra</i>	✓	Green		
Siskin	<i>Carduelis spinus</i>		Green	✓	✓

i. Species listed on Schedule 1 to the Wildlife and Countryside Act 1981 (as amended).

ii. Species listed on Annex I of the EC Birds Directive (Directive 2009/147/EC on the conservation of wild birds - the codified version).

iii. Birds of Conservation Concern (BoCC) in the UK (Eaton et al. 2015).

iv. Priority species in the 2007 UK Biodiversity Action Plan (UK), The UK BAP has been superseded by the UK Post-2010 Biodiversity Framework (JNCC 2012).

v. Species included on the Scottish Biodiversity List (2005), which is part of the Scottish Biodiversity Strategy (originally published by the Scottish Government in May 2004).

vi. Species of crossbill was not verified but is considered likely to be common crossbill. Clashindarroch Forest is located within the distributional range of both common and Scottish crossbill (*Loxia scotia*). Visual identification, of free-ranging birds, is rarely reliable unless supported by analysis of specific calls. Scottish crossbill is the UK's only endemic breeding bird it is on the BoCC Amber List, the Scottish Biodiversity List, Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and Annex I of the EC Birds Directive.

3.5 Other Notable Species

3.5.1 There were two records of crossbills during the flight activity surveys. These occurred in February and March 2016, one record being of a group of 16 birds. Crossbills were also occasionally observed during the walkover breeding bird surveys carried out in 2016. A specific survey of crossbills was not undertaken as part of the baseline surveys for this assessment. Neither species is considered to be particularly vulnerable to wind farm development, consequently they were not focal species for the assessment. The dominance of Sitka spruce (*Picea sitchensis*) within the Site indicated that it was not

likely to be favoured by Scottish crossbills, which are more typically associated within old stands of pine (Summers & Broome 2012¹⁰). However, both common and Scottish crossbill have previously been confirmed as present in Clashindarroch Forest (i.e. during the national crossbill survey in 2008). It has been assumed in the outline SPP (see Technical Appendix 8.4) that both species are potentially present as breeders and could be affected by the felling proposals.

- 3.5.2 A woodcock (*Scolopax rusticola*), which is on the UK Red list and the Scottish Biodiversity List, was observed 'roding' (male breeding display flight) in March 2016 outside the core survey area at the south-eastern end of the 2km raptor survey area. A single woodcock was flushed from the edge of a forest track, towards the eastern edge of the survey area, in dense pole stage plantation at the eastern end of Cloichedubh Hill, in September 2016. Another roding male was noted during bat surveys at Corrydown during summer 2019.

3.6 2015-17 Survey Conclusions

- 3.6.1 The surveys completed between May 2015 and July 2017 confirmed the presence of at least one pair of breeding goshawk within the survey area and up to two others in the wider raptor survey area. Hen harrier (1 pair) were confirmed as breeding in 2016 but the nest site was outside of the 2km raptor survey area.
- 3.6.2 Flight activity over the proposed wind turbine area by any of the target species was relatively limited. The majority of the observed activity by pink-footed geese commuting over the general area was at heights well above the collision risk height band. Goshawk flights were recorded primarily within and above the collision risk height band during the breeding season. Activity by this species in the area would be expected to reduce markedly following any forestry felling for the proposed development. Common gull were recorded in low numbers passing through the survey area.
- 3.6.3 The proposed development is located in a commercially forested landscape which limits the number of bird species of conservation concern likely to be present, and the area can be subject to high levels of disturbance depending on the intensity of tree harvesting and forest management. The open moorland areas to the west of the proposed development appear to provide suitable habitat to support breeding waders, although none were recorded during the 2016 or 2017 surveys and the proximity of the forest edge reduces the suitability of the moorland for ground-nesting birds.
- 3.6.4 There were no records of black grouse within the survey area in 2016 or 2017. However, this species are known to be present within the surrounding area (i.e. >2 km from the proposed development), as shown through the results of the monitoring study for the operational Clashindarroch Wind Farm.
- 3.6.5 The breeding woodland bird surveys carried out in 2016 revealed the presence of a range of widespread and commonly occurring passerines that are considered to typical of commercial conifer plantation. A number of territories of species whose populations are of high conservation concern at a national level were recorded in low numbers, including song thrush and mistle thrush. Crossbill species were recorded on a number

¹⁰ Summers, R.W., & Broome, A. (2012). Associations between crossbills and North American conifers in Scotland. *Forest Ecology and Management*, 271 (2012), 37–45.

of occasions, during woodland breeding bird surveys and regularly during other surveys. Common crossbill are considered very likely to be breeding in suitable habitat within the survey area. The core survey area supports at least one breeding woodcock.

APPENDIX 1: ALL BIRDS RECORDED AND THEIR STATUS

A full list of all species recorded during all ornithological surveys completed between May 2015 and August 2017 is provided in Table A1.1 below. This table also includes details of the status of each species within the site (e.g. breeding, non-breeding, wintering and passage), the number of breeding territories recorded (where applicable), the nature conservation status of each species at a national level, and the legal / nature conservation policy status of the species locally and nationally.

Table A1.1: All Bird Species Recorded During Surveys Completed at Clashindarroch II between May 2015 and August 2017 and their Status

Common Name	Scientific Name	BTO Code	Site Status ⁱ	No. Breeding Territories Recorded		Legal Status ⁱⁱ	UK BoCC Status ⁱⁱⁱ	UKBAP / LBAP ^{iv}	SBL ^v
				2015	2016				
Pink-footed goose	<i>Anser brachyrhynchus</i>	PG	P				Amber		
Greylag goose	<i>Anser anser</i>	GJ	P				Amber		
Red grouse	<i>Lagopus lagopus</i>	RG	Bc		2		Amber	UK	✓
Honey buzzard	<i>Pernis apivorus</i>	HZ	P / NB			Sch1 / Anx I	Amber		✓
Hen harrier	<i>Circus cyaneus</i>	HH	Bw		1	Sch1 / Anx I	Red		✓
Goshawk	<i>Accipiter gentilis</i>	GI	Bc/w	2-3		Sch1	Green		
Sparrowhawk	<i>Accipiter nisus</i>	SH	Bc	1			Green		
Common buzzard	<i>Buteo buteo</i>	BZ	Bw				Green		
Osprey	<i>Pandion haliaetus</i>	OP	NB			Sch1 / Anx I	Amber		✓
Golden plover	<i>Pluvialis apricaria</i>	GP	P/NB			Anx I	Green		✓
Curlew	<i>Numenius arquata</i>	CU	pBw				Red	UK	✓
Woodcock	<i>Scolopax rusticola</i>	WK	Bc		1 (2019)		Red		✓
Common gull	<i>Larus canus</i>	CM	NB				Amber		
Lesser black-backed gull	<i>Larus fuscus</i>	LB	NB				Amber		
Woodpigeon	<i>Columba palumbus</i>	WP	Bc		n/a		Green		

Common Name	Scientific Name	BTO Code	Site Status ⁱ	No. Breeding Territories Recorded		Legal Status ⁱⁱ	UK BoCC Status ⁱⁱⁱ	UKBAP / LBAP ^{iv}	SBL ^v
				2015	2016				
Tawny owl	<i>Strix aluco</i>	TO	Bc		1		Amber		
Long-eared owl	<i>Asio otus</i>	LE	pBw				Green		
Short-eared owl	<i>Asio flammeus</i>	SE	pBw			Anx I	Amber		✓
Common swift	<i>Apus apus</i>	SI	NB				Amber		✓
Great spotted woodpecker	<i>Dendrocopos major</i>	GS	Bc		n/a		Green		
Common kestrel	<i>Falco tinnunculus</i>	K.	Bc	1			Amber		✓
Jay	<i>Garrulus glandarius</i>	J.	Bc		n/a		Green		
Jackdaw	<i>Corvus monedula</i>	JD	NB				Green		
Raven	<i>Corvus corax</i>	RN	pBw				Green		
Goldcrest	<i>Regulus regulus</i>	GC	Bc		n/a		Green		
Coal tit	<i>Parus ater</i>	CT	Bc		n/a		Green		
Swallow	<i>Hirundo rustica</i>	SL	pBw				Green		
Chiffchaff	<i>Phylloscopus collybita</i>	CC	Bc		n/a		Green		
Willow warbler	<i>Phylloscopus trochilus</i>	WW	Bc		23		Amber		
Common treecreeper	<i>Certhia familiaris</i>	TC	pBc				Green		
Wren	<i>Troglodytes troglodytes</i>	WR	Bc		n/a		Green		
Starling	<i>Sturnus vulgaris</i>	SG	pBw				Red	UK	✓
Blackbird	<i>Turdus merula</i>	B.	Bc		n/a		Green		
Fieldfare	<i>Turdus pilaris</i>	FF	P/W			Sch1	Red		
Song thrush	<i>Turdus philomelos</i>	ST	Bc		3		Red	UK / L	✓
Redwing	<i>Turdus iliacus</i>	RE	P/W			Sch1	Red		
Mistle thrush	<i>Turdus viscivorus</i>	M.	Bc		4		Red		

Common Name	Scientific Name	BTO Code	Site Status ⁱ	No. Breeding Territories Recorded		Legal Status ⁱⁱ	UK BoCC Status ⁱⁱⁱ	UKBAP / LBAP ^{iv}	SBL ^v
				2015	2016				
Robin	<i>Erithacus rubecula</i>	R.	Bc		n/a		Green		
Dunnock	<i>Prunella modularis</i>	D.	Bc		6		Amber		
Grey wagtail	<i>Motacilla cinerea</i>	GL	Bc		n/a		Red		
Pied wagtail	<i>Motacilla alba</i>	PW	Bc		n/a		Green		
Meadow pipit	<i>Anthus pratensis</i>	MP	Bc		7		Amber		
Chaffinch	<i>Fringilla coelebs</i>	CH	Bc		n/a		Green		
Bullfinch	<i>Pyrrhula pyrrhula</i>	BF	Bc		5		Amber	UK / L	✓
Lesser redpoll	<i>Acanthis cabaret</i>	LR	pBc				Red	UK / L	✓
Common crossbill	<i>Loxia curvirostra</i>	CR	pBc			Sch1	Green		
Siskin	<i>Carduelis spinus</i>	SK	Bc		n/a		Green		✓

i – Overall status of the species within the survey area over the period May 2015 – July 2016: NB – not breeding; Bc – confirmed breeding in the core survey area; pBc – probably breeding within the core survey area; Wc – wintering in the core survey area; Bw – confirmed breeding in the wider area; pBw – possibly breeding in the wider area; Ww – wintering in the wider area; and P – passage migrant.

ii - Sch. 1 - Species listed on Schedule 1 to the Wildlife and Countryside Act 1981 (as amended). Ann. I - Species listed on Annex I of the EC Birds Directive (Directive 2009/147/EC on the conservation of wild birds - the codified version). NB – all wild bird species and their nests and eggs are protected under the Wildlife & Countryside Act 1981, as amended.

iii - Birds of Conservation Concern (BoCC) in the UK (Eaton et al. 2015). All regularly occurring species that do not qualify under any of the red or amber criteria are green listed. The Green list also includes those species listed as recovering from Historical Decline in the last review that have continued to recover and do not qualify under any of the other criteria.

iv - Priority species in the UK Biodiversity Action Plan (UK) and the North East Scotland Local Biodiversity Action Plan (L).

v – Priority species in the Scottish Biodiversity List (SBL).

APPENDIX 2: DETAILS OF FLIGHT ACTIVITY SURVEYS

Introduction

This appendix provides further details of the flight activity surveys completed for the proposed Clashindarroch II wind farm site, between May 2015 and August 2017. This includes details of the timing of the individual watches and the weather conditions during the watches. The results of the flight activity surveys are included in Appendix 3 and are mapped on Figures 8.2-8.6b.

Flight Activity Survey Effort and Weather Conditions

The following Tables (A2.1-A2.2) provide details of the timings of the individual vantage point watches and weather conditions for all flight activity surveys completed between May 2015 and August 2017 (inclusive).

Table A2.1: Flight Activity Survey Details – May 2015 to August 2017

Survey Ref	Date Surveyed	VP	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Notes
0001	21/05/15	1	4	GP	14:15	17:15	03:00		Wind gusting to F4 in hours two and three.
0005	21/05/15	3	4	RW	14:20	17:20	03:00		No target species.
0002	21/05/15	1	5	GP	17:45	20:45	03:00		Wind gusting to F4 throughout survey.
0006	21/05/15	3	5	RW	17:50	20:50	03:00		No target species.
0003	22/05/15	2	2	GP	09:20	12:20	03:00		Wind gusting to F4 during first two hours, gusting to F3 in third hour.
0004	22/05/15	2	3	GP	12:50	15:50	03:00		Wind gusting to F4 in last hour.
0007	15/06/15	1	3	RW	12:30	15:30	03:00		
0008	15/06/15	1	4	RW	16:00	19:00	03:00		
0009	16/06/15	2	2	RW	07:20	10:20	03:00		
0010	16/06/15	2	3	RW	10:50	13:50	03:00		
0011	17/06/15	3	2	RW	07:20	10:20	03:00		
0012	17/06/15	3	3	RW	10:50	13:50	03:00		
0013	24/06/15	1	2	RW	09:30	12:30	03:00		

Survey Ref	Date Surveyed	VP	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Notes
0014	24/06/15	3	4	RW	16:00	19:00	03:00		
0015	25/06/15	2	2	RW	07:45	10:45	03:00		Honey buzzard observed during survey.
0029	15/07/15	1	3	PB	13:30	16:40	03:10	00:10	Occasional redpoll, siskin and crossbill flocks passing through viewshed during watch, willow warbler and coal tit song/calls from nearby Sitka spruce plantation edge.
0030	15/07/15	1	4	PB	16:45	18:45	02:00		No target or secondary species seen. Meadow pipit, willow warbler, coal tit, wren regular song throughout watch, occasional parties of crossbill and siskin passing through the viewshed, occasional flights by single woodpigeons.
0031	16/07/15	1	2	PB	08:45	09:45	01:00		No target or secondary species seen.
0032	16/07/15	2	2	PB	10:45	13:45	03:00		Occasional common buzzard hunting activity mostly low height band, some mid, hanging in brisk southeast breeze. Occasional flights by single woodpigeon, meadow pipit and small redpoll parties.
0033	16/07/15	3	3	PB	14:45	15:45	01:00		No target or secondary species seen.
0034	23/07/15	3	3	PB	11:00	13:00	02:00		No target or secondary species seen. Occasional meadow pipit flights, otherwise very quiet, strong breeze not good conditions for raptor activity.
0035	23/07/15	2	4	PB	14:00	17:00	03:00		No target or secondary species seen. Occasional meadow pipit flights, and song thrush in song nearby.
0036	24/07/15	3	2	PB	09:45	12:45	03:00		Single surveyor in hi-viz in wind farm area. Occasional foraging flights by single swallows over heath.
0039	12/08/15	1	2	PB	11:45	14:45	03:00		No target or secondary species seen. Tawny owl chick begging calls heard from pole stage plantation to the north, two crossbills in flight passing VP. Regular common buzzard activity within viewshed, mostly 'thermalling' in the high and very high height bands.
0040	12/08/15	2	4	PB	15:00	18:00	03:00		No target or secondary species seen. Occasional common buzzard, woodpigeon and swallow flight activity in viewshed.

Survey Ref	Date Surveyed	VP	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Notes
0037	13/08/15	3	3	PB	10:15	13:15	03:00		No target or secondary species seen. Occasional common buzzard, woodpigeon and swallow flight activity in viewshed.
0038	13/08/15	1	3	PB	13:45	16:45	03:00		Not all common buzzard activity recorded, regular flights in viewshed by several adults hunting throughout watch.
0019	25/08/15	2	4	EMcH	14:50	17:50	03:00		No target or secondary species, only common buzzard.
0018	25/08/15	2	5	EMcH	18:20	21:20	03:00		No target or secondary species seen.
0016	26/08/15	3	1	EMcH	05:55	08:55	03:00		No target or secondary species.
0017	26/08/15	3	2	EMcH	09:25	12:25	03:00		No target or secondary species.
0020	07/09/15	3	4	EMcH	14:10	17:10	03:00		No target or secondary species seen.
0021	07/09/15	3	5	EMcH	17:40	20:40	03:00		No target or secondary species seen.
0022	08/09/15	1	4	EMcH	14:10	17:10	03:00		
0023	08/09/15	1	5	EMcH	17:40	20:40	03:00		No target or secondary species seen.
0024	09/09/15	2	4	EMcH	12:48	15:48	03:00		Survey start delayed due to low cloud.
0025	22/09/15	2	4	PC	13:00	16:00	03:00		Light drizzle.
0026	22/09/15	1	5	PC	16:30	19:30	03:00		No notable records.
0027	23/09/15	2	1	PC	06:45	09:45	03:00		
0028	23/09/15	3	2	PC	11:10	14:10	03:00		Only bird activity from occasional passerines such as crossbill, siskin and meadow pipit. No target or secondary species observed.
0041	08/10/15	1	4	PC	12:40	15:40	03:00		
0042	08/10/15	2	5	PC	16:10	19:10	03:00		No notable records.
0043	09/10/15	3	1	PC	07:25	10:25	03:00		12 pink-footed geese past heading north but just off extent of map at 08:15. Goshawk heard calling at 08:58 but not seen. 38 pink-footed geese south at very high height but off map at 09:30. Otherwise no notable records.
0044	09/10/15	1	2	PC	10:55	13:55	03:00		

Survey Ref	Date Surveyed	VP	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Notes
0045	14/10/15	3	4	PC	12:30	15:30	03:00		Only birds seen were 5 fieldfares and 1 red grouse flushed on approach to VP.
0046	14/10/15	1	5	PC	16:00	19:00	03:00		
0047	15/10/15	2	1	PC	07:00	10:00	03:00		
0048	15/10/15	3	2	PC	10:30	13:30	03:00		
0049	21/10/15	2	4	PC	12:05	15:05	03:00		
0050	21/10/15	3	5	PC	15:35	18:35	03:00		Goshawk heard calling at 17:23 to south of VP but not seen. Otherwise, no notable records.
0051	22/10/15	1	1	PC	07:15	10:15	03:00		No notable records
0052	22/10/15	2	2	PC	10:45	13:45	03:00		
0053	30/10/15	3	2	PC	11:00	14:00	03:00		
0054	30/10/15	2	5	PC	14:30	17:30	03:00		
0055	31/10/15	2	1	PC	06:40	09:40	03:00		
0056	31/10/15	1	2	PC	10:10	13:10	03:00		
0057	31/10/15	1	5	PC	14:20	17:20	03:00		
0058	01/11/15	3	1	PC	06:40	09:40	03:00		
0059	10/11/15	3	3	KM	10:45	13:45	03:00		No target / secondary species seen. 9 bullfinches landed in tree close to VP at 11:00.
0060	10/11/15	1	5	KM	14:10	17:10	03:00		Sun glare until 15:20. Approximately 40 fieldfare over VP and heading west at 15:00. Great-spotted woodpecker over VP, calling, heading northwest at 15:10.
0061	11/11/15	2	1	KM	07:10	10:10	03:00		Small flocks of fieldfare moving through in first hour.
0062	11/11/15	1	3	KM	10:30	13:30	03:00		No target or secondary species seen.
0063	12/11/15	2	3	KM	10:15	13:15	03:00		Hr 2 - wind changed from southeast to southwest by 11:30 and wind up to F3.
0064	12/11/15	3	5	KM	13:50	16:20	02:30		Very gusty. No birds seen at all. Survey stopped at 16:20 (after 2.5 hours) due to high wind and heavy rain.

Survey Ref	Date Surveyed	VP	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Notes
0065	16/11/15	3	3	PC	10:00	13:00	03:00		Only birds observed were a few crossbills.
0066	16/11/15	2	5	PC	13:35	16:35	03:00		No species of bird seen or heard throughout entire survey.
0067	17/11/15	1	1	PC	07:10	10:10	03:00		Only birds observed were a few passerines: bullfinch, meadow pipit, crossbill and chaffinch.
0068	17/11/15	2	5	PC	13:50	16:50	03:00		No notable records
0069	18/11/15	3	1	PC	07:10	10:10	03:00		
0070	18/11/15	1	5	PC	11:00	15:00	04:00	01:00	
0071	24/11/15	1	5	AC	13:30	16:30	03:00		
0072	24/11/15	2	5	PC	13:30	16:30	03:00		No notable records.
0073	25/11/15	1	5	PC	13:00	16:00	03:00		
0074	25/11/15	2	5	AC	13:00	16:00	03:00		No birds recorded during VP survey period.
0075	27/11/15	3	1	PC	08:45	11:45	03:00		
0076	27/11/15	3	5	PC	13:35	16:35	03:00		No notable records
0077	09/12/15	1	3	SR	11:50	14:50	03:00		Breezy, cloudy with sunny spells. Some high wind gusts in second half of watch (max. F4)
0078	10/12/15	3	1	SR	09:30	12:30	03:00		Fresh covering of 1-2 cm of snow. Fresh, sunny. Pair of bullfinches on rocks during walk to VP.
0079	10/12/15	2	5	SR	13:00	16:00	03:00		
0080	11/12/15	1	1	SR	08:30	11:30	03:00		Various bullfinches heard during watch.
0081	15/12/15	2	5	KM	12:15	15:15	03:00		No birds seen.
0082	16/12/15	2	3	KM	10:20	13:20	03:00		Conditions not ideal for surveying. Very low cloud passing through. Cleared after first hour, with sunny sky.
0083	16/12/15	3	5	KM	13:30	15:50	02:20		Finished early due to light levels dropping. No birds seen.
0084	17/12/15	3	5	KM	12:45	13:25	00:40		Continuation of yesterday's survey that was stopped due to low light levels. No birds seen.
0085	12/01/16	3	5	SR	12:50	15:50	03:00		Bullfinches seen and heard, otherwise, no birds.

