2018

Shepherd's Rig Wind Farm

Appendix 10.1 - Technical Report on Ornithological Surveys 2012/13 and 2017/18

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SHEPHERD'S RIG WIND FARM

ORNITHOLOGY REPORT 2012/13 AND 2017/18

Introduction

1. This report details the results of ornithological survey work undertaken by Natural Research (Projects) Ltd (NRP) on and around the site of the proposed Shepherd's Rig Wind Farm ("the Proposed Development") during the period October 2012 to August 2013 and April 2017 to March 2018.

2. The objectives of the study were to:

    - Map the distributions of breeding birds, including scarce species listed in Annex 1 of the EU Birds Directive (2009/147/EC) on the Conservation of Wild Birds (the Birds Directive) or Schedule 1 of the Wildlife and Countryside Act 1981 (WCA).

    - Quantify the level of bird flight activity by breeding, wintering and foraging birds of potential conservation importance.

    - Record the presence and abundance of other birds of conservation importance (those listed in Biodiversity Action Plans (BAP), on the Red List of Birds of Conservation Concern (BoCC) (Eaton *et al*. 2015) or the IUCN Red list of Threatened Species (IUCN 2017)) throughout the survey period.

Consultations

3. Ornithological information for the area was requested in 2013 from Scottish Natural Heritage (SNH)[1], the Royal Society for the Protection of Birds (RSPB)[2] and the Dumfries and Galloway Raptor Study Group (D&GRSG)[3].

4. SNH replied that they held no bird data for the proposed survey area[4]. RSPB recommended that NRP contact the Dumfries and Galloway Environmental Resources Centre (DGERC), and this was subsequently done[5].

[1] Email from NRP to SNH – 20/05 /2013
[2] Emails from NRP to RSPB – 12/07/ 2013
[3] Emails from NRP to D&GRSG – 19/07/2013, 31/10/2013 and 09/01/2014
[4] Email from SNH to NRP - 05/06/2013
[5] Request sent to DGERC from NRP 24/05/2013

5. DGERC replied[6] with excel spreadsheets holding bird data, as requested. Only two records of potential interest were provided; one record of a black grouse in 2001 and one record of a short-eared owl in the same year. No details of status or date of observation was provided for either record.

6. Data from D&GRSG was provided on 9 January 2014. Confidential data on a peregrine nest site between 2003 and 2013 was provided. The pair has three alternative nest crags, within 3 km of Proposed Development, which are used. However, for seven of the 11 years for which data were provided, the sites were not occupied. Within the last five years, the site has only been occupied once and no eggs were laid. No evidence of occupation was found in 2013

7. Prior to the commencement of surveys, Infinergy had contacted SNH to ask advice on the need to conduct migration watch surveys for wildfowl. SNH replied to Infinergy[7] that, given the low numbers of birds likely to be involved, migration period watches would **not** be required.

Field Survey Methods

8. The baseline surveys detailed here commenced in October 2012 and continued until end of August 2013 (providing Year 1 of data). The second round of surveys commenced in April 2017 and finished at the end of March 2018 (providing Year 2 of data).

9. The Study Area was defined with reference to the Proposed Development and encompasses a series of buffers of up to 2 km radius; with buffer size dependent on the sensitivity of key species to potential effects associated with wind farm development (Figures 1a and 1b). The various survey areas, which make up the Study Area, are defined as follows:

    - 'site area' refers to the area enclosed by the Proposed Development;
    - 'breeding bird survey area', 'winter walkover survey area', 'core survey area' or 'flight activity survey area' refers to the site area plus an additional 500 m wide strip around the site area;
    - 'black grouse survey area' refers to the site area plus an additional 1.5 km wide strip;
    - 'barn owl survey area' refers to the site area plus an additional 1.0 km wide strip; and
    - 'raptor survey area' refers to the site area plus an additional 2 km wide strip depending on the focal species and presence of contiguous suitable habitat outside of the core survey area.