Survey Ref	Date Surveyed	VP	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Notes
0086	13/01/16	1	1	SR	08:45	11:45	03:00		Bullfinches, goldcrests and coal tits seen and heard. Cold, frosty and sunny.
0087	13/01/16	2	3	SR	12:20	15:20	03:00		Sunny and crisp. Small flocks of bullfinches.
0088	14/01/16	3	1	SR	08:50	11:50	03:00		Cold wind, harsh frost. Very small patches of snow left on site. No birds.
0089	14/01/16	1	3	SR	12:35	15:35	03:00		Cold and sunny. Bullfinches heard and seen.
0090	25/01/16	3	3	PC	10:35	13:35	03:00		Cloud very variable with some short periods where it was only 30 - 40 % cover. Quiet with no notable records.
0091	25/01/16	1	5	PC	14:15	17:15	03:00		Three owl pellets on track near VP. One fresher than the other two.
0092	26/01/16	2	1	PC	07:45	10:45	03:00		No notable records
0093	26/01/16	2	5	PC	14:15	17:15	03:00		No notable records.
0094	10/02/16	2	4	KM	13:40	16:40	03:00		Snow on ground - very light cover. No birds seen at all.
0095	11/02/16	1	2	KM	09:50	12:50	03:00		No target species seen.
0096	11/02/16	3	4	KM	13:40	16:40	03:00		No further snow this afternoon. No birds seen.
0097	12/02/16	2	2	KM	09:15	12:15	03:00		No birds seen. Not good conditions for survey.
0098	26/02/16	2	1	PC	06:45	09:45	03:00		
0099	26/02/16	3	4	PC	11:50	14:50	03:00		
0100	28/02/16	3	2	PC	09:45	12:45	03:00		Icy track and thin covering of snow on the ground.
0101	28/02/16	1	4	PC	14:00	17:00	03:00		Much of the cloud high and thin.
0102	29/02/16	1	1	PC	06:45	09:45	03:00		
0103	08/03/16	1	4	SR	12:15	15:15	03:00		Approx. 10 cm of snow on ground. Sunny, light winds, clear.
0104	09/03/16	2	2	SR	09:50	12:50	03:00		Deep snow (c. 12 cm) on ground. Cloudy. Weather improved between hrs 2-3. Approx. 51 red deer (mixed herd) seen west of VP (hill to north-west of Craigwater Hill at 12:05).
0105	09/03/16	3	4	SR	14:00	17:00	03:00		Deep snow (c. 10 cm).

Survey Ref	Date Surveyed	VP	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Notes
0106	10/03/16	3	1	SR	07:45	10:45	03:00		Snow thawing. Overnight mist quickly cleared. Red grouse flushed on walk to VP west of Clochedubh Hill.
0107	10/03/16	2	4	SR	11:30	14:30	03:00		Sunny. Scattered cumulus cloud.
0108	11/03/16	1	1	SR	08:00	11:00	03:00		
0109	17/03/16	1	2	PB	08:30	12:00	03:30	00:30	Low lying fog affecting c. 10-20% of viewshed (southeast) throughout watch. Some forestry works happening c. 2 km southeast, below VP3. Song thrush singing through watch (250 m to the southwest). Coal tit, wren, woodpigeon, robin, blackbird, chaffinch all singing at some point through watch.
0110	17/03/16	1	4	PB	12:00	15:00	03:00		Fog cleared. All viewshed visible for this watch. Robin, redpoll, song thrush, coal tit, woodpigeon, pheasant and goldcrest seen / heard through watch.
0111	25/03/16	3	5	PC	15:35	18:35	03:00		No notable records.
0112	28/03/16	3	2	PC	09:30	12:30	03:00		
0113	29/03/16	2	1	PC	06:30	09:30	03:00		
0114	13/04/16	1	3	RJ	11:15	14:15	03:00		Very quiet, no target or secondary species seen.
0115	13/04/16	1	4	RJ	15:45	18:45	03:00		Quiet. Only common buzzard seen.
0116	14/04/16	2	2	RJ	08:00	11:00	03:00		Good survey conditions.
0117	14/04/16	2	5	RJ	18:00	21:00	03:00		No target or secondary species seen despite good conditions.
0118	15/04/16	1	2	RJ	08:15	11:15	03:00		No target or secondary species seen.
0119	19/04/16	2	4	MW	16:15	19:15	03:00		
0120	20/04/16	2	3	MW	12:15	15:15	03:00		
0121	20/04/16	1	5	MW	17:30	20:30	03:00		Secondary species mapped for interest.
0122	21/04/16	1	2	MW	08:25	11:25	03:00		No birds observed.
0123	22/04/16	3	2	MW	09:30	12:30	03:00		
0124	22/04/16	3	3	MW	13:00	16:00	03:00		

Survey Ref	Date Surveyed	VP	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Notes
0125	26/04/16	3	4	MW	15:30	18:30	03:00		No birds were observed.
0126	27/04/16	3	1	MW	05:30	08:30	03:00		No birds were observed.
0127	27/04/16	3	2	MW	09:00	12:00	03:00		Common kestrel was the only observed species.
0128	28/04/16	2	1	MW	05:30	08:30	03:00		No birds observed.
0129	28/04/16	1	3	MW	11:30	14:30	03:00		Buzzard flew east past VP toward Little Black Hill (13.36).
0130	28/04/16	2	5	MW	18:30	21:30	03:00		
0131	29/04/16	2	2	MW	08:30	11:30	03:00		No birds observed.
0132	29/04/16	3	3	MW	12:40	15:40	03:00		No birds observed.
0133	03/05/16	1	5	MW	18:30	21:30	03:00		No birds observed.
0134	04/05/16	3	1	MW	05:35	08:35	03:00		No birds observed.
0135	04/05/16	3	2	MW	09:05	12:05	03:00		Strong southerly wind. Only common buzzard observed.
0136	05/05/16	2	1	MW	05:10	08:10	03:00		Clear, calm and quiet, only common buzzard observed.
0137	05/05/16	1	2	MW	08:40	11:40	03:00		Only common buzzard seen.
0138	05/05/16	2	3	MW	12:15	15:15	03:00		No birds observed.
0139	10/05/16	1	4	MW	15:00	18:00	03:00		No birds observed.
0140	10/05/16	2	5	MW	18:30	21:30	03:00		No birds observed.
0141	11/05/16	3	3	MW	12:05	15:05	03:00		
0142	11/05/16	3	4	MW	15:35	18:35	03:00		
0143	12/05/16	1	1	MW	05:05	08:05	03:00		Low foggy cloud to begin with, giving way to sunshine.
0144	12/05/16	2	2	MW	08:35	11:35	03:00		
0145	23/05/16	1	3	PC	13:00	16:00	03:00		No notable records.
0146	23/05/16	3	5	PC	19:35	22:35	03:00		No notable records.
0147	24/05/16	3	2	PC	06:15	09:15	03:00		No notable records.
0148	24/05/16	2	4	PC	16:15	19:15	03:00		

Survey Ref	Date Surveyed	VP	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Notes
0149	25/05/16	1	1	PC	04:30	07:30	03:00		No notable records.
0150	25/05/16	2	3	PC	12:15	15:15	03:00		No notable records.
0152	09/06/16	3	4	PC	15:45	18:45	03:00		
0153	10/06/16	2	4	PC	16:30	19:30	03:00		No notable records.
0154	13/06/16	1	4	MW	16:20	19:20	03:00		
0155	13/06/16	2	5	MW	19:30	22:30	03:00		
0156	14/06/16	1	1	MW	04:15	07:15	03:00		No birds observed.
0157	15/06/16	2	5	MW	18:30	21:30	03:00		
0151	22/06/16	3	1	KM	03:55	06:55	03:00		Sun glare after second hour. No target species.
0158	23/06/16	3	3	PC	11:00	14:00	03:00		No notable records.
0159	23/06/16	1	4	PC	14:30	17:30	03:00		Common buzzard heard begging, but not seen. Raven heard calling in the buffer to north of VP but not seen. Otherwise, no notable records.
0160	23/06/16	2	5	PC	19:05	22:05	03:00		
0161	24/06/16	1	1	PC	04:00	07:00	03:00		No notable records.
0162	24/06/16	3	2	PC	09:00	12:00	03:00		
0163	19/07/16	1	3	PB	13:10	16:10	03:00		Very warm and humid conditions. Tree felling ongoing at southwest end of viewshed. No target or secondary species.
0164	20/07/16	2	2	PB	07:00	08:00	01:00		No target or secondary species observed.
0165	21/07/16	3	2	PB	08:15	11:15	03:00		Meadow pipit, lesser redpoll and crossbill seen on walk to VP from east. No target or secondary species.
0166	21/07/16	2	3	PB	12:30	13:30	01:00		Tree felling ongoing to east of VP. No target species observed.
0167	27/07/16	2	1	PC	05:15	08:15	03:00		No notable records
0168	27/07/16	3	5	PC	18:05	21:35	03:30		No notable records. Weather from 21:05 - 21:35 same as hour 3.

Survey Ref	Date Surveyed	VP	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Notes
0169	28/07/16	1	2	PC	08:05	11:05	03:00		No notable records.
0170	05/04/17	1	5	AC	17:25	20:25	03:00		No target or secondary species recorded.
0171	06/04/17	1	1	AC	06:10	09:10	03:00		
0172	30/04/17	2	4	AC	15:00	18:00	03:00		New VP Location at NJ 42426, 32896. No target species recorded.
0173	30/04/17	2	5	AC	18:30	21:30	03:00		No target or secondary species recorded. New VP Location at NJ 42426, 32896.
0174	26/04/17	3	3	PC	13:15	16:15	03:00		No notable records. Some logistical issues due to snow on ground.
0175	26/04/17	3	4	PC	16:45	18:45	02:00		No notable records.
0176	05/04/17	4	5	PC	17:30	20:30	03:00		VP location at NJ 43959 34877.
0177	06/04/17	4	1	PC	06:15	09:15	03:00		
0178	08/05/17	1	5	AC	18:45	21:45	03:00		No target or secondary species recorded.
0179	09/05/17	1	1	AC	05:10	08:10	03:00		No target or secondary species recorded.
0180	08/05/17	2	5	AJM	18:40	21:40	03:00		No flights.
0181	31/05/17	2	4	PC	15:45	18:45	03:00		
0182	25/05/17	3	5	PC	17:45	19:45	02:00		No notable records.
0183	25/05/17	3	5	PC	20:15	22:15	02:00		No notable records.
0184	26/05/17	3	1	PC	04:00	07:00	03:00		No notable records.
0185	08/05/17	4	5	PC	18:40	21:40	03:00		No notable records.
0186	09/05/17	4	1	PC	05:10	08:10	03:00		
0187	12/06/17	1	5	CS	18:10	21:10	03:00		Weather generally bright and sunny with occasional cloudy spells and showers.

Survey Ref	Date Surveyed	VP	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Notes
0188	13/06/17	1	2	CS	06:45	09:45	03:00		Weather dry and bright, occasional sunny spells, but cloud cover increasing as count went on. Wind occasional, but mostly F1 during hourly intervals.
0189	12/06/17	2	5	PC	18:15	21:15	03:00		
0190	13/06/17	2	2	PC	06:40	09:40	03:00		No notable records.
0191	12/06/17	4	5	AJM	18:10	21:10	03:00		No flights.
0192	13/06/17	4	2	AJM	06:45	09:45	03:00		No flights.
0193	04/07/17	3	3	PC	10:40	13:40	03:00		Goshawk heard calling to southeast of VP at 12:25 but not seen. Calling intermittently after that. Suggested a territory/nest in this area or perhaps a young bird being provisioned nearby. Calls were all adult in nature with no begging calls heard so no way to confirm this.
0194	04/07/17	3	4	PC	14:10	17:10	03:00		No notable records.
0195	05/07/17	3	2	PC	09:00	12:00	03:00		
0196	05/07/17	4	2	AJM	09:05	12:05	03:00		No flights.
0197	05/07/17	2	3	PC	12:30	15:30	03:00		
0198	05/07/17	1	3	AJM	12:35	15:35	03:00		
0199	17/07/17	3	5	PC	19:40	22:40	03:00		No notable records.
0200	18/07/17	3	2	PC	09:05	12:05	03:00		
0201	27/07/17	1	3	AC	11:45	14:45	03:00		No target or secondary species recorded.
0202	27/07/17	2	3	GP	11:40	14:40	03:00		
0203	27/07/17	4	3	AJM	11:45	14:45	03:00		
0204	27/07/17	2	4	GP	15:10	18:10	03:00		
0205	27/07/17	1	4	AC	15:15	18:15	03:00		No secondary species recorded.
0206	27/07/17	4	4	AJM	15:15	18:15	03:00		Few spots of rain, and one approx. five minute shower.

Survey Ref	Date Surveyed	VP	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Notes
0207	09/08/17	1	5	AJM	18:30	21:30	03:00		No flights.
0208	09/08/17	2	5	PC	18:30	21:30	03:00		No notable records.
0209	10/08/17	3	1	PC	04:55	07:55	03:00		
0210	10/08/17	4	1	AJM	04:55	07:55	03:00		No flights.
0211	15/08/17	1	4	AC	16:10	19:10	03:00		
0212	15/08/17	4	4	PC	16:10	19:10	03:00		No notable records.
0213	16/08/17	1	1	AC	06:10	09:10	03:00		No target or secondary species.
0214	16/08/17	4	1	PC	06:15	09:15	03:00		
0215	29/08/17	3	5	PC	17:40	20:40	03:00		No notable records.
0216	30/08/17	2	1	PC	05:30	08:30	03:00		
0217	30/08/17	2	2	PC	09:00	12:00	03:00		
0218	30/08/17	3	3	PC	12:30	15:30	03:00		No notable records.

Table A2.2: Flight Activity Survey Weather Conditions

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0001	21/05/15	1	1	W	500-1000	95	3	5-10	11	~	~	~	~
0001	21/05/15	1	2	W	500-1000	95	3	5-10	11	~	~	~	~
0001	21/05/15	1	3	W	500-1000	95	3	5-10	11	~	~	~	~
0002	21/05/15	1	1	W	500-1000	95	3	~	11	None	n/a	n/a	n/a
0002	21/05/15	1	2	W	500-1000	85	3	~	11	None	n/a	n/a	n/a
0002	21/05/15	1	3	W	500-1000	85	3	~	11	None	n/a	n/a	n/a
0005	21/05/15	3	1	S	>1000	90	4	>10	11	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0005	21/05/15	3	2	S	>1000	90	3	>10	11	None	n/a	n/a	n/a
0005	21/05/15	3	3	S	>1000	90	3	>10	11	None	n/a	n/a	n/a
0006	21/05/15	3	1	S	>1000	90	3	>10	11	None	n/a	n/a	n/a
0006	21/05/15	3	2	S	>1000	90	3	>10	11	None	n/a	n/a	n/a
0006	21/05/15	3	3	S	>1000	90	3	>10	11	None	n/a	n/a	n/a
0003	22/05/15	2	1	W	500-1000	97	3	5-10	12	None	n/a	n/a	n/a
0003	22/05/15	2	2	W	500-1000	97	3	5-10	12	None	n/a	n/a	n/a
0003	22/05/15	2	3	W	500-1000	98	2	5-10	12	None	n/a	n/a	n/a
0004	22/05/15	2	1	NW	500-1000	98	3	5-10	12	Rain	2	Moderate	Continuous
0004	22/05/15	2	2	W	500-1000	97	3	5-10	12	None	n/a	n/a	n/a
0004	22/05/15	2	3	NW	500-1000	80	3	5-10	13	None	n/a	n/a	n/a
0007	15/06/15	1	1	NW	>1000	60	2	>10	12	None	n/a	n/a	n/a
0007	15/06/15	1	2	NW	>1000	75	2	>10	12	None	n/a	n/a	n/a
0007	15/06/15	1	3	NW	500-1000	95	2	2-5	12	Rain	70	Light	Continuous
0008	15/06/15	1	1	NW	500-1000	100	2	5-10	12	Rain	15	Light	Intermittent
0008	15/06/15	1	2	NW	500-1000	100	2	5-10	12	None	n/a	n/a	n/a
0008	15/06/15	1	3	NW	500-1000	100	2	5-10	12	None	n/a	n/a	n/a
0009	16/06/15	2	1	SE	500-1000	100	2	>10	12	None	n/a	n/a	n/a
0009	16/06/15	2	2	SE	500-1000	100	2	>10	12	None	n/a	n/a	n/a
0009	16/06/15	2	3	SE	500-1000	100	2	>10	12	None	n/a	n/a	n/a
0010	16/06/15	2	1	SE	>1000	100	2	>10	12	None	n/a	n/a	n/a
0010	16/06/15	2	2	SE	>1000	95	2	>10	12	None	n/a	n/a	n/a
0010	16/06/15	2	3	SE	>1000	95	3	>10	12	None	n/a	n/a	n/a
0011	17/06/15	3	1	S	>1000	90	3	>10	12	None	n/a	n/a	n/a
0011	17/06/15	3	2	S	>1000	100	3	>10	12	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0011	17/06/15	3	3	S	>1000	100	4	>10	12	Rain	2	Light	Intermittent
0012	17/06/15	3	1	S	>1000	80	4	>10	12	None	n/a	n/a	n/a
0012	17/06/15	3	2	S	>1000	90	4	>10	12	None	n/a	n/a	n/a
0012	17/06/15	3	3	S	>1000	90	4	>10	12	None	n/a	n/a	n/a
0013	24/06/15	1	1	NW	500-1000	100	2	5-10	11	None	n/a	n/a	n/a
0013	24/06/15	1	2	NW	500-1000	100	2	5-10	11	None	n/a	n/a	n/a
0013	24/06/15	1	3	NW	500-1000	100	2	5-10	11	None	n/a	n/a	n/a
0014	24/06/15	3	1	NW	500-1000	100	2	5-10	11	None	n/a	n/a	n/a
0014	24/06/15	3	2	NW	500-1000	100	2	5-10	11	None	n/a	n/a	n/a
0014	24/06/15	3	3	NW	100-500	100	2	1-2	11	Rain	80	Light	Continuous
0015	25/06/15	2	1	SW	500-1000	100	1	5-10	10	None	n/a	n/a	n/a
0015	25/06/15	2	2	SW	>1000	90	1	>10	11	None	n/a	n/a	n/a
0015	25/06/15	2	3	SW	>1000	70	1	>10	12	None	n/a	n/a	n/a
0029	15/07/15	1	1	NE	500-1000	90	0-1	2-5	17	None	n/a	n/a	n/a
0029	15/07/15	1	2	NE	500-1000	90	1	2-5	16	Rain	10	Light	Intermittent
0029	15/07/15	1	3	NE	500-1000	95	1	2-5	16	None	n/a	n/a	n/a
0030	15/07/15	1	1	NE	500-1000	90	0-1	5-10	14	None	n/a	n/a	n/a
0030	15/07/15	1	2	NE	500-1000	80	1	2-5	13	Rain	10	Light	Intermittent
0031	16/07/15	1	1	E	500-1000	100	2	5-10	10	None	n/a	n/a	n/a
0032	16/07/15	2	1	SE	500-1000	90	2-3	5-10	12	None	n/a	n/a	n/a
0032	16/07/15	2	2	SE	>1000	80	3	5-10	13	None	n/a	n/a	n/a
0032	16/07/15	2	3	SE	>1000	75	3	5-10	14	None	n/a	n/a	n/a
0033	16/07/15	3	1	SE	500-1000	100	3-4	2-5	12	None	n/a	n/a	n/a
0034	23/07/15	3	1	SW	>1000	25	3-4	>10	12	None	n/a	n/a	n/a
0034	23/07/15	3	2	SW	>1000	30	3-4	>10	13	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0035	23/07/15	2	1	SW	>1000	45	3-4	>10	14	None	n/a	n/a	n/a
0035	23/07/15	2	2	SW	>1000	50	3-4	>10	14	None	n/a	n/a	n/a
0035	23/07/15	2	3	SW	>1000	60	4	>10	13	None	n/a	n/a	n/a
0036	24/07/15	3	1	W	500-1000	70	2	5-10	13	None	n/a	n/a	n/a
0036	24/07/15	3	2	W	500-1000	80	2	5-10	13	None	n/a	n/a	n/a
0036	24/07/15	3	3	W	>1000	70	1	>10	14	None	n/a	n/a	n/a
0039	12/08/15	1	1	SW	>1000	40	1	>10	15	None	n/a	n/a	n/a
0039	12/08/15	1	2	SW	>1000	35	1	>10	16	None	n/a	n/a	n/a
0039	12/08/15	1	3	SW	>1000	30	1	>10	17	None	n/a	n/a	n/a
0040	12/08/15	2	1	SW	>1000	35	0-1	>10	18	None	n/a	n/a	n/a
0040	12/08/15	2	2	NE	>1000	30	1-2	>10	18	None	n/a	n/a	n/a
0040	12/08/15	2	3	NE	>1000	40	0-1	>10	17	None	n/a	n/a	n/a
0037	13/08/15	3	1	SE	>1000	5	2-3	>10	15	None	n/a	n/a	n/a
0037	13/08/15	3	2	SE	>1000	10	3	>10	16	None	n/a	n/a	n/a
0037	13/08/15	3	3	SE	>1000	20	3	>10	15	None	n/a	n/a	n/a
0038	13/08/15	1	1	SE	>1000	30	2-3	>10	17	None	n/a	n/a	n/a
0038	13/08/15	1	2	SE	>1000	20	3	>10	18	None	n/a	n/a	n/a
0038	13/08/15	1	3	SE	>1000	20	3	>10	18	None	n/a	n/a	n/a
0018	25/08/15	2	1	n/a	>1000	80	0	2-5	12	None	n/a	n/a	n/a
0018	25/08/15	2	2	n/a	>1000	60	0	2-5	10	None	n/a	n/a	n/a
0018	25/08/15	2	3	n/a	>1000	50	0	2-5	10	None	n/a	n/a	n/a
0019	25/08/15	2	1	W	500-1000	100	2	2-5	12	None	n/a	n/a	n/a
0019	25/08/15	2	2	W	500-1000	100	2	2-5	12	None	n/a	n/a	n/a
0019	25/08/15	2	3	n/a	>1000	80	0	2-5	12	None	n/a	n/a	n/a
0016	26/08/15	3	1	S	500-1000	80	2	2-5	7	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0016	26/08/15	3	2	SE	500-1000	90	2	2-5	9	None	n/a	n/a	n/a
0016	26/08/15	3	3	SE	100-500	100	2	1-2	10	None	n/a	n/a	n/a
0017	26/08/15	3	1	SE	100-500	100	1	1-2	10	None	n/a	n/a	n/a
0017	26/08/15	3	2	S	100-500	90	2	1-2	10	Rain	60	Light	Continuous
0017	26/08/15	3	3	S	100-500	100	2	1-2	10	Rain	15	Light	Continuous
0020	07/09/15	3	1	N	>1000	5	2	5-10	13	None	n/a	n/a	n/a
0020	07/09/15	3	2	N	>1000	5	1	5-10	13	None	n/a	n/a	n/a
0020	07/09/15	3	3	N	500-1000	10	1	5-10	12	None	n/a	n/a	n/a
0021	07/09/15	3	1	NE	500-1000	20	1	5-10	11	None	n/a	n/a	n/a
0021	07/09/15	3	2	NE	500-1000	20	1	2-5	11	None	n/a	n/a	n/a
0021	07/09/15	3	3	NE	100-500	50	1	2-5	9	None	n/a	n/a	n/a
0022	08/09/15	1	1	SE	100-500	100	1	1-2	12	None	n/a	n/a	n/a
0022	08/09/15	1	2	SE	100-500	70	1	1-2	12	None	n/a	n/a	n/a
0022	08/09/15	1	3	SE	100-500	50	2	2-5	12	None	n/a	n/a	n/a
0023	08/09/15	1	1	S	100-500	50	1	2-5	12	None	n/a	n/a	n/a
0023	08/09/15	1	2	n/a	100-500	30	0	2-5	11	None	n/a	n/a	n/a
0023	08/09/15	1	3	n/a	100-500	10	0	2-5	10	None	n/a	n/a	n/a
0024	09/09/15	2	1	SE	100-500	40	3	2-5	13	None	n/a	n/a	n/a
0024	09/09/15	2	2	SE	500-1000	30	4	2-5	13	None	n/a	n/a	n/a
0024	09/09/15	2	3	SE	500-1000	30	4	2-5	13	None	n/a	n/a	n/a
0025	22/09/15	2	1	NW	500-1000	100	3	2-5	10	Rain	100	Light	Continuous
0025	22/09/15	2	2	NW	500-1000	100	3	2-5	10	Rain	90	Light	Continuous
0025	22/09/15	2	3	NW	500-1000	100	3	2-5	10	Rain	15	Light	Continuous
0026	22/09/15	1	1	NW	100-500	100	3	2-5	9	Rain	75	Light	Intermittent
0026	22/09/15	1	2	NW	100-500	100	3	2-5	9	Rain	75	Light	Intermittent

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0026	22/09/15	1	3	NW	~	100	3	~	9	Rain	75	Light	Intermittent
0027	23/09/15	2	1	SW	>1000	20	1	>10	4	None	n/a	n/a	n/a
0027	23/09/15	2	2	SW	>1000	80	1	>10	6	None	n/a	n/a	n/a
0027	23/09/15	2	3	SW-W	>1000	80	2	>10	6	None	n/a	n/a	n/a
0028	23/09/15	3	1	W	>1000	100	2	>10	7	Rain	15	Light	Intermittent
0028	23/09/15	3	2	W	>1000	75	3	>10	8	Rain	10	Light	Intermittent
0028	23/09/15	3	3	SW	>1000	75	3-1	>10	10	None	n/a	n/a	n/a
0041	08/10/15	1	1	SW	>1000	10	2	>10	9	None	n/a	n/a	n/a
0041	08/10/15	1	2	SW	>1000	10	2	>10	10	None	n/a	n/a	n/a
0041	08/10/15	1	3	SW	>1000	10	2	>10	11	None	n/a	n/a	n/a
0042	08/10/15	2	1	S	>1000	15	1	>10	11	None	n/a	n/a	n/a
0042	08/10/15	2	2	n/a	>1000	15	0	>10	9	None	n/a	n/a	n/a
0042	08/10/15	2	3	SW	>1000	5	1	>10	7	None	n/a	n/a	n/a
0043	09/10/15	3	1	S	>1000	10	2	>10	1	None	n/a	n/a	n/a
0043	09/10/15	3	2	S	>1000	15	2	>10	2	None	n/a	n/a	n/a
0043	09/10/15	3	3	~	>1000	10	~	>10	3	None	n/a	n/a	n/a
0044	09/10/15	1	1	SE	>1000	10	2	>10	4	None	n/a	n/a	n/a
0044	09/10/15	1	2	SE	>1000	20	2	>10	6	None	n/a	n/a	n/a
0044	09/10/15	1	3	SE	>1000	50	2	>10	7	None	n/a	n/a	n/a
0045	14/10/15	3	1	SE	>1000	70	3	>10	9	None	n/a	n/a	n/a
0045	14/10/15	3	2	SE	>1000	70	3	>10	9	None	n/a	n/a	n/a
0045	14/10/15	3	3	SE-S	>1000	60	2	>10	9	None	n/a	n/a	n/a
0046	14/10/15	1	1	S	>1000	100	2	>10	8	None	n/a	n/a	n/a
0046	14/10/15	1	2	S	>1000	100	2	>10	7	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0046	14/10/15	1	3	S-SE	>1000	70	1	>10	6	None	n/a	n/a	n/a
0047	15/10/15	2	1	SE-S	>1000	15	2	>10	1	None	n/a	n/a	n/a
0047	15/10/15	2	2	S	>1000	20	2	>10	1	None	n/a	n/a	n/a
0047	15/10/15	2	3	S	>1000	20	2	>10	3	None	n/a	n/a	n/a
0048	15/10/15	3	1	S	>1000	20	2	>10	3	None	n/a	n/a	n/a
0048	15/10/15	3	2	S	>1000	20	2	>10	5	None	n/a	n/a	n/a
0048	15/10/15	3	3	S-SE	>1000	20	2-3	>10	6	None	n/a	n/a	n/a
0049	21/10/15	2	1	SW	>1000	50	4	>10	12	None	n/a	n/a	n/a
0049	21/10/15	2	2	SW	>1000	20	4	>10	14	None	n/a	n/a	n/a
0049	21/10/15	2	3	SW	>1000	20	4	>10	14	None	n/a	n/a	n/a
0050	21/10/15	3	1	SW	>1000	10	4	>10	14	None	n/a	n/a	n/a
0050	21/10/15	3	2	SW	>1000	15	4	>10	12	None	n/a	n/a	n/a
0050	21/10/15	3	3	SW-S	>1000	40	3	>10	10	None	n/a	n/a	n/a
0051	22/10/15	1	1	SW	>1000	20	5-6	>10	7	None	n/a	n/a	n/a
0051	22/10/15	1	2	W	>1000	10	5	>10	7	None	n/a	n/a	n/a
0051	22/10/15	1	3	W	>1000	10	5	>10	7	None	n/a	n/a	n/a
0052	22/10/15	2	1	W	>1000	30	5	>10	7	None	n/a	n/a	n/a
0052	22/10/15	2	2	W	>1000	15	5-6	>10	8	None	n/a	n/a	n/a
0052	22/10/15	2	3	W	>1000	10	6	>10	8	None	n/a	n/a	n/a
0053	30/10/15	3	1	SE	>1000	100	3	5-10	6	Rain	55	Light	Continuous
0053	30/10/15	3	2	SE	>1000	100	3	5-10	6	Rain	70	Light	Intermittent
0053	30/10/15	3	3	SE	>1000	50	3	>10	6	None	n/a	n/a	n/a
0054	30/10/15	2	1	SE	>1000	20	2	>10	6	None	n/a	n/a	n/a
0054	30/10/15	2	2	S	>1000	20	2	>10	5	None	n/a	n/a	n/a
0054	30/10/15	2	3	S	>1000	20	1	>10	5	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0055	31/10/15	2	1	S	500-1000	100	3-4	>10	13	Rain	20	Light	Intermittent
0055	31/10/15	2	2	S	500-1000	100	3-4	>10	13	Rain	15	Light	Intermittent
0055	31/10/15	2	3	S	500-1000	100	3-4	>10	13	None	n/a	n/a	n/a
0056	31/10/15	1	1	S	500-1000	90	3	>10	12	Rain	10	Light	Continuous
0056	31/10/15	1	2	S	500-1000	90	3	>10	12	None	n/a	n/a	n/a
0056	31/10/15	1	3	S	>1000	90	3	>10	14	None	n/a	n/a	n/a
0057	31/10/15	1	1	S	>1000	60	2-3	>10	14	None	n/a	n/a	n/a
0057	31/10/15	1	2	S	>1000	40	2-3	>10	12	None	n/a	n/a	n/a
0057	31/10/15	1	3	S	>1000	30	3	>10	10	None	n/a	n/a	n/a
0058	01/11/15	3	1	S	>1000	20	1	>10	1	None	n/a	n/a	n/a
0058	01/11/15	3	2	S	>1000	50	1	>10	2	None	n/a	n/a	n/a
0058	01/11/15	3	3	S	>1000	80	2	>10	2	None	n/a	n/a	n/a
0059	10/11/15	3	1	W	>1000	80	3	>10	9	Rain	50	Light	Intermittent
0059	10/11/15	3	2	W	>1000	80	3	>10	9	Rain	10	Light	Continuous
0059	10/11/15	3	3	W	>1000	75	2	>10	10	None	n/a	n/a	n/a
0060	10/11/15	1	1	W	>1000	70	2	>10	11	None	n/a	n/a	n/a
0060	10/11/15	1	2	W	>1000	80	2	>10	10	Rain	25	Light	Continuous
0060	10/11/15	1	3	W	>1000	100	1-2	>10	8	None	n/a	n/a	n/a
0061	11/11/15	2	1	S	>1000	60	2	>10	6	None	n/a	n/a	n/a
0061	11/11/15	2	2	S	>1000	80	1-2	>10	6	None	n/a	n/a	n/a
0061	11/11/15	2	3	S	>1000	85	2	>10	7	None	n/a	n/a	n/a
0062	11/11/15	1	1	S	>1000	90	1	>10	8	None	n/a	n/a	n/a
0062	11/11/15	1	2	SW	>1000	70	1	>10	9	Rain	25	Light	Intermittent
0062	11/11/15	1	3	SW	>1000	15	1	>10	11	None	n/a	n/a	n/a
0063	12/11/15	2	1	SE	>1000	100	2	>10	7	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0063	12/11/15	2	2	SE-SW	>1000	90	2-3	>10	7	~	~	~	~
0063	12/11/15	2	3	S	>1000	100	3	>10	7	Rain	10	Light	Continuous
0064	12/11/15	3	1	S	>1000	90	4-5	>10	5	None	n/a	n/a	n/a
0064	12/11/15	3	2	S	>1000	90	3-4	>10	6	None	n/a	n/a	n/a
0064	12/11/15	3	3	S	>1000	80	3-5	>10	6	Rain	100	Mod.-Heavy	Continuous
0065	16/11/15	3	1	SW	>1000	2	4	>10	2	None	n/a	n/a	n/a
0065	16/11/15	3	2	SW	>1000	1	4	>10	2	None	n/a	n/a	n/a
0065	16/11/15	3	3	SW	>1000	3	4	>10	1	None	n/a	n/a	n/a
0066	16/11/15	2	1	SW	>1000	5	4	>10	1	None	n/a	n/a	n/a
0066	16/11/15	2	2	SW	>1000	5	4	>10	1	None	n/a	n/a	n/a
0066	16/11/15	2	3	SW	>1000	2	4-3	>10	0	None	n/a	n/a	n/a
0067	17/11/15	1	1	SW	>1000	5	4-5	>10	2	None	n/a	n/a	n/a
0067	17/11/15	1	2	SW	>1000	5	4-5	>10	2	None	n/a	n/a	n/a
0067	17/11/15	1	3	SW	>1000	10	4	>10	2	None	n/a	n/a	n/a
0068	17/11/15	2	1	W	>1000	90	3-1	>10	2	None	n/a	n/a	n/a
0068	17/11/15	2	2	W	>1000	95	2	>10	2	None	n/a	n/a	n/a
0068	17/11/15	2	3	W	>1000	100	1	>10	2	None	n/a	n/a	n/a
0069	18/11/15	3	1	S	>1000	95	3	>10	2	None	n/a	n/a	n/a
0069	18/11/15	3	2	S	500-1000	100	3	>10	3	Rain	65	Light	Intermittent
0069	18/11/15	3	3	SE	500-1000	100	3-1	>10	3	None	n/a	n/a	n/a
0070	18/11/15	1	1	SE	500-1000	100	2	>10	3	Rain	80	Light	Intermittent
0070	18/11/15	1	2	S	500-1000	90	2	5-10	4	None	n/a	n/a	n/a
0070	18/11/15	1	3	S	>1000	80	2	>10	5	None	n/a	n/a	n/a
0071	24/11/15	1	1	W	>1000	65	2	>10	2	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0071	24/11/15	1	2	W	>1000	70	2	>10	2	None	n/a	n/a	n/a
0071	24/11/15	1	3	W	500-1000	100	3	>10	2	Rain / Sleet	30	Light - Mod.	Intermittent
0072	24/11/15	2	1	W	>1000	50	3	>10	2	None	n/a	n/a	n/a
0072	24/11/15	2	2	W	>1000	60	3	>10	2	None	n/a	n/a	n/a
0072	24/11/15	2	3	W	500-100	95	3	>10	2	Rain / Sleet	45	Light - Mod.	Intermittent
0073	25/11/15	1	1	W	>1000	60	2	>10	5	None	n/a	n/a	n/a
0073	25/11/15	1	2	W	500-1000	70	3	>10	5	None	n/a	n/a	n/a
0073	25/11/15	1	3	W	>1000	100	3	>10	4	None	n/a	n/a	n/a
0074	25/11/15	2	1	W	>1000	60	3	>10	6	None	n/a	n/a	n/a
0074	25/11/15	2	2	W	>1000	85	3	>10	5	None	n/a	n/a	n/a
0074	25/11/15	2	3	W	>1000	100	3	>10	5	None	n/a	n/a	n/a
0075	27/11/15	3	1	S	>1000	80	3-4	>10	6	None	n/a	n/a	n/a
0075	27/11/15	3	2	S-NW	>1000	80	3-4	5->10	5	Rain	100	Light- Heavy	Continuous
0075	27/11/15	3	3	NW	500-1000	100	4	2-10	5	Rain	100	Light - Mod.	Continuous
0076	27/11/15	3	1	W	500->1000	100	4	5->10	4	None	n/a	n/a	n/a
0076	27/11/15	3	2	W	>1000	90	4	>10	4	None	n/a	n/a	n/a
0076	27/11/15	3	3	W	>1000	85	4	>10	3	None	n/a	n/a	n/a
0077	09/12/15	1	1	W	500-1000	50	2-3	>10	10	None	n/a	n/a	n/a
0077	09/12/15	1	2	W	500-1000	75	2-3	>10	9	None	n/a	n/a	n/a
0077	09/12/15	1	3	W	500-1000	60	2-3	>10	11	None	n/a	n/a	n/a
0078	10/12/15	3	1	W	>1000	10	2	>10	5	None	n/a	n/a	n/a
0078	10/12/15	3	2	W	>1000	5	2	>10	5	None	n/a	n/a	n/a
0078	10/12/15	3	3	W	>1000	5	2-3	>10	5	None	n/a	n/a	n/a
0079	10/12/15	2	1	SW	500-1000	25	3	5-10	4	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0079	10/12/15	2	2	SW	500-1000	30	3	5-10	4	None	n/a	n/a	n/a
0079	10/12/15	2	3	SW	500-1000	25	2-3	5-10	3	None	n/a	n/a	n/a
0080	11/12/15	1	1	W	>1000	40	1	>10	4	None	n/a	n/a	n/a
0080	11/12/15	1	2	W	>1000	80	1-2	>10	4	None	n/a	n/a	n/a
0080	11/12/15	1	3	W	>1000	80	1-2	>10	4	None	n/a	n/a	n/a
0081	15/12/15	2	1	SW	500-1000	100	1	1-5	4	None	n/a	n/a	n/a
0081	15/12/15	2	2	SW	500-1000	100	1	2-5	3	None	n/a	n/a	n/a
0081	15/12/15	2	3	SW	500-1000	100	1	2-5	3	Rain	25	Light	Continuous
0082	16/12/15	2	1	S	100-500	100	1	<1	6	Rain	10	Light	Intermittent
0082	16/12/15	2	2	S	500-1000	75	0-1	1-2	8	None	n/a	n/a	n/a
0082	16/12/15	2	3	SW	~	~	0-1	2-5	~	None	n/a	n/a	n/a
0083	16/12/15	3	1	SW	>1000	50	1	>10	8	None	n/a	n/a	n/a
0083	16/12/15	3	2	SW	>1000	30	1	>10	7	None	n/a	n/a	n/a
0083	16/12/15	3	3	S	>1000	50	0-1	>10	~	None	n/a	n/a	n/a
0084	17/12/15	3	1	S	>1000	90	2	>10	11	None	n/a	n/a	n/a
0085	12/01/16	3	1	N	100-500	100	1	<1-2	3	Rain	50	Light	Intermittent
0085	12/01/16	3	2	N	100-500	100	1	<1-2	3	Rain	25	Light	Intermittent
0085	12/01/16	3	3	N	100-500	100	1	<1-2	3	Rain	50	Light	Intermittent
0086	13/01/16	1	1	NW	>1000	10	1	5-10	-2	None	n/a	n/a	n/a
0086	13/01/16	1	2	NW	>1000	10	1	5-10	-2	None	n/a	n/a	n/a
0086	13/01/16	1	3	NW	>1000	20	1	5-10	-2	None	n/a	n/a	n/a
0087	13/01/16	2	1	NW	>1000	40	1	5-10	0	None	n/a	n/a	n/a
0087	13/01/16	2	2	NW	>1000	60	1	5-10	-1	None	n/a	n/a	n/a
0087	13/01/16	2	3	NW	>1000	40	1	5-10	-1	None	n/a	n/a	n/a
0088	14/01/16	3	1	NW	>1000	15	3	5-10	-4	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0088	14/01/16	3	2	NW	>1000	20	3	5-10	-4	None	n/a	n/a	n/a
0088	14/01/16	3	3	NW	>1000	20	2-3	5-10	-3	None	n/a	n/a	n/a
0089	14/01/16	1	1	NW	>1000	10	2-3	5-10	0	None	n/a	n/a	n/a
0089	14/01/16	1	2	NW	500-1000	25	2-3	5-10	-1	None	n/a	n/a	n/a
0089	14/01/16	1	3	NW	500-1000	50	2-3	5-10	-1	Snow	25	Light	Intermittent
0090	25/01/16	3	1	S	500-1000	90	4-5	>10	10	Rain	15	Light	Intermittent
0090	25/01/16	3	2	S	500-1000	85	4-5	>10	10	Rain	15	n/a	Intermittent
0090	25/01/16	3	3	S	500-1000	85	3-5	>10	10	Rain	20	Light- Mod.	Continuous
0091	25/01/16	1	1	S	500-1000	95	3-4	>10	10	None	n/a	n/a	n/a
0091	25/01/16	1	2	S-SW	500-1000	100	4	5-10	10	Rain	60	Light -Heavy	Continuous
0091	25/01/16	1	3	SW	500-1000	95	3	>10	8	None	n/a	n/a	n/a
0092	26/01/16	2	1	SE	500-1000	100	4-5	2-5	4	Rain	100	Light - Heavy	Continuous
0092	26/01/16	2	2	SE	500-1000	100	4	5-10	5	Rain	60	Light - Mod.	Intermittent
0092	26/01/16	2	3	S	500-1000	100	4	5-10	5	None	n/a	n/a	n/a
0093	26/01/16	2	1	S	>1000	20	3-5	>10	7	None	n/a	n/a	n/a
0093	26/01/16	2	2	S	>1000	10	3-5	>10	7	None	n/a	n/a	n/a
0093	26/01/16	2	3	SW	>1000	5	3-4	>10	5	None	n/a	n/a	n/a
0094	10/02/16	2	1	E	>1000	80	2	>10	3	None	n/a	n/a	n/a
0094	10/02/16	2	2	E	>1000	40	2	>10	3	None	n/a	n/a	n/a
0094	10/02/16	2	3	E	>1000	50	1-2	>10	4	None	n/a	n/a	n/a
0095	11/02/16	1	1	N	500-1000	100	1-2	5-10	2	Snow	25	Light	Continuous
0095	11/02/16	1	2	N	500-1000	100	0-1	2-5	2	Snow	25	Moderate	Continuous
0095	11/02/16	1	3	N	>1000	90	1	5-10	4	None	n/a	n/a	n/a
0096	11/02/16	3	1	NE	>1000	50	2	>10	3	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0096	11/02/16	3	2	NE	>1000	70	1-2	>10	3	None	n/a	n/a	n/a
0096	11/02/16	3	3	NE	>1000	40	1	>10	3	None	n/a	n/a	n/a
0097	12/02/16	2	1	n/a	100-500	100	0	1-2	1	Snow	100	Mod - Heavy	Continuous
0097	12/02/16	2	2	n/a	100-500	100	0	1-2	1	Snow	75	Light - Mod.	Continuous
0097	12/02/16	2	3	n/a	100-500	100	0	1-2	2	Snow	50	Light - Mod.	Intermittent
0098	26/02/16	2	1	SE	500-1000	100	1	>10	-1	None	n/a	n/a	n/a
0098	26/02/16	2	2	n/a	500-1000	100	0	>10	0	None	n/a	n/a	n/a
0098	26/02/16	2	3	n/a	500-1000	100	0	>10	0	None	n/a	n/a	n/a
0099	26/02/16	3	1	n/a	500-1000	95	0	>10	2	None	n/a	n/a	n/a
0099	26/02/16	3	2	E	500-1000	90	0-1	>10	3	None	n/a	n/a	n/a
0099	26/02/16	3	3	E	500-1000	90	1	>10	3	None	n/a	n/a	n/a
0100	28/02/16	3	1	W	>1000	2	3	>10	0	None	n/a	n/a	n/a
0100	28/02/16	3	2	W	>1000	1	3	>10	0	None	n/a	n/a	n/a
0100	28/02/16	3	3	W	>1000	1	2	>10	2	None	n/a	n/a	n/a
0101	28/02/16	1	1	W	>1000	60	2	>10	3	None	n/a	n/a	n/a
0101	28/02/16	1	2	W	>1000	60	2	>10	3	None	n/a	n/a	n/a
0101	28/02/16	1	3	W	>1000	60	2	>10	2	None	n/a	n/a	n/a
0102	29/02/16	1	1	S	>1000	100	4	>10	0	None	n/a	n/a	n/a
0102	29/02/16	1	2	S	>1000	100	4	>10	1	None	n/a	n/a	n/a
0102	29/02/16	1	3	S	>1000	100	4	>10	1	None	n/a	n/a	n/a
0103	08/03/16	1	1	W	500-1000	75	2	5-10	5	None	n/a	n/a	n/a
0103	08/03/16	1	2	W	500-1000	50	2-3	5-10	5	None	n/a	n/a	n/a
0103	08/03/16	1	3	W	500-1000	75	3	5-10	5	None	n/a	n/a	n/a
0104	09/03/16	2	1	SW	100-500	100	2	<1-2	4	Snow	90	Light	Intermittent