[6] Email and data from DGERC to NRP 20/06/2013
[7] Email from SNH to Infinergy 13/09/2012

10. In 2012/13 the field surveyors were Ged Connelly (GC), Kevin Connelly (KC), Malcolm Henderson (MH), Jon Clarke (JAC) and Bob Stakim (RAS). In 2017/18 the field surveyors were John Halliday (JH), Duncan Cameron (DJC), Bob Stakim (RAS) and Blair Urquhart (BU). All field surveyors received extensive training prior to and during survey work.

Flight activity survey

11. Information on bird flight activity was collected during timed watches from strategic Vantage Points (VPs) using the methods described by Band *et al.* (2007). VPs were selected through a mix of GIS analysis and field trials, with the aim of maximising ground visibility within the site using the minimum number of points. Due to changes in the turbine layout vantage point locations were slightly revised in 2017/18 to provide better coverage of the proposed turbine locations and associated buffer. Viewsheds from each VP are derived using a 20 m vertical cut-off (Figures 2a and 2b).

12. Observers at VPs positioned themselves to minimise their effects on bird behaviour. A viewing arc not exceeding 180 degrees was scanned. Watches were undertaken during daylight hours by a single observer in a wide range of weather conditions, mainly in conditions of good ground visibility (> 2km).

13. Observations were stratified across three daylight periods (termed 'early', 'middle' and 'late') to allow for diurnal variation in flight activity rates (Appendix 1). The timing of watches within each period was adjusted each month in accordance with sunrise and sunset time.

14. Between October 2012 and August 2013, a minimum of 75 hours of Vantage Point watches were undertaken from each VP, totalling 302.75 hours of observation (Table 1; Appendix 2). Between April 2017 and March 2018, a minimum of 72 hours of Vantage Point watches were undertaken from each VP, totalling 291.75 hours of observation (Table 2; Appendix 2).

15. During each watch, hierarchical recording methods were used, as follows:

    - Focal bird sampling - timed. The viewing arc was scanned constantly until a *Target A Species*[8] was detected in flight. Once detected, the bird was followed until it ceased flying or was lost to view. The time the bird was initially detected and the time it spent flying (to the nearest second) were recorded. The route followed by the bird was plotted in the field onto an enlarged 1:25,000 scale map, with the direction of flight indicated. The bird's flying elevation

[8] Target species were drawn from those listed in Annex 1 of the Birds Directive and Schedule 1 of the WCA. Other species considered important in a regional or local context may also be included. These are listed in Appendix 3.

above the ground was estimated at the point of detection and at 15 second intervals thereafter, using a countdown timer with an audible alarm. Flying elevation was classified as <10 m, 10-30 m, 30-50 m, 50-100 m, 100-150m or >150 m.

In some circumstances, instead of mapping a flight line, a 'flight area' denoting the area in which a bout of flight activity occurred was plotted on the field map. Recording the spatial extent of a flight bout with a flight area was preferable in circumstance where;

- simultaneous flight activity by a number of birds was observed;
- an individual flight bout is observed over a long period of time;
- an individual flight bout is too complicated, i.e. a display flight, or
- any combination of the above.

- Focal bird sampling – untimed. The same scanning procedure as described above was used. However flights of *Target B Species* were not timed, instead the flight path was mapped and flying elevation was recorded at the start and when it changed during the recorded bout. Where a flock was observed a central flight line representative of the route was estimated.

- Activity summaries. At the end of each 5-min period, flight activity within the survey area by species of lesser conservation importance (*Secondary Species)* was summarised. Each VP watch was sub-divided into 5-minute periods and at the end of each 5-minute period the total number of individuals of each secondary target species seen flying in the study area was recorded. The height, direction and number of individuals involved in notable bird movements were recorded.

16. Data were entered in the field onto recording sheets and later transferred to Excel spreadsheets. Maps of flight activity by *Target Species* were compiled for each watch. Each flying bout was numbered consecutively and cross-referenced to the relevant flight-path on the map.

Scarce breeding birds

17. Priority was given to detecting the species considered most likely to occur: red kite (*Milvus milvus*), hen harrier (*Circus cyaneus*), goshawk (*Accipiter gentilis*), osprey (*Pandion haliaetus*), merlin (*Falco columbarius*), peregrine (*Falco peregrinus*), short-eared owl (*Asio flammeus*) and barn owl (*Tyto alba*).