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0104	09/03/16	2	2	SW	500-1000	100	2	<1-5	4	Snow	90	Light	Intermittent
0104	09/03/16	2	3	W	500-1000	80	3	2-5	3	Snow	10	Light	Intermittent
0105	09/03/16	3	1	NW	500-1000	100	4	2-5	3	Snow	20	Light	Intermittent
0105	09/03/16	3	2	NW	500-1000	80	4	2-5	3	None	n/a	n/a	n/a
0105	09/03/16	3	3	NW	500-1000	50	3	2-10	3	None	n/a	n/a	n/a
0106	10/03/16	3	1	S	500-1000	90	1	1-5	0	None	n/a	n/a	n/a
0106	10/03/16	3	2	S	500-1000	90	1	5-10	2	None	n/a	n/a	n/a
0106	10/03/16	3	3	S	500-1000	90	2	5-10	2	None	n/a	n/a	n/a
0107	10/03/16	2	1	S	>1000	50	3	>10	5	None	n/a	n/a	n/a
0107	10/03/16	2	2	S	>1000	30	2	>10	6	None	n/a	n/a	n/a
0107	10/03/16	2	3	S	>1000	25	3	>10	6	None	n/a	n/a	n/a
0108	11/03/16	1	1	S	500-1000	90	2-3	5-10	3	Rain	5	Light	Intermittent
0108	11/03/16	1	2	S	500-1000	100	2	5-10	3	Rain / Sleet	100	Light	Continuous
0108	11/03/16	1	3	S	500-1000	100	2	5-10	2	Sleet	100	Light	Continuous
0109	17/03/16	1	1	SW	>1000	0	1	>10	10	None	n/a	n/a	n/a
0109	17/03/16	1	2	SW	>1000	0	0-1	>10	10	None	n/a	n/a	n/a
0109	17/03/16	1	3	SW	>1000	0	0-1	>10	12	None	n/a	n/a	n/a
0110	17/03/16	1	1	W	>1000	0	1-2	>10	12	None	n/a	n/a	n/a
0110	17/03/16	1	2	W	>1000	0	1-2	>10	13	None	n/a	n/a	n/a
0110	17/03/16	1	3	W	>1000	0	0-1	>10	15	None	n/a	n/a	n/a
0111	25/03/16	3	1	S	>1000	60	4-5	>10	4	None	n/a	n/a	n/a
0111	25/03/16	3	2	S	>1000	90	4-5	>10	4	None	n/a	n/a	n/a
0111	25/03/16	3	3	S	>1000	70	4	>10	3	None	n/a	n/a	n/a
0112	28/03/16	3	1	NW	>1000	85	2	>10	3	None	n/a	n/a	n/a
0112	28/03/16	3	2	NW	>1000	99	2	>10	4	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0112	28/03/16	3	3	NW	>1000	100	2	>10	5	None	n/a	n/a	n/a
0113	29/03/16	2	1	W	>1000	50	2	>10	0	None	n/a	n/a	n/a
0113	29/03/16	2	2	W	>1000	25	2	>10	1	None	n/a	n/a	n/a
0113	29/03/16	2	3	W	500-1000	90	2-1	>10	2	None	n/a	n/a	n/a
0114	13/04/16	1	1	NE	100-500	100	2	5-10	<5	None	n/a	n/a	n/a
0114	13/04/16	1	2	NE	500-1000	100	3	5-10	<5	Rain	20	Light	Intermittent
0114	13/04/16	1	3	NE	500-1000	100	2	5-10	<5	Rain	10	Light	Intermittent
0115	13/04/16	1	1	NE	500-1000	100	3	5-10	<5	None	n/a	n/a	n/a
0115	13/04/16	1	2	NE	100-500	100	3	5-10	<5	None	n/a	n/a	n/a
0115	13/04/16	1	3	N	500-1000	100	2	5-10	<5	Rain	40	Light	Intermittent
0116	14/04/16	2	1	N	500-1000	60	3	>10	3	None	n/a	n/a	n/a
0116	14/04/16	2	2	N	>1000	50	3	>10	3	None	n/a	n/a	n/a
0116	14/04/16	2	3	N	>1000	50	3	>10	4	None	n/a	n/a	n/a
0117	14/04/16	2	1	NW	>1000	60	2	>10	7	None	n/a	n/a	n/a
0117	14/04/16	2	2	NW	>1000	40	2	>10	5	None	n/a	n/a	n/a
0117	14/04/16	2	3	NW	>1000	50	2	>10	4	None	n/a	n/a	n/a
0118	15/04/16	1	1	N	100-500	100	3	1-2	0	Sleet-snow	50	Moderate	Intermittent
0118	15/04/16	1	2	N	100-500	100	3	1-2	0	Sleet-snow	75	Moderate	Continuous
0118	15/04/16	1	3	N	100-500	100	3	1-2	0	Sleet-snow	50	Moderate	Intermittent
0119	19/04/16	2	1	n/a	>1000	50	0	>10	8	None	n/a	n/a	n/a
0119	19/04/16	2	2	n/a	>1000	45	0	>10	8	None	n/a	n/a	n/a
0119	19/04/16	2	3	n/a	>1000	35	0	>10	7	None	n/a	n/a	n/a
0120	20/04/16	2	1	n/a	>1000	20	0	>10	16	None	n/a	n/a	n/a
0120	20/04/16	2	2	n/a	>1000	20	0	>10	17	None	n/a	n/a	n/a
0120	20/04/16	2	3	W	>1000	20	1	>10	18	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0121	20/04/16	1	1	~	>1000	25	0	>10	14	None	n/a	n/a	n/a
0121	20/04/16	1	2	~	>1000	15	0	>10	10	None	n/a	n/a	n/a
0121	20/04/16	1	3	~	>1000	15	0	>10	8	None	n/a	n/a	n/a
0122	21/04/16	1	1	SW	>1000	80	1	>10	4	None	n/a	n/a	n/a
0122	21/04/16	1	2	SW	500-1000	90	2	>10	5	None	n/a	n/a	n/a
0122	21/04/16	1	3	SW	500-1000	95	2	>10	6	None	n/a	n/a	n/a
0123	22/04/16	3	1	W	500-1000	95	2	>10	5	Sleet	15	Light	Intermittent
0123	22/04/16	3	2	W	500-1000	100	2	>10	5	Sleet	10	Light	Intermittent
0123	22/04/16	3	3	NW	500-1000	100	3	>10	4	Snow	15	Light	Intermittent
0124	22/04/16	3	1	NW	500-1000	100	3	>10	4	None	0	n/a	n/a
0124	22/04/16	3	2	NW	500-1000	100	4	>10	4	Snow	20	Light	Intermittent
0124	22/04/16	3	3	NW	500-1000	100	4	>10	4	None	0	n/a	n/a
0125	26/04/16	3	1	N	>1000	100	3	>10	5	None	n/a	n/a	n/a
0125	26/04/16	3	2	N	500-1000	100	4	>10	4	Hail	10	Moderate	Intermittent
0125	26/04/16	3	3	N	500-1000	100	4	5-10	4	Snow	20	Heavy	Continuous
0126	27/04/16	3	1	NW	500-1000	60	2	>10	2	Snow	5	Light	Intermittent
0126	27/04/16	3	2	NW	500-1000	75	3	>10	2	Snow	10	Light	Intermittent
0126	27/04/16	3	3	NW	500-1000	70	3	5-10	3	Snow	15	Moderate	Intermittent
0127	27/04/16	3	1	NW	>1000	50	2	>10	4	None	n/a	n/a	n/a
0127	27/04/16	3	2	NW	>1000	50	2	>10	5	None	n/a	n/a	n/a
0127	27/04/16	3	3	NW	>1000	50	2	>10	5	None	n/a	n/a	n/a
0128	28/04/16	2	1	n/a	>1000	5	0	>10	2	None	n/a	n/a	n/a
0128	28/04/16	2	2	n/a	>1000	5	0	>10	3	None	n/a	n/a	n/a
0128	28/04/16	2	3	SE	>1000	10	1	>10	3	None	n/a	n/a	n/a
0129	28/04/16	1	1	SE	>1000	100	3	>10	4	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0129	28/04/16	1	2	SE	500-1000	100	3	>10	4	Snow	10	Moderate	Intermittent
0129	28/04/16	1	3	SE	500-1000	100	3	5-10	4	Snow	15	Heavy	Intermittent
0130	28/04/16	2	1	E	>1000	100	3	>10	5	None	n/a	n/a	n/a
0130	28/04/16	2	2	E	>1000	100	3	>10	4	None	n/a	n/a	n/a
0130	28/04/16	2	3	E	>1000	100	3	>10	4	None	n/a	n/a	n/a
0131	29/04/16	2	1	N	>1000	75	4	>10	3	None	n/a	n/a	n/a
0131	29/04/16	2	2	N	>1000	80	4	>10	3	Snow	15	Light	Intermittent
0131	29/04/16	2	3	N	>1000	90	4	>10	3	Snow	10	Light	Intermittent
0132	29/04/16	3	1	N	>1000	100	4	>10	4	None	n/a	n/a	n/a
0132	29/04/16	3	2	N	>1000	100	4	>10	4	None	n/a	n/a	n/a
0132	29/04/16	3	3	N	>1000	100	4	>10	4	None	n/a	n/a	n/a
0133	03/05/16	1	1	S	>1000	75	3	>10	8	None	n/a	n/a	n/a
0133	03/05/16	1	2	S	>1000	75	3	>10	7	None	n/a	n/a	n/a
0133	03/05/16	1	3	S	>1000	60	3	>10	6	None	n/a	n/a	n/a
0134	04/05/16	3	1	S	>1000	100	3	>10	5	None	n/a	n/a	n/a
0134	04/05/16	3	2	S	>1000	100	3	>10	5	None	n/a	n/a	n/a
0134	04/05/16	3	3	S	>1000	100	4	>10	6	None	n/a	n/a	n/a
0135	04/05/16	3	1	S	>1000	90	4	>10	7	None	n/a	n/a	n/a
0135	04/05/16	3	2	S	>1000	80	5	>10	8	None	n/a	n/a	n/a
0135	04/05/16	3	3	S	>1000	80	5	>10	10	None	n/a	n/a	n/a
0136	05/05/16	2	1	E	>1000	95	1	>10	5	None	n/a	n/a	n/a
0136	05/05/16	2	2	E	>1000	85	1	>10	6	None	n/a	n/a	n/a
0136	05/05/16	2	3	n/a	>1000	60	0	>10	8	None	n/a	n/a	n/a
0137	05/05/16	1	1	S	>1000	65	3	>10	10	None	n/a	n/a	n/a
0137	05/05/16	1	2	S	>1000	50	4	>10	11	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0137	05/05/16	1	3	S	>1000	45	5	>10	12	None	n/a	n/a	n/a
0138	05/05/16	2	1	S	>1000	35	5	>10	12	None	n/a	n/a	n/a
0138	05/05/16	2	2	S	>1000	40	5	>10	12	None	n/a	n/a	n/a
0138	05/05/16	2	3	S	>1000	40	5	>10	12	None	n/a	n/a	n/a
0139	10/05/16	1	1	n/a	>1000	5	0	>10	13	None	n/a	n/a	n/a
0139	10/05/16	1	2	n/a	>1000	5	0	>10	11	None	n/a	n/a	n/a
0139	10/05/16	1	3	n/a	>1000	10	0	>10	11	None	n/a	n/a	n/a
0140	10/05/16	2	1	n/a	>1000	10	0	>10	10	None	n/a	n/a	n/a
0140	10/05/16	2	2	n/a	>1000	10	0	>10	8	None	n/a	n/a	n/a
0140	10/05/16	2	3	n/a	>1000	12	0	>10	7	None	n/a	n/a	n/a
0141	11/05/16	3	1	NE	>1000	30	1	>10	12	None	n/a	n/a	n/a
0141	11/05/16	3	2	NE	>1000	35	1	>10	12	None	n/a	n/a	n/a
0141	11/05/16	3	3	NE	>1000	40	2	>10	12	None	n/a	n/a	n/a
0142	11/05/16	3	1	NE	>1000	30	2	>10	12	None	n/a	n/a	n/a
0142	11/05/16	3	2	NE	>1000	40	2	>10	12	None	n/a	n/a	n/a
0142	11/05/16	3	3	NE	>1000	45	2	>10	12	None	n/a	n/a	n/a
0143	12/05/16	1	1	n/a	100-500	100	0	1-2	6	None	n/a	n/a	n/a
0143	12/05/16	1	2	n/a	100-500	75	0	2-5	7	None	n/a	n/a	n/a
0143	12/05/16	1	3	N	100-500	45	1	>10	9	None	n/a	n/a	n/a
0144	12/05/16	2	1	n/a	>1000	5	0	>10	8	None	n/a	n/a	n/a
0144	12/05/16	2	2	n/a	>1000	5	0	>10	10	None	n/a	n/a	n/a
0144	12/05/16	2	3	n/a	>1000	10	0	>10	12	None	n/a	n/a	n/a
0145	23/05/16	1	1	NE	>1000	90	2	>10	10	Rain	6	Light	Intermittent
0145	23/05/16	1	2	N	>1000	90	2	>10	10	Rain	35	Light	Continuous
0145	23/05/16	1	3	N	>1000	90	2	>10	10	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0146	23/05/16	3	1	NE	>1000	70	2	>10	9	None	n/a	n/a	n/a
0146	23/05/16	3	2	NE	>1000	50	1	>10	8	None	n/a	n/a	n/a
0146	23/05/16	3	3	NE	>1000	60	1	>10	5	None	n/a	n/a	n/a
0147	24/05/16	3	1	N	500-1000	100	2	5-10	6	Rain	15	Light	Intermittent
0147	24/05/16	3	2	N	500-1000	100	1	5-10	6	Rain	20	Light	Intermittent
0147	24/05/16	3	3	N	500-1000	100	1	5-10	6	Rain	20	Light	Intermittent
0148	24/05/16	2	1	N	>1000	90	2-3	>10	8	None	n/a	n/a	n/a
0148	24/05/16	2	2	NE	>1000	90	3	>10	7	None	n/a	n/a	n/a
0148	24/05/16	2	3	NE	>1000	90	2-3	>10	6	None	n/a	n/a	n/a
0149	25/05/16	1	1	N	>1000	100	2	>10	3	None	n/a	n/a	n/a
0149	25/05/16	1	2	N	>1000	100	2	>10	4	None	n/a	n/a	n/a
0149	25/05/16	1	3	N	>1000	100	2	>10	4	Rain	20	Light	Intermittent
0150	25/05/16	2	1	N	500-1000	100	3	>10	7	Rain	20	Light	Intermittent
0150	25/05/16	2	2	N	500-1000	100	3	5-10	7	Rain	30	Light	Intermittent
0150	25/05/16	2	3	N	500-1000	100	3	5-10	7	Rain	30	Light	Intermittent
0152	09/06/16	3	1	E	>1000	85	2	>10	15	None	n/a	n/a	n/a
0152	09/06/16	3	2	E	>1000	80	2-3	>10	14	None	n/a	n/a	n/a
0152	09/06/16	3	3	SE	>1000	80	2	>10	14	None	n/a	n/a	n/a
0153	10/06/16	2	1	E	>1000	100	2	>10	8	None	n/a	n/a	n/a
0153	10/06/16	2	2	E	>1000	100	2	>10	7	None	n/a	n/a	n/a
0153	10/06/16	2	3	E	>1000	100	2	>10	7	None	n/a	n/a	n/a
0154	13/06/16	1	1	E	>1000	55	2	>10	13	None	n/a	n/a	n/a
0154	13/06/16	1	2	E	>1000	60	2	>10	13	None	n/a	n/a	n/a
0154	13/06/16	1	3	E	>1000	75	2	>10	12	None	n/a	n/a	n/a
0155	13/06/16	2	1	NE	>1000	65	2	>10	11	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0155	13/06/16	2	2	NE	>1000	75	2	>10	10	None	n/a	n/a	n/a
0155	13/06/16	2	3	NE	>1000	45	2	>10	10	None	n/a	n/a	n/a
0156	14/06/16	1	1	E	500-1000	100	1	>10	8	None	n/a	n/a	n/a
0156	14/06/16	1	2	E	500-1000	100	2	>10	8	None	n/a	n/a	n/a
0156	14/06/16	1	3	E	500-1000	100	3	>10	8	None	n/a	n/a	n/a
0157	15/06/16	2	1	NE	100-500	100	2	2-5	11	Rain	30	Light	Intermittent
0157	15/06/16	2	2	NE	100-500	100	3	2-5	10	Rain	25	Moderate	Intermittent
0157	15/06/16	2	3	NE	100-500	100	2	2-5	10	Rain	15	Light	Intermittent
0151	22/06/16	3	1	SW	>1000	40	2	>10	11	None	n/a	n/a	n/a
0151	22/06/16	3	2	SW	>1000	50	2	>10	11	None	n/a	n/a	n/a
0151	22/06/16	3	3	SW	>1000	40	2	>10	11	None	n/a	n/a	n/a
0158	23/06/16	3	1	S	>1000	50	2-3	>10	17	None	n/a	n/a	n/a
0158	23/06/16	3	2	S	>1000	75	2-3	>10	18	None	n/a	n/a	n/a
0158	23/06/16	3	3	S	>1000	95	2-3	>10	18	None	n/a	n/a	n/a
0159	23/06/16	1	1	SW	>1000	90	1	>10	18	None	n/a	n/a	n/a
0159	23/06/16	1	2	SW	>1000	90	2	>10	17	None	n/a	n/a	n/a
0159	23/06/16	1	3	SW	>1000	95	2	>10	16	None	n/a	n/a	n/a
0160	23/06/16	2	1	S	>1000	80	2	>10	15	None	n/a	n/a	n/a
0160	23/06/16	2	2	SE	>1000	100	2	>10	13	None	n/a	n/a	n/a
0160	23/06/16	2	3	SE	>1000	100	3	>10	11	None	n/a	n/a	n/a
0161	24/06/16	1	1	E	>1000	80	1	>10	9	None	n/a	n/a	n/a
0161	24/06/16	1	2	E	>1000	80	1	>10	9	None	n/a	n/a	n/a
0161	24/06/16	1	3	E	100-1000	90	1	2-10	9	Rain	20	Light	Intermittent
0162	24/06/16	3	1	SE	500-1000	80	2	5-10	10	None	n/a	n/a	n/a
0162	24/06/16	3	2	SE	>1000	80	2	>10	11	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0162	24/06/16	3	3	E	>1000	80	1	>10	13	None	n/a	n/a	n/a
0163	19/07/16	1	1	SW	>1000	80	1	2-5	24	None	n/a	n/a	n/a
0163	19/07/16	1	2	SW	>1000	70	1	2-5	24	None	n/a	n/a	n/a
0163	19/07/16	1	3	SW	>1000	70	1-2	2-5	23	None	n/a	n/a	n/a
0164	20/07/16	2	1	n/a	500-1000	100	0-1	>10	15	Rain	20	Heavy	Intermittent
0165	21/07/16	3	1	W	500-1000	90	1-2	5-10	14	None	n/a	n/a	n/a
0165	21/07/16	3	2	W	500-1000	70	1-2	5-10	15	None	n/a	n/a	n/a
0165	21/07/16	3	3	W	500-1000	50	1-2	5-10	16	None	n/a	n/a	n/a
0166	21/07/16	2	1	SW	100-500	100	1-2	2-5	13	None	n/a	n/a	n/a
0166	21/07/16	2	2	SW	100-500	100	0-1	<1	15	None	n/a	n/a	n/a
0167	27/07/16	2	1	W	>1000	15	3	>10	8	None	n/a	n/a	n/a
0167	27/07/16	2	2	W	>1000	55	3	>10	8	None	n/a	n/a	n/a
0167	27/07/16	2	3	W	>1000	20	3	>10	9	None	n/a	n/a	n/a
0168	27/07/16	3	1	W	>1000	95	4	>10	12	Rain	20	Light	Intermittent
0168	27/07/16	3	2	W	>1000	95	4	>10	10	Rain	20	Light	Intermittent
0168	27/07/16	3	3	W	>1000	90	4	>10	9	Rain	20	Light	Intermittent
0169	28/07/16	1	1	SW	>1000	45	3	>10	7	None	n/a	n/a	n/a
0169	28/07/16	1	2	SW	>1000	60	3	>10	9	None	n/a	n/a	n/a
0169	28/07/16	1	3	SW	>1000	85	3	>10	10	None	n/a	n/a	n/a
0170	05/04/17	1	1	NW	>1000	90	3	>10	7	None	n/a	n/a	n/a
0170	05/04/17	1	2	W	>1000	80	3	>10	7	None	n/a	n/a	n/a
0170	05/04/17	1	3	W	>1000	80	2	>10	4	None	n/a	n/a	n/a
0171	06/04/17	1	1	W	>1000	10	3	>10	4	None	n/a	n/a	n/a
0171	06/04/17	1	2	W	>1000	25	3-4	>10	5	None	n/a	n/a	n/a
0171	06/04/17	1	3	W	>1000	25	3	>10	6	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0172	30/04/17	2	1	SE	>1000	70	3	>10	11	None	n/a	n/a	n/a
0172	30/04/17	2	2	SE	>1000	75	3-4	>10	11	None	n/a	n/a	n/a
0172	30/04/17	2	3	SE	>1000	85	3-4	>10	11	None	n/a	n/a	n/a
0173	30/04/17	2	1	SE	>1000	80	3-4	>10	11	None	n/a	n/a	n/a
0173	30/04/17	2	2	SE	>1000	100	3-4	>10	9	None	n/a	n/a	n/a
0173	30/04/17	2	3	SE	>1000	100	3-4	>10	8	None	n/a	n/a	n/a
0174	26/04/17	3	1	NW	>1000	90	2-3	>10	4	None	n/a	n/a	n/a
0174	26/04/17	3	2	NW	>1000	95	2-3	>10	4	None	n/a	n/a	n/a
0174	26/04/17	3	3	NW	>1000	99	2	>10	4	Sleet	10	Light	Continuous
0175	26/04/17	3	1	NW	>1000	100	3	>10	4	Rain	15	Light	Continuous
0175	26/04/17	3	2	NW	>1000	95	3	>10	3	None	n/a	n/a	n/a
0175	26/04/17	3	3	NW	>1000	95	3	>10	3	Rain	5	Light	Continuous
0176	05/04/17	4	1	NW	500-1000	85	4	5-10	8	None	n/a	n/a	n/a
0176	05/04/17	4	2	W	500->1000	85	3-4	5-10	8	None	n/a	n/a	n/a
0176	05/04/17	4	3	W	>1000	65	2-3	5-10	7	None	n/a	n/a	n/a
0177	06/04/17	4	1	W	>1000	40	4	>10	5	None	n/a	n/a	n/a
0177	06/04/17	4	2	W-SW	>1000	70	3-4	>10	5	None	n/a	n/a	n/a
0177	06/04/17	4	3	SW	>1000	85	3-4	>10	6	None	n/a	n/a	n/a
0178	08/05/17	1	1	NE	>1000	85	1	>10	9	None	n/a	n/a	n/a
0178	08/05/17	1	2	N	>1000	80	1	>10	8	None	n/a	n/a	n/a
0178	08/05/17	1	3	N	>1000	95	1	>10	7	None	n/a	n/a	n/a
0179	09/05/17	1	1	n/a	>1000	70	0	>10	1	None	n/a	n/a	n/a
0179	09/05/17	1	2	n/a	>1000	80	0	>10	2	None	n/a	n/a	n/a
0179	09/05/17	1	3	n/a	>1000	60	0	>10	6	None	n/a	n/a	n/a
0180	08/05/17	2	1	NE	>1000	70	1	>10	8	None	n/a	n/a	n/a
0180	08/05/17	2	2	NE	>1000	80	1	>10	6	None	n/a	n/a	n/a
0180	08/05/17	2	3	NE	>1000	90	2	>10	4	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0181	31/05/17	2	1	SE-E	>1000	50	2-3	>10	16	None	n/a	n/a	n/a
0181	31/05/17	2	2	E-SE	>1000	50	2-3	>10	16	None	n/a	n/a	n/a
0181	31/05/17	2	3	SE	>1000	30	2-3	>10	16	None	n/a	n/a	n/a
0182	25/05/17	3	1	S	>1000	50	0-1	>10	21	None	n/a	n/a	n/a
0182	25/05/17	3	2	SW	>1000	30	2	>10	19	None	n/a	n/a	n/a
0183	25/05/17	3	1	SE	>1000	5	2	>10	18	None	n/a	n/a	n/a
0183	25/05/17	3	2	SE	>1000	0	2-1	>10	15	None	n/a	n/a	n/a
0184	26/05/17	3	1	SE	>1000	20	1-2	>10	12	None	n/a	n/a	n/a
0184	26/05/17	3	2	SE	>1000	20	1-2	>10	13	None	n/a	n/a	n/a
0184	26/05/17	3	3	SE	>1000	20	1-2	>10	13	None	n/a	n/a	n/a
0185	08/05/17	4	1	N	>1000	95	2-3	5-10	6	None	n/a	n/a	n/a
0185	08/05/17	4	2	N	>1000	99	2	5-10	5	None	n/a	n/a	n/a
0185	08/05/17	4	3	N	>1000	100	2	5-10	5	None	n/a	n/a	n/a
0186	09/05/17	4	1	NW	>1000	90	1	>10	5	None	n/a	n/a	n/a
0186	09/05/17	4	2	W	>1000	95	1	>10	6	None	n/a	n/a	n/a
0186	09/05/17	4	3	W	>1000	95	1	>10	6	None	n/a	n/a	n/a
0187	12/06/17	1	1	W	500-1000	40	3	>10	13	Rain	5	Moderate	Intermittent
0187	12/06/17	1	2	W	500-1000	50	3	>10	13	None	n/a	n/a	n/a
0187	12/06/17	1	3	W	500-1000	50	2	>10	13	None	n/a	n/a	n/a
0188	13/06/17	1	1	W	>1000	60	1	>10	10	None	n/a	n/a	n/a
0188	13/06/17	1	2	W	>1000	95	1	>10	12	None	n/a	n/a	n/a
0188	13/06/17	1	3	W	>1000	100	1	>10	13	None	n/a	n/a	n/a
0189	12/06/17	2	1	W	500->1000	65	3	5->10	13	Rain	10	Light - Mod.	Continuous
0189	12/06/17	2	2	W	>1000	65	3	>10	12	Rain	12	Light	Continuous
0189	12/06/17	2	3	W	>1000	70	3	>10	12	Rain	10	Light	Continuous
0190	13/06/17	2	1	SW	>1000	90	2-3	>10	10	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0190	13/06/17	2	2	SW-S	>1000	95	2-3	>10	11	None	n/a	n/a	n/a
0190	13/06/17	2	3	S-SW	>1000	100	2-3	>10	12	None	n/a	n/a	n/a
0191	12/06/17	4	1	SW	500-1000	80	3	>10	10	Rain	30	Moderate	Continuous
0191	12/06/17	4	2	SW	500-1000	60	3	>10	10	None	n/a	n/a	n/a
0191	12/06/17	4	3	W	500-1000	80	3	>10	10	None	n/a	n/a	n/a
0192	13/06/17	4	1	SW	500-1000	80	2	>10	11	None	n/a	n/a	n/a
0192	13/06/17	4	2	S	500-1000	90	1	>10	12	None	n/a	n/a	n/a
0192	13/06/17	4	3	SW	>1000	90	2	>10	12	None	n/a	n/a	n/a
0193	04/07/17	3	1	SE	>1000	100	2-3	>10	10	Rain	17	Light	Continuous
0193	04/07/17	3	2	SE	>1000	100	2-3	>10	11	Rain	17	Light	Continuous
0193	04/07/17	3	3	SE	>1000	100	2-3	>10	11	None	n/a	n/a	n/a
0194	04/07/17	3	1	SE	>1000	100	2-3	>10	11	None	n/a	n/a	n/a
0194	04/07/17	3	2	SE	>1000	98	2-3	>10	11	None	n/a	n/a	n/a
0194	04/07/17	3	3	SE	>1000	100	2-3	>10	11	None	n/a	n/a	n/a
0195	05/07/17	3	1	SE	>1000	15	2	>10	12	None	n/a	n/a	n/a
0195	05/07/17	3	2	SE	>1000	35	2	>10	14	None	n/a	n/a	n/a
0195	05/07/17	3	3	SE	>1000	45	2-3	>10	14	None	n/a	n/a	n/a
0196	05/07/17	4	1	SE	>1000	10	2	>10	15	None	n/a	n/a	n/a
0196	05/07/17	4	2	SE	>1000	20	2	>10	16	None	n/a	n/a	n/a
0196	05/07/17	4	3	SE	>1000	40	2	>10	17	None	n/a	n/a	n/a
0197	05/07/17	2	1	SE	>1000	75	2-3	>10	15	None	n/a	n/a	n/a
0197	05/07/17	2	2	SE	>1000	80	2-3	>10	13	None	n/a	n/a	n/a
0197	05/07/17	2	3	SE	>1000	95	2-3	>10	12	None	n/a	n/a	n/a
0198	05/07/17	1	1	SE	>1000	50	2	>10	18	None	n/a	n/a	n/a
0198	05/07/17	1	2	SE	>1000	70	2	>10	17	None	n/a	n/a	n/a
0198	05/07/17	1	3	SE	>1000	90	2	>10	17	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0199	17/07/17	3	1	W	>1000	5	4	>10	15	None	n/a	n/a	n/a
0199	17/07/17	3	2	W	>1000	10	3-2	>10	14	None	n/a	n/a	n/a
0199	17/07/17	3	3	W-SW	>1000	15	2-1-3	>10	12	None	n/a	n/a	n/a
0200	18/07/17	3	1	SE	>1000	30	2-3	>10	16	None	n/a	n/a	n/a
0200	18/07/17	3	2	SE	>1000	15	2-3	>10	18	None	n/a	n/a	n/a
0200	18/07/17	3	3	SE	>1000	10	2-3	>10	18	None	n/a	n/a	n/a
0201	27/07/17	1	1	S	>1000	50	3	>10	17	None	n/a	n/a	n/a
0201	27/07/17	1	2	S	>1000	70	3	>10	16	None	n/a	n/a	n/a
0201	27/07/17	1	3	S	>1000	85	3	>10	16	None	n/a	n/a	n/a
0202	27/07/17	2	1	S	>1000	80	3	>10	16	None	n/a	n/a	n/a
0202	27/07/17	2	2	S	>1000	97	3	>10	16	None	n/a	n/a	n/a
0202	27/07/17	2	3	S	>1000	70	3	>10	17	None	n/a	n/a	n/a
0203	27/07/17	4	1	S	>1000	70	2	>10	17	None	n/a	n/a	n/a
0203	27/07/17	4	2	S	>1000	70	3	>10	17	None	n/a	n/a	n/a
0203	27/07/17	4	3	S	>1000	80	2	>10	17	Rain	<5	Light	Continuous
0204	27/07/17	2	1	S	>1000	60	3	>10	17	Rain	6	Light	Continuous
0204	27/07/17	2	2	S	>1000	40	3	>10	17	None	n/a	n/a	n/a
0204	27/07/17	2	3	S	>1000	60	2	>10	17	Rain	8	Light	Continuous
0205	27/07/17	1	1	S	>1000	85	3	>10	16	None	n/a	n/a	n/a
0205	27/07/17	1	2	S	>1000	40	2-1	>10	17	None	n/a	n/a	n/a
0205	27/07/17	1	3	S	>1000	55	2	>10	16	None	n/a	n/a	n/a
0206	27/07/17	4	1	S	~	80	2	~	16	Rain	<5	Light	Continuous
0206	27/07/17	4	2	S	~	70	2	~	16	None	n/a	n/a	n/a
0206	27/07/17	4	3	SE	>1000	70	2	>10	15	Rain	10	Light	Continuous
0207	09/08/17	1	1	NW	>1000	30	3	>10	15	None	n/a	n/a	n/a
0207	09/08/17	1	2	NW	>1000	20	2	>10	14	None	n/a	n/a	n/a
0207	09/08/17	1	3	NW	>1000	45	1	>10	13	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0208	09/08/17	2	1	NW	>1000	40	3-4	>10	13	None	n/a	n/a	n/a
0208	09/08/17	2	2	NW	>1000	20	3-4	>10	11	None	n/a	n/a	n/a
0208	09/08/17	2	3	NW	>1000	5	2-3	>10	10	None	n/a	n/a	n/a
0209	10/08/17	3	1	SW	>1000	80	3-4	>10	9	None	n/a	n/a	n/a
0209	10/08/17	3	2	SW	>1000	80	3-4	>10	9	None	n/a	n/a	n/a
0209	10/08/17	3	3	SW	>1000	90	3-4	>10	10	None	n/a	n/a	n/a
0210	10/08/17	4	1	SW	>1000	60	3	>10	10	None	n/a	n/a	n/a
0210	10/08/17	4	2	SW	>1000	50	3	>10	10	None	n/a	n/a	n/a
0210	10/08/17	4	3	SW	>1000	70	3	>10	10	None	n/a	n/a	n/a
0211	15/08/17	1	1	SW	>1000	50	3	>10	16	None	n/a	n/a	n/a
0211	15/08/17	1	2	SW	>1000	50	3	>10	15	None	n/a	n/a	n/a
0211	15/08/17	1	3	SW	>1000	50	3	>10	13	None	n/a	n/a	n/a
0212	15/08/17	4	1	SW	>1000	75	3-4	>10	15	None	n/a	n/a	n/a
0212	15/08/17	4	2	SW	>1000	50	3-4	>10	13	None	n/a	n/a	n/a
0212	15/08/17	4	3	SW	>1000	50	3-4	>10	11	None	n/a	n/a	n/a
0213	16/08/17	1	1	S	>1000	8	1	>10	10	None	n/a	n/a	n/a
0213	16/08/17	1	2	S	>1000	10	1	>10	12	None	n/a	n/a	n/a
0213	16/08/17	1	3	S	>1000	10	1	>10	13	None	n/a	n/a	n/a
0214	16/08/17	4	1	S	>1000	95	2-3	>10	8	None	n/a	n/a	n/a
0214	16/08/17	4	2	S	500-1000	80	2-3	>10	10	None	n/a	n/a	n/a
0214	16/08/17	4	3	S	>1000	15	2-3	>10	10	None	n/a	n/a	n/a
0215	29/08/17	3	1	SW	>1000	45	3-4	>10	14	None	n/a	n/a	n/a
0215	29/08/17	3	2	SW	>1000	25	3-4	>10	12	None	n/a	n/a	n/a
0215	29/08/17	3	3	SW	>1000	10	3-4	>10	10	None	n/a	n/a	n/a
0216	30/08/17	2	1	SW	>1000	15	2-3	>10	10	None	n/a	n/a	n/a
0216	30/08/17	2	2	SW	>1000	20	3-4	>10	10	None	n/a	n/a	n/a
0216	30/08/17	2	3	SW	>1000	20	3-4	>10	11	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0217	30/08/17	2	1	SW	>1000	20	3	>10	13	None	n/a	n/a	n/a
0217	30/08/17	2	2	SW	>1000	15	3	>10	14	None	n/a	n/a	n/a
0217	30/08/17	2	3	SW	>1000	20	3	>10	14	None	n/a	n/a	n/a
0218	30/08/17	3	1	SW	>1000	50	3	>10	15	None	n/a	n/a	n/a
0218	30/08/17	3	2	SW	>1000	80	3	>10	15	None	n/a	n/a	n/a
0218	30/08/17	3	3	SW	>1000	80	3	>10	15	None	n/a	n/a	n/a