18. Surveys for red kite, hen harrier, osprey, merlin, peregrine and short-eared owl focused on areas or sites suitable for nesting and foraging within the 2 km buffer of the Proposed Development; for goshawk and barn owl, searches were within the 1 km survey buffer (Figures 1a and 1b). Surveyors conducted 67 separate searches or watches during 2013 and 2017, totalling over 154 hours, to search for scarce breeding species (Tables 3 and 4). These visits complemented search effort accrued during the course of VP watches. Methods used for individual species are summarised below;

    - Red kite. Survey methods based on Hardey *et al.* (2013) were followed. Surveyors watched for displaying birds and listened for calling birds early in the season. Areas were searched for evidence of red kite occupation (such as birds carrying nest material or food, moulted feathers and nests).

    - Hen harrier. Survey methods based on Hardey *et al.* (2013) were followed. Emphasis was given to searching habitats considered potentially suitable for nesting, in this case limited to areas of heath/bog with stands > 0.4m tall and areas of re-stock plantation

    - Goshawk. Survey methods devised by Dr M. Marquiss (NRP, unpublished) and provided previously by him in two training days to NRP surveyors, were followed. These methods consisted of observing potential nesting habitat (woods > 3 ha with numerous large and well-spaced mature trees, providing good canopy cover). Observers listened for calling birds and watched for display flights. Areas were also searched for evidence of goshawk occupation (such as faeces, prey remains, moulted feathers and nests). Particular emphasis was given to the following habitat types: stream sides, where tree growth is faster and whorls of branches are further apart.

    - Osprey. Survey methods based on Hardey *et al.* (2013) were followed. Surveyors watched for displaying birds and listened for calling birds early in the season. Areas were searched for evidence of osprey occupation (such as birds carrying nest material or food, moulted feathers and nests).

    - Merlin. Survey methods given in Hardey *et al*. (2013) were followed. Within suitable habitats, old crow nests (which could be re-used by merlin), fence-posts, hummocks, bushes and trees were checked for signs of occupation (e.g. plucked prey, moulted feathers, pellets and faeces). Emphasis was given to heath bog habitats with stands of heather >0.4m tall and edges of closed canopy forestry plantations.

- Peregrine. Survey methods based on Hardey *et al*. (2013) were followed. Potential and known nest sites were searched for in spring to look for the evidence of occupancy (presence of birds, faeces, fresh prey remains).

- Short-eared owl. Survey methods based on Hardey *et al*. (2013) were followed. Suitable habitat was checked during April and May for evidence of hunting males, territorial activity and other signs of presence.

- Barn Owl. Survey methods based on Hardey *et al*. (2013) were followed. Systematic searches for potential nest and roost sites were undertaken in summer. Emphasis was placed on searching for birds, nests, pellets, feathers and faecal splash in potentially suitable buildings within 1 km of the Proposed Development.

Moorland breeding birds

19. Moorland breeding bird territories were surveyed in 2013 and 2017, within the 500 m survey boundary (Figures 1a and 1b). The Brown & Shepherd (1993) method for upland waders was modified to also provide reliable estimates for some breeding moorland passerines by undertaking some surveys during the first few hours of daylight. All bird species listed in Appendix 3 were recorded with the addition of skylark (*Alauda arvensis*) (but see recording method for skylark below).

20. The surveys were conducted four times in the breeding season of 2013 to allow for differences in detection rates between early and late breeding species. Surveys took place on 23 and 27 April (Visit 1); 04 and 15 May (Visit 2); 21 and 27 May (Visit 3) and 03 June (Visit 4). In the breeding season of 2017, surveys took place on 20 April and 11 May (Visit 1); 23 and 25 May (Visit 2); 07 June (Visit 3); and 26 June and 07 July (Visit 4). Fieldwork was not undertaken in conditions considered likely to affect bird detection, for example strong winds (greater than Beaufort Scale Force 4), persistent precipitation, poor visibility (less than 300 m), or in unusually hot or cold temperatures (Table 5).

21. The survey aimed to cover the ground systematically with a constant search effort. All suitable ground within the 500 m survey boundary was approached closely, typically to within 100 m. Water bodies and isolated trees were examined carefully. Ditches and streams were followed. Surveyors paused at regular intervals to scan and listen for calling and singing birds.