APPENDIX 3: FLIGHT ACTIVITY SURVEY RESULTS

Introduction

This appendix provides details of the five minute summary records and the detailed target and secondary species data from the flight activity surveys carried out at the proposed Clashindarroch II Wind Farm site, between May 2015 and July 2016. All recorded flight lines are shown on Figures 8.3 to 8.6b.

Flight Activity Survey Results

Table A3.1 provides the notes from five-minute summaries of all bird activity, including non-target/secondary species, recorded during the individual watches. Species names for the corresponding BTO code are provided in Technical Appendix 1: All Birds Recorded and their Status. Records of flight activity for which the duration at each flight height band were recorded are provided in Table A3.2. Any notable non-flying bird records from the flight activity surveys are included in Table A3.3.

Table A3.1: Flight Activity Survey Details – Five Minute Summaries (May 2015 – August 2017)

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0001	21/05/15	14:25	14:30		CM		Common gull flew west over site in medium height band.
0001	21/05/15	14:30	14:35		CM		Common gull flew west over site in medium height band.
0001	21/05/15	14:45	14:50		BZ		Common buzzard flew west along valley in front of vantage point, hunting at low height.
0001	21/05/15	15:30	15:35		BZ		Common buzzard flew east in from of vantage point at medium height.
0001	21/05/15	15:40	15:45		BZ		Two common buzzards flew around in front of vantage point at medium height.
0001	21/05/15	15:40	15:45		CM		Two common gulls flew north-northwest in front of vantage point at low height.
0001	21/05/15	15:45	15:50		BZ		Four common buzzards flew along valley in front of vantage point at low height,
0001	21/05/15	15:55	16:00		BZ		Two common buzzards flew along valley in front of vantage point at low height,
0001	21/05/15	16:00	16:05		BZ		Two common buzzards flew along valley in front of vantage point at low height.
0001	21/05/15	16:55	17:00		CM		Common gull flew northwest over vantage point at low height.
0001	21/05/15	17:00	17:05		BZ		Three common buzzards moved around to south-southeast of vantage point at low height.
0001	21/05/15	17:10	17:15		BZ		Two common buzzards hunted to south-southeast of vantage point at medium height.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0002	21/05/15	18:30	18:35	1 - not mapped	K.		Common kestrel directly in front of VP. Flew northeast at low height. Male bird.
0002	21/05/15	18:50	18:55		BZ		Two common buzzards flew over side of hill south-southeast of VP. High and medium height bands.
0002	21/05/15	18:55	19:00		CM		Four common gulls flying east-northeast. Flying at high and medium height bands.
0002	21/05/15	18:55	19:00		BZ		One common buzzard flying west-northwest past VP. Flying at high and medium height bands.
0002	21/05/15	19:05	19:10		BZ		Two common buzzards directly above VP then northwest. Flying at High height band.
0002	21/05/15	19:05	19:10		BZ		Two common buzzards south-southeast of VP. Flying at high and medium height bands.
0002	21/05/15	19:25	19:30		BZ		One common buzzard seen hunting over valley in front of VP. Landed on potential prey. Flying in high and medium height bands.
0002	21/05/15	19:40	19:45		BZ		One common buzzard hunting over valley in front of VP. Flying at high and medium height bands.
0002	21/05/15	19:45	19:50		BZ		One common buzzard hunting over valley in front of VP. Flying at high and medium height bands.
0002	21/05/15	19:55	20:00		CM		Two common gulls flying north. Flying at high and low height bands.
0002	21/05/15	20:05	20:10		BZ		One common buzzard south-southeast of VP. Flying at high and medium height bands.
0002	21/05/15	20:30	20:35		LB		Two lesser black-backed gulls flying north-northeast at high and medium height bands.
0005	21/05/15	14:20	14:25		BZ		One common buzzard.
0005	21/05/15	14:30	14:35		BZ		Two common buzzards.
0005	21/05/15	14:35	14:40		BZ		Two common buzzards.
0005	21/05/15	15:10	15:15		CM		One common gull.
0005	21/05/15	15:20	15:25		BZ		Two common buzzards.
0005	21/05/15	15:25	15:30		BZ		One common buzzard.
0005	21/05/15	16:00	16:05		BZ		One common buzzard.
0005	21/05/15	16:45	16:50		BZ	CM	Three common buzzards and one common gull.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0005	21/05/15	16:50	16:55		BZ		Two common buzzards.
0006	21/05/15	17:55	18:00		BZ		Two common buzzards.
0006	21/05/15	18:35	18:40		BZ		Four common buzzards.
0006	21/05/15	19:20	19:25		BZ		Two common buzzards.
0006	21/05/15	19:25	19:30		BZ		Two common buzzards.
0006	21/05/15	20:05	20:10		BZ		One common buzzard.
0003	22/05/15	11:50	11:55		CM		One common gull from west. Flying around VP then back west. Flying at low height band.
0004	22/05/15	13:10	13:15		BZ		One common buzzard flying north-northwest towards VP. Landing on dead tree near VP. Flying at medium height band.
0004	22/05/15	13:15	13:20		BZ		One common buzzard southeast of VP. Then large clockwise flight around hill. Flying at high and medium height bands.
0004	22/05/15	13:20	13:25		BZ		One common buzzard flying back down into valley south-southeast of VP. Flying at high and low height bands.
0004	22/05/15	13:45	13:50		CM		One common gull flying north across middle of site. Flying at high and medium height bands.
0004	22/05/15	13:50	13:55	1 - not mapped	K.		One common kestrel flying south over Raven Hill carrying food. Flying at high and medium height bands.
0004	22/05/15	14:10	14:15		BZ		Three common buzzards east-southeast of VP at far end of site. First bird at low; second bird at medium; third bird at high.
0004	22/05/15	15:25	15:30		BZ		One common buzzard flying around hill southeast of VP. Flying at high and medium height bands.
0004	22/05/15	15:40	15:45		BZ		One common buzzard. Short flight between trees on side of hill southeast of VP. At high and medium height bands.
0007	15/06/15	12:55	13:00		BZ		Two common buzzards.
0007	15/06/15	13:40	13:45		CM		Three common gulls.
0007	15/06/15	13:45	13:50		CM		Three common gulls.
0007	15/06/15	14:05	14:10	K.1	K.		One common kestrel hunting.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0007	15/06/15	14:10	14:15	K.1	K.		One common kestrel hunting.
0007	15/06/15	14:40	14:45		BZ		One common buzzard.
0008	15/06/15	16:20	16:25	K.1	K.		One common kestrel hunting.
0008	15/06/15	16:25	16:30	K.1	K.		One common kestrel hunting (same kestrel as above).
0008	15/06/15	16:55	17:00	K.2	K.		One common kestrel hunting (same kestrel as above).
0008	15/06/15	17:30	17:35	K.3	K.		One common kestrel hunting (same kestrel as above).
0008	15/06/15	18:05	18:10	K.4	K.		One common kestrel hunting (same kestrel as above).
0008	15/06/15	18:05	18:10		BZ		One common buzzard.
0008	15/06/15	18:10	18:15		BZ		One common buzzard.
0008	15/06/15	18:15	18:20		BZ		One common buzzard.
0009	16/06/15	07:35	07:40		BZ		One common buzzard.
0009	16/06/15	07:40	07:45		BZ		Two common buzzards.
0009	16/06/15	08:10	08:15		BZ		Four common buzzards.
0009	16/06/15	08:15	08:20		BZ		Five common buzzards.
0009	16/06/15	08:20	08:25		BZ		One common buzzard.
0009	16/06/15	09:05	09:10	K.1	K.		One common kestrel.
0009	16/06/15	09:10	09:15	K.1	K.	BZ	One common kestrel and two common buzzards.
0009	16/06/15	09:25	09:30		BZ		Two common buzzards.
0009	16/06/15	09:55	10:00		BZ		One common buzzard.
0010	16/06/15	10:55	11:00	OP1	OP		One adult osprey.
0010	16/06/15	11:05	11:10		BZ		Two common buzzards.
0010	16/06/15	11:10	11:15		BZ		Three common buzzards.
0010	16/06/15	11:40	11:45		BZ		Four common buzzards.
0010	16/06/15	11:45	11:50		BZ		One common buzzard.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0010	16/06/15	12:25	12:30		BZ		Three common buzzards.
0010	16/06/15	12:30	12:35		BZ		Five common buzzards.
0010	16/06/15	12:50	12:55		BZ		One common buzzard.
0010	16/06/15	12:55	13:00		BZ		One common buzzard.
0011	17/06/15	07:35	07:40		BZ		Two common buzzards.
0011	17/06/15	08:05	08:10		BZ		One common buzzard.
0011	17/06/15	08:15	08:20		CM		One common gull.
0011	17/06/15	08:50	08:55		BZ		One common buzzard.
0011	17/06/15	09:40	09:45		BZ		Two common buzzards.
0011	17/06/15	09:45	09:50		BZ		Two common buzzards.
0011	17/06/15	09:50	09:55		BZ		One common buzzard.
0011	17/06/15	09:50	09:55		LB		One lesser black-backed gull.
0011	17/06/15	10:05	10:10		BZ		One common buzzard.
0012	17/06/15	11:00	11:05		CM		Two common gulls.
0012	17/06/15	11:55	12:00		CM		One common gull.
0012	17/06/15	12:10	12:15		BZ		One common buzzard.
0012	17/06/15	12:35	12:40		BZ		Two common buzzards.
0012	17/06/15	12:40	12:45		BZ		One common buzzard.
0012	17/06/15	13:20	13:25		CM		One common gull.
0013	24/06/15	09:55	10:00		BZ		One common buzzard.
0013	24/06/15	10:35	10:40		BZ		One common buzzard.
0013	24/06/15	11:15	11:20		CM	BZ	Two common gulls and one common buzzard
0013	24/06/15	11:50	11:55		LB		One lesser black-backed gull.
0014	24/06/15	16:50	16:55		BZ		Two common buzzards.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0014	24/06/15	16:55	17:00		BZ		Two common buzzards.
0014	24/06/15	18:20	18:25		CM		One common gull.
0015	25/06/15	08:00	08:05		BZ		One common buzzard
0015	25/06/15	08:10	08:15	HZ1	HZ		Honey buzzard observation.
0015	25/06/15	08:55	09:00		BZ		One common buzzard.
0015	25/06/15	10:35	10:40		BZ		One common buzzard.
0029	15/07/15	14:20	14:25		BZ		Three common buzzard adults 'thermallng' for 5 mins (in mid height band) near Raven Hill.
0029	15/07/15	16:10	16:15	1	SH		Adult female, 30 secs mid height band.
0030	15/07/15	17:50	17:55	2	SH		Adult female sparrowhawk hunting, 15 secs low height band.
0031	16/07/15	09:15	09:20		BZ		Adult common buzzard in flight, mid height band for 60 secs.
0032	16/07/15	10:55	11:00	1	K.		One common kestrel.
0032	16/07/15	11:40	11:45		BZ		Common buzzard pair, 'thermallng' for 120 secs (20% mid height band 80% high height band).
0032	16/07/15	13:10	13:15		BZ		Adult common buzzard hunting, mid height band, 45 secs.
0035	23/07/15	14:40	14:45		BZ		Adult common buzzard in flight, low height band for 60 secs, mid height band for 120 secs.
0036	24/07/15	11:30	11:35	1	K.		Adult female common kestrel hunting, low 15 secs, mid 60 secs, high 30 secs.
0036	24/07/15	12:05	12:10		BZ		Adult common buzzard in flight, high height band for 180 secs.
0039	12/08/15	14:15	14:20		SH		Adult female sparrowhawk high circling, 150 secs at the very high height band.
0040	12/08/15	16:30	16:35		BZ		Adult common buzzard 'thermallng' in very high height band for 60 secs.
0040	12/08/15	17:10	17:15		SL		Swallow hunting over clear-fell area, 30 secs at mid height band.
0038	13/08/15	14:05	14:10	1	K.		Common kestrel observation.
0038	13/08/15	14:05	14:10	2	K.		Common kestrel observation.
0038	13/08/15	14:20	14:25	3 & 3a	K.	SH	Common kestrel and sparrowhawk observation.
0038	13/08/15	14:20	14:25	4	K.		Common kestrel observation.
0038	13/08/15	14:30	14:35	5	K.		Common kestrel observation.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0038	13/08/15	14:45	14:50		BZ		Common buzzard observation.
0038	13/08/15	15:00	15:05	6	K.		Common kestrel observation.
0038	13/08/15	15:30	15:35	6a	K.		Common kestrel observation.
0038	13/08/15	15:40	15:45	7	K.		Common kestrel observation.
0038	13/08/15	15:50	15:55		BZ	SH	Common buzzard and sparrowhawk observation.
0038	13/08/15	15:50	15:55		SI		Single swift hunting in mid height band for 30 secs.
0038	13/08/15	16:20	16:25	8 & 8a	K.	SH	Common kestrel and sparrowhawk observation.
0019	25/08/15	15:20	15:25		BZ		One common buzzard circling south of VP in medium height band.
0019	25/08/15	15:25	15:30		BZ		One common buzzard circling south of VP in medium height band.
0022	08/09/15	14:40	14:45		K.		One female common kestrel hunting. West-southwest from VP. Height 20-40m.
0022	08/09/15	14:45	14:50		K.		Same behaviour as previous common kestrel. One female common kestrel hunting. West-south-west from VP. Height 20-40m.
0022	08/09/15	14:50	14:55		K.		Common kestrel hunting in same area and at same height.
0022	08/09/15	14:55	15:00		K.		Same female common kestrel hunting.
0022	08/09/15	15:05	15:10		K.		Female common kestrel hunting.
0022	08/09/15	15:10	15:15		K.		Female common kestrel hunting.
0022	08/09/15	15:30	15:35		BZ		Two common buzzards flew over VP heading south-west. Circled and joined by three more common buzzards. All flew south-west towards VP2.
0024	09/09/15	13:25	13:30		BZ		Single common buzzard flying low then perched in tree north-east of VP.
0024	09/09/15	13:30	13:35		BZ		Single common buzzard hunting. Medium height. North-east of VP.
0024	09/09/15	13:35	13:40		K.		Common kestrel hunting in clear-fell north-east of VP.
0024	09/09/15	14:50	14:55		BZ		Common buzzard hunting north of VP. At medium height band.
0024	09/09/15	14:55	15:00		BZ		Common buzzard hunting north of VP. At medium height band.
0024	09/09/15	15:00	15:05		BZ		Single common buzzard.
0024	09/09/15	15:00	15:05		K.		Male and female common kestrels. Northeast of VP.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0024	09/09/15	15:10	15:15		BZ		Single common buzzard. In front of VP. Flying northeast.
0024	09/09/15	15:20	15:25		BZ		Single common buzzard in front of VP.
0025	22/09/15	15:25	15:30		RN		One adult raven at height medium to east of VP then off north.
0027	23/09/15	07:35	07:40		RN		Two adult ravens at height medium. Calling. Through wind farm and off east.
0027	23/09/15	08:30	08:35	1	PG		Seven pink-footed geese over site at height band 'very high'.
0027	23/09/15	08:45	08:50		RN		One raven over wind farm at height band 'high'. Calling.
0027	23/09/15	09:35	09:40	2 & 3	K.		Two juvenile common kestrels observed.
0041	08/10/15	14:30	14:35		K.		Common kestrel observation.
0044	09/10/15	11:20	11:25		RN		One adult raven at high height from northeast to southwest across site, calling.
0044	09/10/15	11:25	11:30	1	K.		Common kestrel observation.
0044	09/10/15	11:40	11:45	2	K.		Common kestrel observation.
0044	09/10/15	13:25	13:30	3	K.		Common kestrel observation.
0046	14/10/15	17:45	17:50	1	K.		Common kestrel observation.
0046	14/10/15	18:50	18:55	2	TO		Female tawny owl heard calling but not seen, on northeast side of Red Hill.
0047	15/10/15	09:10	09:15		RE	FF	Mixed flock of redwing and fieldfare of around 70 birds moving between forestry blocks to east of VP.
0048	15/10/15	13:10	13:15		RN		Two adult ravens at low, med, high heights to east of VP.
0049	21/10/15	13:50	13:55		RN		One raven in from north-west then a short display flight before heading south-west at high, med, low heights.
0052	22/10/15	12:15	12:20	1	K.		Common kestrel observation.
0053	30/10/15	11:10	11:15		RN		Raven flying at low height, northeast past VP.
0054	30/10/15	15:50	15:55	1	K.		Common kestrel observation.
0055	31/10/15	07:25	07:30	1	K.		Common kestrel observation.
0056	31/10/15	10:50	10:55		BZ		Common buzzard at low height over trees below VP.
0056	31/10/15	11:30	11:35		BZ		Common buzzard - past VP at med/low height, heading northwest.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0061	11/11/15	07:30	07:35	1	HH		Male hen harrier appeared from over The Shank, medium height to low, in front of VP, then gained height again and headed away south.
0061	11/11/15	07:55	08:00	2	K.		Common kestrel observation.
0061	11/11/15	08:10	08:15	3	K.		Common kestrel observation.
0061	11/11/15	09:30	09:35		BZ		Common buzzard circling over hill to south of VP. Watched for 8 minutes. 3 x 15 sec med height, the remainder high.
0061	11/11/15	09:35	09:40		BZ		Continuation of previous common buzzard record.
0063	12/11/15	10:50	10:55		BZ		Common buzzard observation.
0063	12/11/15	11:25	11:30	1	K.		Common kestrel observation.
0069	18/11/15	09:35	09:40	1	PG		90 pink-footed geese - alerted to presence by calls.
0070	18/11/15	13:25	13:30	1	GI		Adult male goshawk.
0070	18/11/15	14:25	14:30		FF		Flock of thirty fieldfare. Flying around below VP before landing out of sight.
0070	18/11/15	14:45	14:50		SH		Adult male sparrowhawk hunting along track very low to ground to east of VP.
0071	24/11/15	15:15	15:20	1	SE		Short-eared owl hunting.
0073	25/11/15	14:15	14:20	1	SE		Short-eared owl hunting.
0073	25/11/15	15:30	15:35	2	SE		Same short-eared owl as previous record. Hunting again.
0075	27/11/15	11:35	11:40		SH		Adult female sparrowhawk. Very low past VP from east to west and into trees.
0077	09/12/15	12:20	12:25		JD		Approximately 40 jackdaws flying from west to east with the wind over Craig Beg and Cairn Hill (medium height for 45 seconds).
0077	09/12/15	13:20	13:25	1	K.		Common kestrel flew in northerly direction (to the east of Red Hill).
0077	09/12/15	13:40	13:45	2	PG		Twenty-two pink-footed geese flew against wind over Muckle Black Hill from the east.
0079	10/12/15	15:15	15:20	1	GP		One flock of approximately 45 golden plover. Flying to southwest of Grumack Hill then disappeared out of sight.
0080	11/12/15	10:10	10:15	1	PG		Skein of approximately 20 pink-footed geese flying from the east to the north of Muckle Black Hill.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0082	16/12/15	10:35	10:40	1	SH		Sparrowhawk flew across clearfell below VP at low height, landed in bare tree for approximately 30 seconds and continued away south-west. 2 x 15 sec at low height.
0082	16/12/15	12:40	12:40		BZ		Common buzzard circling over forestry in Raven Hill area. Med / Low heights, then low over clearfell after approximately 3 minutes and headed away north.
0086	13/01/16	08:50	08:55	1	GP		Flock of approximately 25 golden plover just visible near Grumack Hill.
0086	13/01/16	09:20	09:25	2	PG		Small skein of 6 pink-footed geese flew west to east, to the south of Muckle Black Hill.
0086	13/01/16	11:20	11:25		GS		Great-spotted woodpecker calling from the top of a pine tree on Red Hill.
0087	13/01/16	12:55	13:00	1	K.		Adult common kestrel flying and hovering over the flank of hill to the southwest of Grumack Hill.
0089	14/01/16	13:05	13:10		JD		Small flock of jackdaws flew overhead (west to east).
0091	25/01/16	14:40	14:45		WP		Twenty-five wood pigeons at height low and southwest past VP.
0091	25/01/16	17:05	17:10	1	WK		One woodcock past VP briefly.
0095	11/02/16	10:05	10:10		BZ		Common buzzard circling over trees below VP at medium and high heights. Watched for approximately 2 minutes.
0095	11/02/16	10:25	10:30		BZ		Common buzzard flying across in front of VP. 2 x 15 sec at medium height.
0095	11/02/16	11:00	11:05		BZ		Common buzzard flying across in front of VP. 1 x 15 sec at medium height.
0095	11/02/16	11:45	11:50		BZ		Common buzzard looped over trees in front of VP. 1 x 15 sec at medium height.
0098	26/02/16	06:45	06:50		BZ		One common buzzard at low height. Flew west to east between plantations.
0098	26/02/16	07:45	07:50	1	PG		Fourteen pink-footed geese very high.
0098	26/02/16	08:35	08:40		SH		Female sparrowhawk landed on dead tree then off west at low height.
0098	26/02/16	08:40	08:45	2	GI		Goshawk.
0098	26/02/16	08:50	08:55	3	GI		Sub-adult female goshawk.
0099	26/02/16	13:40	13:45	1	PG		170 pink-footed geese past VP.
0100	28/02/16	12:25	12:30		BZ		Common buzzard circling high and very high to north of VP, then in display flight.
0100	28/02/16	12:30	12:35	1	GI		Adult male goshawk.
0101	28/02/16	14:35	14:40	1	K.		Common kestrel observation.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0101	28/02/16	15:25	15:30		CR		Sixteen crossbills around VP calling before flying off east.
0102	29/02/16	07:00	07:05		JD		150 jackdaws in four flocks all heading northwest past VP.
0102	29/02/16	07:45	07:50		BZ		One common buzzard past VP south-east at high, medium and low heights. Hunting.
0103	08/03/16	12:25	12:30	1	GI		Male goshawk over plantation from south. Heading west.
0103	08/03/16	12:45	12:50	2	GI		Male goshawk observed flying high near Long Bank. Bird flew out of sight to the south.
0103	08/03/16	13:05	13:15	3	GI		Female goshawk flew from west towards Long Bank area, soaring briefly, then flew lower until settling in trees.
0103	08/03/16	13:30	13:35	4	GI		Goshawk, probably female, seen flying to west of Quarry Hill, then out of sight.
0103	08/03/16	13:45	13:50	5	PG		A large flock of c.160 pink-footed geese flew over (very high).
0104	09/03/16	11:05	11:10		FF		Three fieldfare flew from direction of Craigwater Hill to west of Grumack Hill.
0104	09/03/16	11:40	11:45	1	GI		Male goshawk flew from direction of Hill of Finglenny to the west, then flew north-west and settled in an isolated tree.
0104	09/03/16	12:25	12:30		M.		Mistle thrush heard calling in plantation to south of VP (west of The Shank).
0105	09/03/16	14:20	14:25	1	GI		Male goshawk seen flying near Raven Hill, it then flew off to the south.
0107	10/03/16	11:35	11:40	1	GI		Female goshawk flew north from Craigwater Hill. Then flew northeast towards Red Hill and lost to view.
0107	10/03/16	13:25	13:30	2	GI		Male goshawk seen flying down Badilauchter Burn, then out of sight as it flew down valley to the northeast.
0108	11/03/16	08:25	08:30	1	GI		Goshawk, possible display activity. Occasionally flying high 2-3 times then dropping down again. Very distant, sex of bird unknown.
0108	11/03/16	08:30	08:35	2	PG		Large skein of pink-footed geese (approx. 80) very high from southeast to northwest. Up the Ealaich and Bogrotten Burns.
0108	11/03/16	10:35	10:40	3	PG		Large skein of pink-footed geese (approx. 45) flying very high from southeast to northwest from Hill of Finglenny over Grumack Hill.
0108	11/03/16	10:45	10:50	4	PG		Skein of pink-footed geese (approx. 110) flying south to north. First observed very high over Meikle Watchman. Then flew north and out of sight over Little Black Hill.
0108	11/03/16	10:50	10:55	5	PG		Approx. 125 pink-footed geese flying south to north near Cross Hill over Little Black Hill then lost to view.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0109	17/03/16	09:20	09:25	1	PG		Twenty pink-footed geese very high for 30 seconds, direct flight west to east (at 09:23).
0109	17/03/16	11:05	11:10	2	PG		Fifty-five pink-footed geese at high for 60 seconds.
0110	17/03/16	12:50	12:55		PW		Pied wagtail flew past VP.
0110	17/03/16	13:20	13:25		BZ		Pair of common buzzard thermalling in distance. Edge of wind farm (high to very high) 120 seconds.
0110	17/03/16	14:10	14:15		BZ		Common buzzard thermalling over Meikle Watchman (high to medium height) for 30 seconds.
0110	17/03/16	14:25	14:30		CR		Crossbill species flying at medium height for 15 seconds.
0110	17/03/16	14:30	14:35	3	GI		Female goshawk thermalling.
0110	17/03/16	14:35	14:40	4	GI		Goshawk, possible male thermalling (high & very high) over Hill of Finglenny, then 'flap-glide' (high).
0112	28/03/16	12:05	12:10	1	GI		One immature female goshawk seen briefly.
0112	28/03/16	12:25	12:30		RN		Two ravens past east to west at height high and very high.
0113	29/03/16	07:55	08:00	1	GJ		Twenty-four greylag geese over site heading north.
0115	13/04/16	16:05	16:10		BZ		Two buzzards over plantation 1.5 km to the southeast.
0116	14/04/16	09:20	09:25	1	GI		Male goshawk headed east.
0116	14/04/16	10:55	11:00	2	GJ		Nine greylag geese headed north.
0119	19/04/16	17:55	18:00	1	PG		240 pink-footed geese flying high in formation from east to west.
0119	19/04/16	18:05	18:10	2	PG		130 pink-footed geese flying high in formation from east to west.
0119	19/04/16	18:15	18:20	3	PG		70 pink-footed geese flying high in formation from east to west.
0119	19/04/16	18:25	18:30	4	PG		250 pink-footed geese flying high in formation from east to west.
0119	19/04/16	18:50	18:55	5	PG		110 pink-footed geese flying high in formation from east to west.
0119	19/04/16	19:10	19:15	6	PG		19 pink-footed geese flying high in formation from east to west.
0120	20/04/16	14:05	14:10		BZ		Lone buzzard circling over larch wood. Height band medium.
0121	20/04/16	20:00	20:05	1	PG		115 pink-footed geese flying from east to west.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0121	20/04/16	20:10	20:15	2	BZ		Lone buzzard flying over plantation.
0123	22/04/16	09:50	09:55	1	CU		Two curlew flying across the site within medium height band.
0124	22/04/16	13:10	13:15		BZ		Two buzzards in medium height band, 1 km to the east of VP3 for three minutes.
0127	27/04/16	10:30	10:35	1	K.		Common kestrel observation.
0129	28/04/16	13:35	13:40	1	BZ		Single buzzard flying in medium height band for 80 seconds.
0130	28/04/16	18:35	18:40	1	BZ		Single buzzard flying east in medium height band for 60 seconds.
0135	04/05/16	10:10	10:15	1	BZ		Two common buzzards flying at medium height, and occasionally at high height.
0136	05/05/16	07:25	07:30	1	BZ		Single common buzzard flying at medium height band across canopy.
0137	05/05/16	11:15	11:20	1	BZ		Single common buzzard soaring largely at very high height band.
0141	11/05/16	13:10	13:15	1	BZ		Distant common buzzard flying in VP2 area.
0141	11/05/16	14:25	14:30	2	GI		Probable goshawk male flying over canopy north of VP.
0143	12/05/16	06:45	06:50	1	BZ		Single common buzzard flight.
0143	12/05/16	07:55	08:00	2	PG		17 pink-footed geese flying north.
0144	12/05/16	09:40	09:45	1	GI		Male goshawk flying north-east before landing in a tall spruce tree.
0144	12/05/16	10:10	10:15	2	BZ		Single common buzzard flying south-west over plantation.
0144	12/05/16	10:40	10:45	3	BZ		Single common buzzard flying quickly to the South.
0148	24/05/16	16:55	17:00		BZ		One common buzzard hunting at height: high and very high over Cloighedubh Hill.
0152	09/06/16	17:10	17:15		BZ		A common buzzard calling flying at low and high height bands to the east of the VP.
0154	13/06/16	17:20	17:25		SH		Male sparrowhawk flying at high, medium and low height bands, heading south.
0154	13/06/16	17:40	17:45	1	BZ		A single common buzzard flying at high height band.
0155	13/06/16	20:05	20:10		SH		Male sparrowhawk flying at low height band, heading north.
0157	15/06/16	19:10	19:15	1	GI		Adult male goshawk flying at medium and low height band.
0151	22/06/16	04:45	04:50	1	LB		Single lesser black-backed gull flew south, 30 seconds at high, to east of VP.
0151	22/06/16	05:05	05:10	2	LB		Five lesser black-backed gulls on same flightline and flight time as previous record.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0160	23/06/16	19:20	19:25		BZ		Common buzzard flew in arc at low height band across the front of VP, then took off north.
0162	24/06/16	09:10	09:15		BZ		Common buzzard hunting at high, medium and low height band to east of VP.
0162	24/06/16	09:50	09:55		SG		40 starlings flew over Cloichedubh Hill heading northwest at low, medium and high height bands.
0163	19/07/16	14:50	14:55		BZ		One immature common buzzard flew 5 minutes at high and very high height bands, thermalling and kiting.
0163	19/07/16	16:00	16:05		BF		Bullfinch pair passing along old clearfell edge, at low height band for 60 seconds.
0166	21/07/16	09:00	09:05		K.		Adult female kestrel flew from behind surveyor at low height band, to perch on standing dead tree in clearfell for 3 minutes, then flew off - did not see direction.
0171	06/04/17	07:30	07:35	1	PG		55 pink-footed geese flew over the wind farm and headed northwest.
0171	06/04/17	07:45	07:50	2	PG		37 pink-footed geese flew east past the VP. They then swung north.
0172	30/04/17	16:15	16:20		K.		Male common kestrel hunting over clearfell, then moved off to the west.
0176	05/04/17	17:30	17:35		BZ		One common buzzard hunting at low and medium height to the west of VP.
0177	06/04/17	06:30	06:35	1	CM		Two adult common gulls flying over calling.
0177	06/04/17	07:00	07:05	2	CM		One adult common gull.
0177	06/04/17	07:05	07:10	3	CM		One adult common gull.
0177	06/04/17	07:10	07:15	4	CM		Three adult common gulls.
0177	06/04/17	08:50	08:55	5	CM		Six adult common gulls.
0177	06/04/17	08:50	08:55	6	CM		One adult common gull.
0177	06/04/17	09:00	09:05	7	CM		Two adult common gulls.
0177	06/04/17	09:10	09:15	8	CM		Four adult common gulls.
0181	31/05/17	18:15	18:20		BZ		Three adult common buzzards at low, medium and high heights. Two birds in close proximity to each other and another separate from them.
0181	31/05/17	18:20	18:25		BZ		One common buzzard hunting over clearfell in front on VP, then second common buzzard appeared calling and displaying.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0181	31/05/17	18:25	18:30		BZ		First common buzzard from previous five minute block drifted off to the south. Displaying common buzzard returned to trees to the northeast of VP.
0181	31/05/17	18:30	18:35		BZ		Common buzzard hunting at medium height to northeast of VP.
0181	31/05/17	18:35	18:40		BZ		Common buzzard hunting at medium height to south of VP.
0181	31/05/17	18:40	18:45		BZ		Same common buzzard hunting at medium and high heights to south and southwest of VP.
0186	09/05/17	08:00	08:05	1	CM		One adult common gull.
0187	12/06/17	19:30	19:35	1	CM		Common gull flew steadily past VP, although wind proving difficult for it.
0187	12/06/17	19:40	19:45		SH		Male sparrowhawk flew low north-northeast over VP carrying prey item, observed for c. 10 seconds.
0188	13/06/17	07:15	07:20		SH		Male sparrowhawk circled low over VP before heading off north. Observed for c. 15 seconds at low height.
0189	12/06/17	21:00	21:05	1	CM		Adult common gull, called once.
0193	04/07/17	12:25	12:30		BZ		Common buzzard calling and hunting to southeast in buffer. At medium height.
0193	04/07/17	12:30	12:35	1	GI	BZ	Adult female goshawk attacking group of four common buzzards before powering away southeast.
0193	04/07/17	12:35	12:40		BZ		Two of the group of four common buzzards (above). One drifted off to the east and other off low to the south.
0193	04/07/17	13:05	13:10	2	CM		Adult common gull heading southwest.
0195	05/07/17	09:30	09:35		BZ		Two common buzzards hunting together at low, medium and high height bands in the site buffer.
0195	05/07/17	10:40	10:45	1	K.	SH	Two juvenile and an adult female common kestrel hunting together. Adult male sparrowhawk also soaring alongside them at one point.
0197	05/07/17	14:30	14:35		BZ		Common buzzard hunting in buffer to west at high and medium heights.
0197	05/07/17	14:50	14:55		BZ		Common buzzard hunting over The Lumps at very low, low and medium heights.
0197	05/07/17	14:55	15:00		BZ		Same common buzzard as above hunting over The Lumps at medium height.
0198	05/07/17	12:55	13:00		BZ		Common buzzard hunting at medium height band below the VP.
0198	05/07/17	15:15	15:20		BZ		Common buzzard hunting onsite to south of VP at medium height.