22. Careful attention was given to recording behaviour indicative of breeding and care was taken to avoid counting the same individual more than once. Where necessary, surveyors retraced their steps in order to check the continued presence of previously recorded birds.

23. The location and activity of birds were mapped onto enlarged 1:25,000 scale OS maps using standard BTO codes (Marchant, 1983). The position of each bird was mapped at the point it was first detected. The flight lines of birds seen flying over were recorded.

Winter walked transects

24. Walk-over surveys were undertaken between October 2012 and March 2013. These were designed to complement surveys of breeding birds undertaken during the spring and summer (see above), and occurred within the 500 m buffer (Figure 1a).

25. Walk routes meandered to closely examine as much ground as practical, in particular features of potential ornithological importance such as woodland edges, rocky outcrops, mires and streams. Where practicable, observers used a different route on each visit to maximise the eventual spatial coverage of the proposed Development. Observers frequently paused to scan for birds.

26. Twenty walked transects, totalling 24.25 hours, were undertaken. A range of meteorological conditions were sampled, although wind speeds above Beaufort F5 were avoided to improve aural detection of species (Table 6).

27. The walked transects were effectively mobile VP watches. The procedure employed was as follows:

    - For *Target Species* the time each individual was first detected was recorded along with details of age, sex and behaviour. These details were cross-referenced to a 1:25,000 scale map where the location and flight route (if applicable) were plotted.
    - For all other species, the number of individuals was recorded and locations they were first detected were plotted on the map.

Black grouse

28. Searches for black grouse (*Tetrao tetrix*) were undertaken within suitable habitat in the 1.5 km survey buffer (Figures 1a and 1b) during the peak period for display activity (lekking) by males between April and May 2013 and 2017. The methods employed were based on those described in Gilbert et al. (1998). Surveys were undertaken during the early morning or late evening in calm, dry weather with good visibility. Observers listened and scanned the areas considered suitable for lekking. In total, 10 hours was spent searching for black grouse in 2013 and 23 hours in 2017 (Table 7).

Field Survey Results

Wildfowl

Occurrence and status

29. Two species of conservation concern were recorded during the survey period; **whooper swan** (*Cygnus cygnus*) and **barnacle goose** (*Branta leucopsis*). Other wildfowl species recorded are of lesser conservation concern, and included pink-footed goose (*Anser brachyrynchus*), greylag goose (*A. anser*) and goosander (*Mergus merganser*) (Figures 3 and 5; Tables 11, 13, 14 and 15).

30. Two flights involving a total of 12 **whooper swans** (Annex 1 and Schedule 1) were recorded during November 2012. One flight involved two birds on 21 November and a second flight involving 10 birds was observed on the 27 November (Figure 3; Table 13).

31. A single skein of 160 **barnacle geese** (Annex 1) was recorded on 09 October 2017 (Figure 3; Table 13).

32. Two flights by pink-footed geese, totalling 40 birds, were recorded. The first skein, involving 5 birds, was seen on 18 December 2017. The second skein involved 35 birds and was seen on 22 January 2018 (Figure 3; Table 13).

33. In total, eighteen records of greylag geese were made during the survey period involving a total of 69 birds. Of these records, twelve flights by a pair of greylag geese were observed; and a flight by 25 individuals was seen over the site on 26 April 2017 (Figures 3 and 5; Tables 12, 13 and 15).

34. Two flights by goosander were recorded during the course of walked transects on 02 November 2012 and 18 December 2012 (Table 11).

Flight activity from VPs

35. Two flights by **whooper swan** were recorded, involving 12 individuals. A total duration of 1,074 seconds of flight activity was observed (Figure 3; Table 13).

36. A single flight by 160 **barnacle geese** was recorded. The total duration of the flight was between 50-100 m in height (Figure 3; Table 13).

37. Two flights by pink-footed geese were recorded, involving 40 individuals. Flight height varied between 50 m to greater than 150 m (Figure 3; Table 13)

38. Sixteen flights by greylag geese were observed, involving a total of 62 individuals. Flight heights varied between less than 10 m to 100 m in height (Figure 3; Table 13).

39. A flight of 13 “grey” geese recorded in December 2012 was recorded at heights between 100 m to greater than 150 m (Figure 3; Table 13).

Flight activity within 500 m buffer

40. Two flights by **whooper swan** were recorded within 500 m of the Proposed Development. A total duration of 536 seconds of flight activity was recorded, of which 473 seconds was spent at collision risk height, i.e. between 30 and 150 m (Table 14).

Scarce raptors and owls

Occurrence and status

41. Seven species of scarce raptor were recorded during surveys: **peregrine**, **goshawk**, **red kite**, **hen harrier**, **osprey**, **merlin** and **hobby** (*Falco subbuteo*). One scarce owl species was recorded: **barn owl**. Other raptor species of lesser conservation concern were also recorded, including buzzard (*Buteo buteo*), common kestrel (*Falco tinnunculus*) and sparrowhawk (*Accipiter nisus*) (Confidential Figure 1; Figures 4 and 5; Tables 8, 9, 10, 11, 12, 13, 14, 15 and 16).

42. **Peregrine** (Annex 1 and Schedule 1) were recorded twice during the survey period. An immature bird was seen on 21 January 2013and a male was seen hunting on 20 April 2017 (Figure 5; Tables 10 and 16).

43. **Goshawk** (Schedule 1) was recorded on fifteen occasions but more regularly in 2017/18. No evidence of breeding by goshawk was obtained during baseline surveys, despite extensive searches in potential breeding habitat (Figures 4 and 5; Tables 12, 13, 14, 15 and 16).

44. **Red kite** (Annex 1 and Schedule 1, IUCN near threatened) was observed to varying frequencies during the surveys with the majority of observations made during the 2017 breeding season. There was no evidence of breeding in 2013 despite searches in potential breeding habitat. Two active nest sites were located in 2017; one located within 2 km of the Proposed Development. (Confidential Figure 1; Figures 4 and 5; Tables 8, 10, 13, 14, 15 and 16).

45. **Hen harrier** (Annex 1 and Schedule 1) was observed occasionally during the survey period with the majority of observations made during the 2017 breeding season. There was no evidence of breeding in 2013 or 2017 despite searches in potential breeding habitat within 2 km of the Proposed Development. During August 2017, a winter roost site was found; however the roost site was only occasionally used by a single male and wasn’t used after October 2017 (Confidential Figure 1; Figures 4 and 5; Tables 13, 14, 15 and 16).

46. **Osprey** (Annex 1 and Schedule 1) was recorded frequently during the breeding season in 2013 and 2017. Evidence of a breeding attempt by osprey was recorded in 2013; however, despite searches, no nest location was found. No evidence of breeding by osprey was obtained during 2017, despite searches in potential breeding habitat within 2 km of the Proposed Development (Figures 4 and 5; Tables 8, 9, 13, 14, 15 and 16).

47. **Merlin** (Annex 1 and Schedule 1) was recorded on two occasions during baseline surveys in April 2013. No evidence of breeding by merlin was obtained despite searches in potential breeding habitat within 2 km of the Proposed Development (Figures 4 and 5; Tables 10, 13, 14 and 15).

48. **Hobby** (Schedule 1) was recorded once on the 03 July 2017. Hobby are rare summer visitors to Dumfries and Galloway and this single record was presumed to be a wandering individual (Figure 4; Tables 13 and 15).

49. No active **barn owl** (Schedule 1) breeding sites were identified within 1 km of the Proposed Development; however several old roost sites were located and a recently used barn owl box were identified at distances greater than 1 km from the Proposed Development. A pair was flushed from a nest box site on 19 July 2017 (Confidential Figure 1; Tables 8 and 9).

Flight activity from VPs

50. Thirteen flights by **goshawk** were recorded during VP watches. A total duration of 1,296 seconds of flight activity was observed, the majority of which, 832 seconds, was recorded during the breeding season (Figure 4; Table 13).

51. Thirty-nine flights by **red kite** were recorded during VP watches. A total duration of 6,921 seconds of flight activity was observed. The majority of these observations were made during the breeding season with approximately three times as many flights being recorded compared to the non-breeding season (Figure 4; Table 13).