Survey Ref	Date	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
0200	18/07/17	10:55	11:00		BZ		Adult common buzzard hunting at medium height band in buffer.
0202	27/07/17	12:15	12:20		BZ		Common buzzard hunting in valley to south-southeast of VP, then flying southeast going behind hill.
0203	27/07/17	12:10	12:15		BZ		Common buzzard hunting offsite to the north at medium height.
0203	27/07/17	12:40	12:45	1	GI		Immature male goshawk at medium height band.
0203	27/07/17	12:55	13:00		BZ		Common buzzard flying at medium height offsite to the north.
0204	27/07/17	15:20	15:25	1	K.		Female common kestrel at low and medium heights.
0204	27/07/17	16:50	16:55		BZ		Common buzzard hunting high to the east-northeast of the VP.
0205	27/07/17	16:45	16:50	1	OP		Osprey flew across forestry.
0205	27/07/17	17:15	17:20	2	K.		Male common kestrel flew high over VP heading north.
0206	27/07/17	15:30	15:35		BZ		Common buzzard hunting at medium height offsite to the north.
0206	27/07/17	16:10	16:15		BZ		Common buzzard hunting at medium height offsite to the north again.
0206	27/07/17	16:15	16:20		BZ		Common buzzard hunting at medium height offsite to the north still.
0209	10/08/17	06:30	06:35		BZ		Common buzzard at low and very low heights hunting very close to and around VP.
0209	10/08/17	06:35	06:40		BZ		Same common buzzard as above hunting at low and medium heights.
0209	10/08/17	06:45	06:50		BZ		Same common buzzard hunting again at low height.
0211	15/08/17	18:10	18:15		SH		Female juvenile sparrowhawk flew across top of forestry.
0214	16/08/17	06:45	06:50	1	GP		Three golden plover passed at speed.
0216	30/08/17	08:00	09:05		BZ		Common buzzard hunting at low and very low heights.
0217	30/08/17	09:30	09:35		BZ		Common buzzard hunting at low and very low heights.
0217	30/08/17	09:35	09:40		BZ		Same common buzzard as above still hunting, then flew off to the west.

Table A3.2: Target / Secondary Species Flight Details (May 2015 – August 2017)

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band (m)					Total Duration (Secs)	Notes
									VL	L	M	H	VH		
0007	15/06/15	1	K.1	K.	1	F	Ad.	14:06			330			330	
0008	15/06/15	1	K.1	K.	1	F	Ad.	16:24			90			90	
0008	15/06/15	1	K.2	K.	1	F	Ad.	16:56		45	30			75	
0008	15/06/15	1	K.3	K.	1	F	Ad.	17:31			60			60	
0008	15/06/15	1	K.4	K.	1	F	Ad.	18:08			45			45	
0009	16/06/15	2	K.1	K.	1	F	Ad.	09:09			150			150	
0010	16/06/15	2	OP1	OP	1	Unk.	Ad.	10:57			135	180		315	
0015	25/06/15	2	HZ1	HZ	1	F	Ad.	08:11			135			135	One honey buzzard. Flew past VP then northwest out of sight.
0029	15/07/15	1	1	SH	1	F	Ad.	16:10			30			30	
0030	15/07/15	1	2	SH	1	F	Ad.	17:55		15				15	
0032	16/07/15	2	1	K.	1	F	Ad.	10:55			120			120	
0036	24/07/15	3	1	K.	1	F	Ad.	11:30		15	60	30		105	
0038	13/08/15	1	1	K.	1	F	Ad.	14:05	15	60	180			255	
0038	13/08/15	1	2	K.	1	Unk.	Imm.	14:05			30			30	
0038	13/08/15	1	3	K.	1	F	Ad.	14:20		60	240			300	
0038	13/08/15	1	4	K.	1	Unk.	Imm.	14:20			165			165	
0038	13/08/15	1	5	K.	1	F	Ad.	14:30			240			240	
0038	13/08/15	1	6	K.	1	F	Ad.	15:00			60			60	

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band (m)					Total Duration (Secs)	Notes
									VL	L	M	H	VH		
0038	13/08/15	1	7	K.	2	F	Ad. & Imm.	15:40				75		75	
0038	13/08/15	1	8	K.	1	F	Ad.	16:20			300			300	
0038	13/08/15	1	3a	SH	1	F	Ad	14:20		60	240			300	
0038	13/08/15	1	6a	K.	1	F	Ad.	15:30			180			180	
0038	13/08/15	1	8a	SH	1	F	Ad.	16:20			60			60	
0027	23/09/15	2	1	PG	7	Unk.	Ad.	08:32					130	130	
0027	23/09/15	2	2	K.	1	Unk.	Imm	09:38	22	45				67	
0027	23/09/15	2	3	K.	1	Unk.	Imm	09:39		6				6	Only seen briefly
0041	08/10/15	1	1	K.	1	M	Ad.	14:31		20	90	75	15	200	
0044	09/10/15	1	1	K.	1	F	Ad.	11:26		216	210			426	
0044	09/10/15	1	2	K.	1	F	Ad.	11:41		10				10	
0044	09/10/15	1	3	K.	1	F	Ad.	13:29	2			15		17	
0046	14/10/15	1	1	K.	1	F	Ad.	17:46	2		75			77	
0052	22/10/15	2	1	K.	1	Unk.	Unk.	12:22	4					4	Only seen very briefly out from trees to east of VP. Too quick to accurately age or sex.
0054	30/10/15	2	1	K.	1	M	Ad.	15:51		5				5	
0055	31/10/15	2	1	K.	1	F	Ad.	07:28						0	Adult female common kestrel hunting over area to east of VP. Using dead trees as perches and hovering. Seen for 1hr 25 mins total.

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band (m)					Total Duration (Secs)	Notes
									VL	L	M	H	VH		
0061	11/11/15	2	1	HH	1	M	Ad.	07:34		30	15			45	Hen harrier appeared from over The Shank at medium height, then to low height in front of VP, up to med height again and headed away south.
0061	11/11/15	2	2	K.	1	F	Ad.	07:58		150				150	
0061	11/11/15	2	3	K.	1	F	Ad.	08:10		15	30			45	
0063	12/11/15	2	1	K.	1	F	Ad.	11:25		210	30			240	
0069	18/11/15	3	1	PG	90			09:37					40	40	
0070	18/11/15	1	1	GI	1	M	Ad.	13:27			7	10		17	Goshawk - flew directly causing jackdaws in trees below to alarm call.
0071	24/11/15	1	1	SE	1	Unk.	Unk.	15:18	30					30	Short-eared owl hunting below VP.
0073	25/11/15	1	1	SE	1	Unk.	Ad.	14:19	130					130	Adult short-eared owl hunting along edge between semi-mature spruce and some regenerating trees below VP.
0073	25/11/15	1	2	SE	1	Unk.	Ad.	15:33	21					21	Same short-eared owl as previous record. Same area but much briefer flight.
0077	09/12/15	1	1	K.	1	Unk.	Ad.	13:20				15		15	
0077	09/12/15	1	2	PG	22	Unk.	Ad.	13:40					135	135	
0079	10/12/15	2	1	GP	45	Unk.	Unk.	15:15			120			120	
0080	11/12/15	1	1	PG	20	Unk.	Unk.	10:10					240	240	
0082	16/12/15	2	1	SH	1	M	Ad.	10:35		30				30	
0086	13/01/16	1	1	GP	25	Unk.	Ad.	08:50			30			30	
0086	13/01/16	1	2	PG	6	Unk.	Ad.	09:21					120	120	

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band (m)					Total Duration (Secs)	Notes
									VL	L	M	H	VH		
0087	13/01/16	2	1	K.	1	Unk.	Ad.	12:55			30	60		90	
0091	25/01/16	1	1	WK	1	Unk.	Ad.	17:06	5					5	Brief flight past VP in fading light.
0098	26/02/16	2	1	PG	14	Unk.	Ad.	07:46					70	70	
0098	26/02/16	2	2	GI	1	Unk.	Unk.	08:44		10				10	A bit too far away to be certain of sex or age of bird.
0098	26/02/16	2	3	GI	1	F	Imm.	08:50		7	30			37	Sub-adult female. Lost to view behind trees.
0099	26/02/16	3	1	PG	170	Unk.	Unk.	13:42					185	185	
0100	28/02/16	2	1	GI	1	M	Ad.	12:30				60	280	340	Adult male goshawk circling to great height and lost to view. Potential display flight.
0101	28/02/16	1	1	K.	1	M	Ad.	14:36						0	Hunting in area of regeneration in front of VP. Using trees as perches to hunt from as well as occasional hovering.
0103	08/03/16	1	1	GI	1	M	Ad.	12:25				120		120	
0103	08/03/16	1	2	GI	1	M	Ad.	12:47				180		180	
0103	08/03/16	1	3	GI	1	F	Ad.	13:05		30	30	465	75	600	
0103	08/03/16	1	4	GI	1	F	Ad.	13:32				120		120	Probable female.
0103	08/03/16	1	5	PG	160	Unk.	Ad.	13:48					540	540	
0104	09/03/16	2	1	GI	1	M	Ad.	11:40			180			180	
0105	09/03/16	3	1	GI	1	M	Ad.	14:20			60	120		180	
0107	10/03/16	2	1	GI	1	F	Ad.	11:35			195			195	
0107	10/03/16	2	2	GI	1	M	Ad.	13:25			60			60	
0108	11/03/16	1	1	GI	1	Unk.	Ad.	08:25			135			135	
0108	11/03/16	1	2	PG	80	Unk.	Ad.	08:31					240	240	
0108	11/03/16	1	3	PG	45	Unk.	Ad.	10:31					195	195	
0108	11/03/16	1	4	PG	110	Unk.	Ad.	10:45			135			135	

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band (m)					Total Duration (Secs)	Notes
									VL	L	M	H	VH		
0108	11/03/16	1	5	PG	125	Unk.	Ad.	10:50					120	120	
0109	17/03/16	1	1	PG	20	Unk.	Ad.	09:23					30	30	
0109	17/03/16	1	2	PG	55	Unk.	Ad.	11:05				60		60	
0110	17/03/16	1	3	GI	1	F	Ad.	14:32		5	15	30		50	
0110	17/03/16	1	4	GI	1	M?	Ad.	14:35				180	60	240	
0112	28/03/16	3	1	GI	1	F	Imm.	12:06		5				5	Goshawk seen briefly flying through larch canopy before being lost among trees.
0113	29/03/16	2	1	GJ	24	~	~	07:58				64		64	
0113	29/03/16	2	2	GI	1	F	Ad.	09:21				240	259	499	Adult female goshawk. Once over Cloichedubh Hill a second female (too far off to age) came up and had a couple of mid-air skirmishes before circling high out of view.
0113	29/03/16	2	3	GI	1	F	~	09:26				30	210	240	Goshawk came up from Cloichedubh to challenge bird in flight.
0116	14/04/16	2	1	GI	1	M	Ad.	09:21		3	97			100	Male goshawk headed east. Dropped out of site over tree line.
0116	14/04/16	2	2	GJ	9	~	~	10:55				75		75	
0119	19/04/16	2	1	PG	240	~	Unk.	17:55				60	120	180	
0119	19/04/16	2	2	PG	130	~	Unk.	18:05					90	90	
0119	19/04/16	2	3	PG	70	~	Unk.	18:19					75	75	
0119	19/04/16	2	4	PG	250	~	Unk.	18:24					90	90	
0119	19/04/16	2	5	PG	110	~	Ad.	18:52			30	135		165	
0119	19/04/16	2	6	PG	19	~	Ad.	19:13			30	30		60	
0121	20/04/16	1	1	PG	115	~	Ad.	20:01			45	90		135	
0123	22/04/16	3	1	CU	2	~	Ad.	09:51			180			180	
0127	27/04/16	3	1	K.	1	F	Ad.	10:32	15	15				30	

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band (m)					Total Duration (Secs)	Notes
									VL	L	M	H	VH		
0141	11/05/16	3	2	GI	1	M	Unk.	14:25			30			30	Probable male goshawk flying over canopy north of VP. Age uncertain.
0143	12/05/16	1	2	PG	17	Unk.	Ad.	07:56			15	45		60	
0144	12/05/16	2	1	GI	1	M	Ad.	09:41		25	45			70	Goshawk landed on a tall spruce tree for several minutes. Failed to observe its departure.
0157	15/06/16	2	1	GI	1	M	Ad.	19:13		44	10			54	Adult male goshawk flying at medium & low height band.
0157	15/06/16	2	1	GI	1	M	Ad.	19:13		44	10			54	Adult male goshawk flying at medium & low height band.
0171	06/04/17	1	1	PG	55	Unk.	Unk.	07:30					155	155	
0171	06/04/17	1	2	PG	37	Unk.	Unk.	07:48				65		65	
0177	06/04/17	4	1	CM	2	Unk.	Ad.	06:30				134		134	
0177	06/04/17	4	2	CM	1	Unk.	Ad.	07:01			74			74	
0177	06/04/17	4	3	CM	1	Unk.	Ad.	07:05			46			46	
0177	06/04/17	4	4	CM	3	Unk.	Ad.	07:13		3	155	30		188	
0177	06/04/17	4	5	CM	6	Unk.	Ad.	08:51			62			62	
0177	06/04/17	4	6	CM	1	Unk.	Ad.	08:53			165			165	
0177	06/04/17	4	7	CM	2	Unk.	Ad.	09:02			74			74	
0177	06/04/17	4	8	CM	4	Unk.	Ad.	09:10			183			183	
0186	09/05/17	4	1	CM	1	Unk.	Ad.	08:03		5	90			95	
0187	12/06/17	1	1	CM	1	Unk.	Ad.	19:30		95	30			125	
0189	12/06/17	2	1	CM	1	Unk.	Ad.	21:02		5	75			80	
0193	04/07/17	3	1	GI	1	F	Ad.	12:31				200	10	210	Adult female goshawk attacking one of four common buzzards in air together. Attacked four or five times before heading off strongly to the southeast.

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band (m)					Total Duration (Secs)	Notes
									VL	L	M	H	VH		
0193	04/07/17	3	2	CM	1	Unk.	Ad.	13:09			45	45		90	
0195	05/07/17	3	1	K.	3	F & Unk.	Imm. & Ad.	10:44			135	94		229	
0203	27/07/17	4	1	GI	1	M	Imm. & Ad.	12:40			65			65	Immature male goshawk.
0204	27/07/17	2	1	K.	1	F	Ad.	15:21		75	15			90	
0205	27/07/17	1	1	OP	1	Unk.	Unk.	16:49		35	120	35		190	Osprey over forestry, flew around site then drifted off.
0205	27/07/17	1	2	K.	1	M	Ad.	17:16				30	10	40	.
0214	16/08/17	4	1	GP	3	Unk.	Unk.	06:47	18	30				48	Three golden plover - fast flight past VP.

Table A3.3: Flight Activity Survey Details – Notable Non-flying Bird Records (May 2015 – July 2016)

Survey Ref	Date	Map No.	Unique ID	BTO Code	No. of Birds	Start Time	Details
0046	14/10/15	1	2	TO	1	18:50	Female tawny owl heard calling but not seen.
0050	21/10/15	~	~	GI	1	17:23	Goshawk heard calling to south of VP 3 but not seen.
0193	04/07/17	~	~	GI	1	12:25	Goshawk heard calling to southeast of VP at 12:25 but not seen. Calling intermittently after that. Suggested a territory/nest in this area or perhaps a young bird being provisioned nearby. Calls were all adult in nature with no begging calls heard.

APPENDIX 4: BREEDING BIRD SURVEY RESULTS

This appendix provides the survey details (i.e. dates, times, weather conditions) and results of the various breeding bird surveys undertaken at the proposed Clashindarroch II wind farm site between March 2015 and July 2016 (see Figure 8.7 for non-confidential mapped results). The results presented here are from the following surveys:

- Moorland and woodland breeding bird survey results (April to July 2016);
- Breeding raptor and owl survey results (April to July 2015, March to July 2016 and April to July 2017); and
- Black grouse survey results (April 2016 and May 2017).

Information on nest site locations etc. for those species listed on Schedule 1 to the Wildlife & Countryside Act 1981 (as amended) are reported in a separate Confidential Ornithological Annex.

Details of the various survey methodologies are provided in the main report (see Section 2). A complete list of all bird species recorded during all of the breeding bird surveys carried out from 2015 to 2017 is provided in Appendix 1.

Breeding Bird Survey Details

Moorland and Woodland Breeding Bird Survey 2016

Table A4.1 details the survey visits and weather conditions during the breeding bird surveys (woodland and moorland) carried out in 2016.

Table A4.1: Moorland and Woodland Breeding Bird Survey 2016 – Survey Timings and Weather Conditions

Date	Surveyor	Visit No.	Start Time	End Time	Wind Dir.	Cloud Base (m)	Cloud Cover (%)	Wind Sp.	Vis. (km)	Temp (°C)	Pptn. Type	Intensity	Duration
05/04/16	KM	1	16:00	17:30	W	>1000	90	2-3	>10	8	Rain	Light	Intermittent
06/04/16	KM	1	09:30	16:00	SW	>1000	100	2	>10	10	Rain	Light	Intermittent
07/04/16	KM	1	09:00	11:30	SW	>1000	100	1	>10	10	Rain	Light	Intermittent
16/05/16	SR	2	14:45	16:15	E-SE	500-1000	100	1	5-10	12	None	n/a	n/a
17/05/16	SR	2	09:45	16:30	SE	500-1000	80-100	1-2	5-10	10-12	None	n/a	n/a
20/06/16	KM	3	14:00	16:45	SW	>1000	60	2	>10	16	Rain	Light	Intermittent
21/06/16	KM	3	09:30	16:30	SW	>1000	70	1-2	>10	14	None	n/a	n/a
07/07/16	PB	4	08:00	17:00	SW	>1000	60	2	>10	17	None	n/a	n/a
08/07/16	PB	4	08:30	17:45	SW	>1000	50	1-2	>10	18	None	n/a	n/a

Summary of Breeding Bird Survey Results

A total of 19 species (excluding raptors and owls) showed evidence of breeding within the core survey area in 2016. The mapped results of the survey, for species of national conservation concern only, are shown on Figure 8.7, the full list of species recorded is provided in Table A4.3 below. Details of all birds recorded during these surveys including those species possibly breeding within the survey area in 2016 are provided in Appendix 1.

Table A4.2: Breeding Bird Registrations (April to July 2016)

Common Name	April	May	June	July
Red grouse		1	2	2
Woodpigeon	1			3
Great-spotted woodpecker	1			1
Jay			1	2
Goldcrest	31	17	30	27
Coal tit	24	11	16	15
Chiffchaff			1	
Willow warbler		14	18	12
Wren	24	5	36	28
Blackbird	3	2		3
Song thrush	1		2	2
Mistle thrush	1	2		1
Robin	30	38	22	19
Dunnock	5		2	3
Meadow pipit	9			8
Chaffinch	9	49	54	45
Bullfinch			2	3
Crossbill sp.	1	2	2	2

Common Name	April	May	June	July
Siskin	2	9	7	5

Breeding Raptor & Owl Surveys 2015-17

Table A4.4 details the survey visits and weather conditions during the breeding raptor and owl surveys carried out in 2015 followed by the key observations associated with these surveys in Table A4.5. Tables A4.6-A4.9 detail this information for similar surveys carried out in 2016 and 2017. Information on nest site locations etc. for those species listed on Schedule 1 to the Wildlife & Countryside Act 1981 (as amended) are reported in a separate Confidential Ornithological Annex.