52. Five flights by **hen harrier** were recorded during VP watches. A total duration of 685 seconds of flight activity was observed, the majority of which, 561 seconds, was seen during the non-breeding season (Figure 4; Table 13).

53. Fourteen flights by **osprey** were recorded during VP watches. A total duration of 1,734 seconds of flight activity was observed, all of which was seen during breeding season (Figure 4; Table 13).

54. One flight by **merlin** was recorded during VP watches with a total duration of 44 seconds (Figure 4; Table 13).

55. One flight by **hobby** was recorded during VP watches with a total duration of 43 seconds (Figure 4; Table 13).

Flight activity within 500 m buffer

56. Ten flights by **goshawk** were recorded within 500 m of the Proposed Development. A total duration of 807 seconds of flight activity was recorded, of which 277 seconds was spent at collision risk height (Table 14).

57. Eleven flights by **red kite** were recorded within 500 m of the Proposed Development. A total duration of 1,199 seconds of flight activity was recorded, of which 768 seconds was spent at collision risk height (Table 14).

58. Four flights by **hen harrier** were recorded within 500 m of the Proposed Development. A total duration of 271 seconds of flight activity was recorded, of which 41 seconds was spent at collision risk height (Table 14).

59. Six flights by **osprey** were recorded within 500 m of the Proposed Development. A total duration of 452 seconds of flight activity was recorded, of which 303 seconds was spent at collision risk height (Table 14).

60. One flight by **merlin** was recorded within 500 m of the Proposed Development. A total duration of 29 seconds of flight activity was recorded, all of which was spent at collision risk height (Table 14).

Black grouse

Occurrence and status

61. There was no evidence of lekking **black grouse** (Red list) within the site or survey area (i.e. within 1.5 km of the Proposed Development) in 2013 or 2017.

62. Two lekking males were observed in 2013, at a distance greater than 1.5 km to the east of the Proposed Development, near Round Craigs (Figure 6; Table 12).

63. In 2017, two separate individual males were seen displaying at distances greater than 1.5 km to the east and to the north of the Proposed Development (Figure 6; Table 12).

64. Two observations of black grouse were made within 1.5 km of the Proposed Development. One male was seen feeding at the edge of woodland on 19 April 2017 and another was flushed on 03 November 2017 (Figure 6; Tables 12 and 16).

Flight activity from VPs

65. No flights by **black grouse** were recorded.

Waders

Occurrence and status

66. Two species of wader of conservation concern were recorded during baseline surveys; **curlew** (*Numenius arquata*) and **woodcock** (*Scolopax rusticola*). Species of lesser conservation concern that were recorded included; common sandpiper (*Actitis hypoleucos*) and oystercatcher (*Haematopus ostralegus*) (Tables 8 and 11).

67. Two **curlew** (Red list, IUCN near threatened) were recorded feeding on 25 May 2017 on the rough pasture at Culmark Moss (Table 8), but no breeding was found as either confirmed or potential during the surveys.

68. Two **woodcock** (Red list) were flushed during the course of walked transects on 24 October 2012 and 16 January 2013 (Table 11), but no breeding was found as either confirmed or potential during the surveys.

Flight activity from VPs

69. No flights by waders were recorded.

Other moorland birds

70. No breeding species of conservation concern were recorded in the 500 m buffer of the Proposed Development during moorland breeding bird surveys in 2013 and 2017 (Table 10).

Other species

71. Other species recorded during flight activity surveys included buzzard, raven (*Corvus corax*), common kestrel, cuckoo (*Cuculus canorus*), sparrowhawk and grey heron (*Ardea cinerea*). All these species are common and distributed throughout Scotland (Table 14).

Conclusion

72. The ornithological surveys were undertaken as planned with no significant problems were encountered. A total of over 855 hours of survey effort was achieved, which included 594.5 hours observation from Vantage Points overlooking the Proposed Development.

73. The preliminary examination of the survey results presented above shows that the proposed Shepherd's Rig Wind Farm site and its immediate environs are used by red kite, osprey, goshawk

and hen harrier, all species of high Nature Conservation Importance. However, the frequency of occurrence of red kite, osprey, goshawk and hen harrier during the two years of survey was low, i.e. an encounter rate of less than 1 % (Table 15).

74. Through design, the flight activity survey data collected are suitable as input data for collision risk modelling (CRM) (Band *et al.*, 2007).

75. Considering the location of the Proposed Development and the sensitivity of target species to wind farm development it is vital to provide a representative sample of bird occupancy of the site area accounting for inter-annual variation in occupancy to allow an objective and robust assessment of potential impacts on important bird populations to be made. On the basis of the survey work undertaken it is our opinion such an assessment is possible.

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Tables

Table 1. Details of Vantage Point watches 2012-2013. Data are in hours.

VP No.	Daylight Period	2012 / 2013						2013					Total
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
1	E	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5		3.0	1.5	14.0
	M	5.0	4.0	3.5	4.0	4.0	5.0	4.5	4.0	5.0	5.0	4.5	48.5
	L	1.0	1.0	1.0	1.0	1.0		1.5	1.5	1.5	1.5	1.5	12.5
Total		**7.0**	**6.0**	**5.5**	**6**.0	**6**.0	**6.5**	**7.5**	**7**.0	**6.5**	**9.5**	**7.5**	**75.0**
2	E	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	14.0
	M	6.0	4.5	4.0	4.0	4.0	3.0	4.5	4.5	5.0	5.0	4.5	49.0
	L	1.0	1.0	1.0	1.0	1.0		1.5	1.5		3.0	1.5	12.5
Total		**8**.0	**6.5**	**6**.0	**6**.0	**6**.0	**4.5**	**7.5**	**7.5**	**6.5**	**9.5**	**7.5**	**75.5**
3	E	1.0	1.0	1.0	1.0	1.0		1.5	1.5	1.5	1.5	1.5	12.5
	M	7.0	4.5	3.75	4.0	4.0	3.0	3.0	5.0	6.5	5.0	4.5	50.25
	L	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	14.0
Total		**9**.0	**6.5**	**5.75**	**6**.0	**6**.0	**4.5**	**6**.0	**8**.0	**9.5**	**8**.0	**7.5**	**76.75**
4	E	-	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	13.0
	M	-	5.5	4.5	4.0	4.0	9.0	4.5	5.0	5.0	5.0	4.5	51.0
	L	-	1.0	1.0	1.0	1.0		1.5	1.5	1.5	1.5	1.5	11.5
Total		**0**.0	**7.5**	**6.5**	**6**.0	**6**.0	**10.5**	**7.5**	**8**.0	**8**.0	**8**.0	**7.5**	**75.5**
Grand total													**302.75**

Table 2. Details of Vantage Point watches 2017-2018. Data are hours.

VP No.	Daylight Period	2017					2017 / 2018							Total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
2	E	1.5	3.5	-	-	1.5	-	1.0	-	-	1.0	-	1.5	10.0
	M	1.5	8.0	6.5	4.5	4.5	4.67	5.0	6.0	3.0	3.0	7.0	1.5	55.17
	L	-	1.5	1.5	1.5		1.5	-	-	1.0	-	1.0	-	8.0
Total		**3**.0	**13**.0	**8**.0	**6**.0	**6**.0	**6.17**	**6**.0	**6**.0	**4**.0	**4**.0	**8**.0	**3**.0	**73.17**
3	E	-	1.5	1.5	-	1.5	-	1.0	1.0		1.0	-	-	7.5
	M	5.0	6.5	5.0	4.5	4.5	4.5	5.0	4.0	3.0	3.0	4.0	4.5	53.5
	L	1.5	1.5	1.5	1.5	-	1.5		1.0	1.0	-	1.0	1.5	12.0
Total		**6.5**	**9.5**	**8**.0	**6**.0	**6**.0	**6**.0	**6**.0	**6**.0	**4**.0	**4**.0	**5**.0	**6**.0	**73**.0
4	E	-	1.5	1.5	-	-	1.5	-	-	1.0	-	1.0		6.5
	M	5.0	6.0	6.5	6.0	4.5	4.5	5.0	4.0	3.0	3.5	4.0	4.5	56.5
	L	-	3.0	-	-	1.5	-	1.0	1.0	-	1.0	-	1.5	9.0
Total		**5**.0	**10.5**	**8**.0	**6**.0	**6**.0	**6**.0	**6**.0	**5**.0	**4**.0	**4.5**	**5**.0	**6**.0	**72**.0
6	E	1.5	1.5	1.5	1.5		1.5	-	-	1.0	-	1.0	-	9.5
	M	5.0	6.08	5.0	4.5	4.5	4.5	5.5	4.0	3.0	3.5	4.0	4.5	54.08
	L	1.5	1.5	1.5	-	1.5	-	0.5	1.0	-	1.0	-	1.5	10.0
Total		**8**.0	**9.08**	**8**.0	**6**.0	**6**.0	**6**.0	**6**.0	**5**.0	**4**.0	**4.5**	**5**.0	**6**.0	**73.58**
Grand total														**291.75**

Table 3. Details of Scarce Breeding Birds Surveys, 2013 and 2017

Date	Obs	Start	Finish	Duration	Weather					
					Cloud 10^{ths}	Cloud Base	Wind Direction	Wind Force	Precip*	Visibility (km)
14/03/2013	GC	0830	1130	3.00	8	600	SSW	2	ILS	4
23/04/2013	MH	1130	1200	0.50	10	800	W	4	nil	10
23/04/2013	MH	1445	1530	0.75	10	800	W	4	nil	10
24/04/2013	JAC	1115	1215	1.00	10	600	SW	2	nil	5
25/04/2013	MH	1400	1545	1.75	10	600	W	2	nil	10
26/04/2013	MH	0830	1200	3.50	3	600	W	3	ILR	10
26/04/2013	MH	1200	1400	2.00	6	800	W	3		10
27/04/2013	KC	1300	1500	2.00	6	700	W	2	nil	3
29/04/2013	MH	1330	1630	3.00	8	800	NW	4	ILR	10
06/05/2013	MH	1300	1630	3.50	10	400	SW	2	nil	4
09/05/2013	MH	0930	1130	2.00	10	400	S	4	IHR	8
11/05/2013	KC	1000	1230	2.50	10	600	W	2	CHR	2
15/05/2013	MH	1230	1300	0.50	8	600	N	4	nil	10
15/05/2013	MH	1330	1430	1.00	8	600	N	4	nil	10
21/05/2013	MH	1230	1415	1.75	7	800	NW	2	nil	10
21/05/2013	MH	1715	1730	0.25	7	800	NW	3	nil	10
21/05/2013	MH	1745	1900	1.25	4	800	NW	3	nil	10
03/06/2013	MH	0930	1400	4.50	10	600	nil	0	nil	8
03/06/2013	MH	1730	1815	0.75	10	800	nil	0	nil	10
10/06/2013	MH	0915	1330	4.25	10	500	SE	1	nil	8
19/06/2013	MH	1700	1800	1.00	0	-	W	2	nil	10
19/06/2013	MH	2030	2115	0.75	5	800	W	2	nil	10
20/06/2013	MH	1330	1430	1.00	7	600	SE	2	nil	10
20/06/2013	MH	1600	1645	0.75	8	600	SE	3	nil	10
08/07/2013	MH	0930	1130	2.00	0	-	W	1	nil	10
08/07/2013	MH	1330	1545	2.25	0	-	W	1	nil	10
11/07/2013	MH	0930	1115	1.75	10	600	nil	0	nil	10
11/07/2013	MH	1315	1630	3.25	9	600	nil	0	nil	10
16/07/2013	MH	0945	1230	2.75	10	600	W	1	nil	10
17/04/2017	DJC	1200	1700	5.00	7	600	S	3	nil	6
18/04/2017	DJC	0845	1035	1.83	10	600	NE	1	nil	6
18/04/2017	DJC	1525	1840	3.25	6	600	E	3	nil	6
20/04/2017	DJC	0755	0840	0.75	10	500	W	3	ILR	4
20/04/2017	DJC	1400	1830	4.50	9	700	W	5	nil	6

Table 3. Details of Scarce Breeding Birds Surveys, 2013 and 2017

Date	Obs	Start	Finish	Duration	Weather					
					Cloud 10^{ths}	Cloud Base	Wind Direction	