Table A4.3: Breeding Raptor & Owl Survey 2015 – Survey Timings and Weather Conditions

Survey Ref	Surveyor	Date	Start Time	Finish Time	Wind Dir.	Cloud Base (m)	Cloud Cover (%)	Wind Sp. (BS)	Vis. (km)	Temp (°C)	Pptn. Type	Intensity	Duration	General Notes
0001	RTW	22/05/15	09:30	15:30	W	>1000	85	3	>10	12	None	n/a	n/a	Liased with surveyor GP on VP 2 to stay out of surveyor's viewshed.
0009	RTW	23/06/15	11:00	14:00	SW	>1000	70	1	>10	13	None	n/a	n/a	
0008	RTW	24/06/15	12:40	15:40	NW	500-1000	100	2	5-10	11	None	n/a	n/a	
0005	CB	20/07/15	12:00	18:00	NW	>1000	100	3	2-5	13	None	n/a	n/a	VP 43730 32875 (30 mins). No activity noted.
0007	RTW	20/07/15	12:00	18:00	NW	500-1000	100	3	2-5	13	Rain	Light	Intermittent	Suitable hen harrier breeding habitat marked on map.
0002	RTW	21/07/15	09:30	15:30	NW	>1000	60	4	>10	15	None	n/a	n/a	Goshawk and hen harrier suitable breeding habitat marked on map.

Survey Ref	Surveyor	Date	Start Time	Finish Time	Wind Dir.	Cloud Base (m)	Cloud Cover (%)	Wind Sp. (BS)	Vis. (km)	Temp (°C)	Pptn. Type	Intensity	Duration	General Notes
0003	CB	21/07/15	09:30	15:30	NW	>1000	60	4	>10	15	None	n/a	n/a	VP NJ43200 31802 (No observations)
0004	CB	22/07/15	09:30	14:30	W	>1000	75	~	>10	14	None	n/a	n/a	
0006	RTW	22/07/15	08:30	14:30	W	>1000	60	3	>10	15	None	n/a	n/a	Drumfergue Hill on map C was covered by surveyor CB from the south.
0012	RTW	19/08/15	12:00	18:00	SE	>1000	60	3	>10	10	None	n/a	n/a	No honey buzzard noted. Two buzzards and one kestrel.
0011	RTW	20/08/15	11:15	18:35	S	>1000	85	2	>10	12	None	n/a	n/a	Concentrated efforts on honey buzzard activity. None found.
0010	RTW	21/08/15	07:30	14:00	E	>1000	90	3	>10	11	Rain	Light	Intermittent	Sparrowhawk. Possibly female. Concentrated efforts on honey buzzard activity. None found.

Table A4.4: Breeding Raptor & Owl Survey 2015 – Observations

Survey Ref	Date	TN No.	Site ID	BTO Code	Grid Ref. (OS Code NJ)		Time	Age	Sex	No. Birds	Behaviour	Observation
					Easting	Northing						
0001	22/05/2015	1		BZ	43411	29958	10:05	Ad. & Juv.	not rec.	2	In flight.	Adult and juvenile buzzards in flight. 10:05 - 10:45.

Survey Ref	Date	TN No.	Site ID	BTO Code	Grid Ref. (OS Code NJ)		Time	Age	Sex	No. Birds	Behaviour	Observation
					Eastings	Northing						
0001	22/05/2015	2		K.	45196	32134	11:05	Ad.	M	1	In flight.	Adult male kestrel hunting. Adult buzzard hunting.
0001	22/05/2015	3		BZ	45058	32277	11:55	Unk.	M & F	4	In flight.	Two pairs of buzzards interacting. Defending territorial boundary.
0009	23/06/2015	1	GI2	GI	See confidential annex for further details.		11:57	Ad.	M	1	In flight. Aggressive / Call.	See confidential annex for further details.
0009	23/06/2015	2	LE1	LE	46557	36024	06:21	Ad.	Unk.	1	In flight. Rest / Roost.	Off map. Seen when flushed accidentally.
0008	24/06/2015	1	GI3	GI	See confidential annex for further details.		14:25	Unk.	Unk.	Unk.	~	See confidential annex for further details.
0008	24/06/2015	2	BZ2	BZ	45844	33894	not rec.	Ad. & Juv.	Unk.	2	In flight	Adult and recently fledged juvenile. Food calling. Staying in area.
0007	20/07/2015	1	BZ1	BZ	44409	35937	16:50	Imm	Unk.	3	Aggressive & Call.	Three birds. Just fledged. Young surrounding used nest. Calling.
0005	20/07/2015	NJ	SH1	SH	45146	32952	15:00	Ad.	F	1	Hunting. Feeding.	Female observed carrying prey to nest site. Juvenile calls heard.
0002	21/07/2015	1	K.1	K.	43374	28899	11:00	Ad. X 2. Imm x 2.	~	5	In flight. Rest & Roost. Aggressive & Call, Display & food pass.	Adults feeding young observed.
0003	21/07/2015	NJ		GI	45326	30296	10:00	Ad.	F	1	In flight. Other.	Female flight observations only. Also two juvenile buzzards in area.
0004	22/07/2015	NJ	GI1	GI	See confidential annex for further details.		14:00	Ad. & Juv. and ?	F	3	In flight. Aggressive & Call. Other.	See confidential annex for further details.

Table A4.5: Breeding Raptor & Owl Survey 2016 – Survey Timings and Weather Conditions

Ref.	Surveyor	Date	Start Time	Finish Time	Wind Dir.	Cloud Base (m)	Cloud Cover (%)	Wind Sp. (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Intensity	Duration	General / Constraints / Disturbance Notes
0017	PC	24/03/16	11:15	17:15	S-W	>1000	70	3	>10	5	Rain	Light	Intermittent	Rain only a feature in last hour and a half otherwise bright with sunny spells. Good raptor weather in theory but no Schedule 1 raptors observed.
0016	PC	24/03/16	18:20	20:35	NW	>1000	100	2	>10	3	None	n/a	n/a	See map 1 for listening point grid references. Playback used at all listening points.
0018	PC	25/03/16	08:30	14:30	S	>1000	50	3	>10	4	None	n/a	n/a	Started off cloudless, blue sky but slowly clouded over with mainly high level thin clouds. Set up vantage points overlooking two known Goshawk nests in the buffer. Close enough to hear calls but far enough away to avoid undue disturbance. Third vantage point set up to overlook area where two male Goshawk headed towards.
0019	PC	28/03/16	19:20	22:15	NW	>1000	40	2	>10	2	None	n/a	n/a	Playback used at all listening points.
0020	PC	29/03/16	10:00	11:00	W	500-1000	90	1	>10	2	None	n/a	n/a	VP / Listening point conducted at NJ 44200 32200 but no birds seen or heard.
0027	RJ	14/04/16	14:30	17:30	NW	>1000	60	2	>10	8	None	n/a	n/a	

Ref.	Surveyor	Date	Start Time	Finish Time	Wind Dir.	Cloud Base (m)	Cloud Cover (%)	Wind Sp. (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Intensity	Duration	General / Constraints / Disturbance Notes
0026	MW	19/04/16	21:30	00:30	n/a	>1000	10	0	>10	0	None	n/a	n/a	Owl survey.
0028	MW	20/04/16	08:00	11:50	NW	>1000	20	3	>10	14	None	n/a	n/a	
0029	MW	21/04/16	12:30	15:30	W	>1000	20	3	>10	8	None	n/a	n/a	Survey covered as much of the hill and forest to the north and west of Muckle Black Hill. Thick heather hillside has potential for hen harrier and possibly merlin but only a buzzard pair were observed briefly over the moorland.
0030	MW	21/04/16	17:30	20:30	W	>1000	60	2	>10	11	None	n/a	n/a	Searched this area fairly thoroughly as it had been indicated as a potential goshawk territory but no observations of the species were made, only buzzard and sparrowhawk.
0031	MW	27/04/16	13:15	16:15	NW	500-1000	100	3	5-10	4	Snow	Moderate	Intermittent	Only buzzards were observed during the survey.
0032	MW	04/05/16	13:20	19:20	S	>1000	50	3	>10	10	None	n/a	n/a	
0033	MW	11/05/16	07:30	11:30	NE	>1000	20	2	>10	10	None	n/a	n/a	
0034	MW	11/05/16	19:00	21:00	NE	>1000	5	1	>10	13	None	n/a	n/a	

Ref.	Surveyor	Date	Start Time	Finish Time	Wind Dir.	Cloud Base (m)	Cloud Cover (%)	Wind Sp. (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Intensity	Duration	General / Constraints / Disturbance Notes
0035	MW	12/05/16	11:50	17:50	n/a	>1000	20	0	>10	16	None	n/a	n/a	
0036	PC	23/05/16	09:00	12:00	NE	>1000	60	2	>10	9	None	n/a	n/a	No raptors seen. No nests were located.
0037	PC	24/05/16	09:30	15:30	N	>1000	100	2	>10	8	None	n/a	n/a	
0038	PC	25/05/16	08:00	11:00	N	>1000	100	2-3	>10	5	Rain	Light	Intermittent	No raptors observed.
0041	PC	09/06/16	12:15	15:15	NE	>1000	80	2	>10	18	None	n/a	n/a	Only raptors observed where a couple of hunting common buzzards. Goshawk nest from 2015 - definitely unoccupied.
0042	PC	10/06/16	13:10	16:10	SE	>1000	100	2	>10	8	None	n/a	n/a	
0043	MW	15/06/16	11:50	17:50	E	100-500	100	3	2-5	10	Rain	Moderate	Intermittent	
0044	MW	30/06/16	05:00	11:00	S	>1000	80	1	>10	13	None	n/a	n/a	
0045	PC	27/07/16	08:40	14:40	W	>1000	80	3	>10	13	None	n/a	n/a	No raptors observed.

Ref.	Surveyor	Date	Start Time	Finish Time	Wind Dir.	Cloud Base (m)	Cloud Cover (%)	Wind Sp. (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Intensity	Duration	General / Constraints / Disturbance Notes
0046	PC	28/07/16	06:00	15:15	SW	>1000	95	3-4	>10	12	Rain	Light	Intermittent	Single common buzzard the only raptor observed. It rained only in the last hour for c. 25% of the time.

Table A4.6: Breeding Raptor & Owl Survey 2016 – Summary of Observations

Survey Ref	Date	Site ID	TN No.	BTO Code	On Map (Y/N)	Map No. / Letter	Time	Grid Ref. (OS Code NJ)		Observation
								Easting	Northing	
0016	24/03/2016	TO1	1	TO	Y	~	~	45839	30354	Male heard calling. Placement on map is approximate. From listening point 2 NJ 45090 30224. Woodcock roding over this listening point.
0018	25/03/2016	GI1 (from 2015)	1	GI	Y	E	10:25	See confidential annex for further details.		See confidential annex for further details.
0018	25/03/2016	n/a	2	GI	Y	E	~			See notes for record 1.
0018	25/03/2016	GI1 (from 2015)	3	GI	Y	F	08:45	See confidential annex for further details.		See confidential annex for further details.
0018	25/03/2016	n/a	4	GI	Y	F	11:43			Low over trees and lost to view over side of Auchindinnie Hill.
0018	25/03/2016	n/a	5	GI	~	F	12:45	See confidential annex for further details.		See confidential annex for further details.
0018	25/03/2016	n/a	6	GI	~	~	13:50			Adult goshawk circling over Meikle Watchman.
0019	28/03/2016	TO2	10	TO	Y	E	20:06	44601	32632	Male heard calling. Approx. location on map.
0019	28/03/2016	n/a	11	TO	Y	E	20:20			Female begging call and 'kwick' call. Presumed breeding pair given proximity to male (male referred to male in record 10).
0027	14/04/2016	n/a	~	BZ	N	~	17:45	462	330	Pair in area. No sign of nest or breeding behaviour.

Survey Ref	Date	Site ID	TN No.	BTO Code	On Map (Y/N)	Map No. / Letter	Time	Grid Ref. (OS Code NJ)		Observation
								Easting	Northing	
0026	19/04/2016	TO3	1	TO	Y	~	22:05	45028	32121	Single bird heard calling.
0026	19/04/2016	TO4	2	TO	Y	~	22:20	45926	31218	Single bird heard calling.
0026	19/04/2016	TO5	3	TO	Y	~	23:04	44464	33649	Single bird heard calling.
0026	19/04/2016	TO6	4	TO	Y	~	00:20	45870	32641	Single bird heard calling.
0028	20/04/2016	n/a	~	BZ	Y	D	09:10	41625	32692	Two birds flying slowly and hovering occasionally from west to east.
0028	20/04/2016	n/a	~	BZ	Y	G	11:35	42200	31700	Single bird appeared over clearfell briefly.
0028	20/04/2016	n/a	~	SH	Y	G	11:45			
0029	21/04/2016	n/a	~	BZ	Y	1	13:06			Two buzzards circled briefly over moorland before disappearing over plantation to the west. Low height band.
0030	21/04/2016	n/a	~	BZ	Y	BZ	20:20			
0030	21/04/2016	n/a	~	SH	Y	SH	17:35			
0030	21/04/2016	n/a	~	BZ	Y	BZ	17:50			
0031	27/04/2016	n/a	1	BZ	Y	K	14:11			Pair of buzzard were observed at length, hunting in the area, disappearing for a time - when reappeared, marked as a separate flight (see below).
0031	27/04/2016	n/a	2	BZ	Y	J	14:25			Flight relates to the buzzard pair from the previous flight record. Total flight observation time was 20 minutes.
0031	27/04/2016	n/a	3	BZ	Y	K	15:40			A separate individual from the previous two flights appeared, flying briefly before disappearing below the canopy.
0032	04/05/2016	n/a	1	GI	Y	C	13:50	46236	33872	Female goshawk broke from trees at Corrylair farm - while on an Ad hoc VP. Headed towards Hill of Drumfergue.
0032	04/05/2016	GI3 (from 2015)	1	GI	Y	F	~	See confidential annex for further details.		See confidential annex for further details.
0032	04/05/2016	n/a	~	BZ	Y	E	14:35	46444	33394	Two common buzzards heading North from Ad hoc VP2.
0033	11/05/2016	n/a	1	HH	Y	D	07:40	42175	32826	One male hen harrier hunting over moorland.

Survey Ref	Date	Site ID	TN No.	BTO Code	On Map (Y/N)	Map No. / Letter	Time	Grid Ref. (OS Code NJ)		Observation
								Easting	Northing	
0034	11/05/2016	n/a	1	BZ	Y	F	19:35			Two common buzzard flying slow/hunting at medium height band.
0033	11/05/2016	n/a	2	BZ	Y	D	08:45			Single common buzzard seen - mapped.
0034	11/05/2016	n/a	2	BZ	Y	F	19:52			Single common buzzard seen. Possibly one from flight 1. Also flying at medium height band.
0035	12/05/2016	n/a	BZ1	BZ	Y	H	12:40	45500	31300	Single adult common buzzard flying at medium & high height band.
0035	12/05/2016	GI1 (from 2015)	GI1	GI	Y	F	13:22	See confidential annex for further details.		See confidential annex for further details.
0035	12/05/2016	GI1 (from 2015)	GI2	GI	Y	F	13:50	See confidential annex for further details.		See confidential annex for further details.
0035	12/05/2016	GI1 (from 2015)	Nest 1	GI	Y	F	14:40	See confidential annex for further details.		See confidential annex for further details.
0035	12/05/2016	GI1 (from 2015)	Nest 2	~	Y	F	15:05	See confidential annex for further details.		See confidential annex for further details.
0037	24/05/2016	HH1	1	HH	Y	D	15:10			Adult male hen harrier hunting.
0042	10/06/2016	HH1	1	HH	Y	D	14:12	See confidential annex for further details.		See confidential annex for further details.
0042	10/06/2016	HH1	2	HH	Y	G	14:34	See confidential annex for further details.		See confidential annex for further details.
0042	10/06/2016	n/a	3	K.	Y	G	14:34	See confidential annex for further details.		See confidential annex for further details.

Survey Ref	Date	Site ID	TN No.	BTO Code	On Map (Y/N)	Map No. / Letter	Time	Grid Ref. (OS Code NJ)		Observation
								Easting	Northing	
0042	10/06/16	HH1	4	HH	Y	G	15:11	See confidential annex for further details.		See confidential annex for further details.
0043	15/06/16	n/a	BZ1	BZ	Y	C	12:41	46600	34400	Single adult common buzzard male flew over farmland at low height band.
0043	15/06/16	n/a	GI1	GI	Y	E	16:36	45000	32800	Single adult goshawk male headed East at medium height band.
0044	30/06/16	n/a	~	BZ	Y	J	05:50	42800	29800	Single adult common buzzard flying into a wind farm at high height band.
0044	30/06/16	n/a	~	SH	Y	K	07:36	43400	28800	Adult sparrowhawk female headed South at low height band.
0044	30/06/16	n/a	~	BZ	Y	K	07:49	43600	29600	Single common buzzard adult headed East at medium low height band.
0044	30/06/16	n/a	~	BZ	Y	K	09:51	44800	28800	Single common buzzard adult flying at high height band.
0044	30/06/16	n/a	~	BZ	Y	H	10:08	44800	30600	Two common buzzard adults together heading North-West at high height band.

Table A4.7: Breeding Raptor & Owl Survey 2017 – Survey Timings and Weather Conditions

Ref.	Surveyor	Date	Start Time	Finish Time	Wind Dir.	Cloud Base (m)	Cloud Cover (%)	Wind Sp. (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Intensity	Duration	General / Constraints / Disturbance Notes
0047	AJM	26/04/17	06:30	18:45	W	>1000	80	2	>10	4	None	n/a	n/a	No raptors, but single golden plover and common gull observed.
0049	PC	26/05/17	06:00	13:50	SE	>1000	30	2-3	>10	22	None	n/a	n/a	No raptors observed.

Ref.	Surveyor	Date	Start Time	Finish Time	Wind Dir.	Cloud Base (m)	Cloud Cover (%)	Wind Sp. (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Intensity	Duration	General / Constraints / Disturbance Notes
0050	AJM	04/07/17	06:35	17:20	SE	500-1000	95	2	>10	13	Rain	Light	Intermittent	A few short drizzly showers (<10% rain). Common buzzard, common kestrel and sparrowhawk seen. Brief foray off site to look for hen harrier in last year's location but no sign. A lot of fence lines walked looking for merlin posts - no sign of merlin.
0051	AJM	17/07/17	03:40	23:00	W	>1000	10	3	>10	16	None	n/a	n/a	Common buzzard seen. Late survey concentrating on eared owls on moor/trees.
0052	AJM	18/07/17	04:10	13:05	E	>1000	5	3	>10	17	None	n/a	n/a	Common kestrel and common buzzard seen.

Table A4.8: Breeding Raptor & Owl Survey 2017 – Summary of Observations

Survey Ref	Date	Site ID	TN No.	BTO Code	On Map (Y/N)	Map No. / Letter	Time	Grid Ref. (OS Code NJ)		Observation
								Easting	Northing	
0050	04/07/2017	D	1	K.	Y	D	12:37	441037	231906	Adult female common kestrel hunting.
0052	18/07/2017	B	K.	K.	Y	B	09:53	443516	234261	Juvenile common kestrel out hunting. Mostly medium height but down to low at times.

Black Grouse Survey 2016-17

A black grouse reconnaissance survey was carried out in 2016 covering all potentially suitable habitat within the black grouse survey area (see Figure 1). Tables A4.10 and A4.11 detail the survey visits and weather conditions along with any notes associated with these surveys. Details of survey methodologies are provided in the main report (see Section 2).

Table A4.9: Black Grouse Reconnaissance Survey 2016 – Survey Timings, Weather Conditions and Notes

Survey Ref. No.	Date	Surveyor	Start Time	End Time	Visit No.	No of Maps	No of Forms	Wind Dir.	Cloud Base	Cloud Cv.	Wind Speed	Vis. (km)	Temp. (°C)	Pptn. Type
0023	14/04/16	RJ	05:00	08:00	1	1	1	N	500-1000	60	2	>10	2	None
	Survey Notes/Observations: Weather conditions ideal but no BK recorded. Listening points / VP: NJ 46691 34312; NJ 42575 33431; NJ 43911 34829; NJ 41837 32783. Habitat appears suitable in places i.e. moorland edging onto woodland / farmland but no leks located in north of site. Access restricted south of Clashindarroch wind farm.													
0024	21/04/16	MW	05:10	08:10	2	2	1	n/a	>1000	40	0	>10	2	None
	Survey Notes/Observations: No BK were heard or observed during the survey despite excellent conditions, leading me to believe there probably aren't any in the areas covered.													
0025	22/04/16	MW	05:30	08:30	3	2	1	n/a	>1000	0	0	>10	-1	None
	Survey Notes/Observations: Areas covered had potential for BK but despite excellent conditions none were seen or heard.													

Table A4.10: Black Grouse Lek Survey 2017 – Survey Timings, Weather Conditions and Notes

Survey Ref. No.	Date	Surveyor	Start Time	End Time	Visit No.	No of Maps	No of Forms	Wind Dir.	Cloud Base	Cloud Cv.	Wind Speed	Vis. (km)	Temp. (°C)	Pptn. Type
0048	09/05/17	AJM	05:10	08:10	1	2	1	NE	>1000	80	1	>10	6	None
	Survey Notes/Observations: Two black grouse lekking. Listening points at NJ 41495 31493; NJ 41400 31640; NJ 41151 32088; NJ 41531 32603; NJ 41840 32812; NJ 414999 33089; NJ 42531 33431.													

APPENDIX 5: Ad Hoc Records

Table A5.1 below provides observations of notable bird species recorded during other surveys (e.g. habitat or protected species surveys).

Table A5.1: Ad Hoc Records 2015-17

Date	Easting	Northing	Notes
15/07/15			Brief and very distant view of possible honey buzzard in flight, along route of the Dryburn (flying east to west), lost to view behind "The Lumps", in mid height band for 15 secs.
16/07/15	3432	8317	Adult osprey perched on dead branch on conifer next to main wind farm access track, watched for a couple of minutes before it took off and flew NE out of view.
08/07/16	344532	832626	Pair of crossbills in flight.
20/10/16	344806	830780	Adult woodcock roosting at edge of track.
20/10/16	343324	830406	Pair of bullfinches in flight
20/10/16	344175	830707	Flock of four crossbills in flight.
10/08/17	~	~	Adult osprey at low and medium heights, moving southeast through wind farm relatively slowly.
11/06/19	344102	833119	Male woodcock roding display flight in vicinity of the derelict cottage at Corrydown, heard during bat roost survey.

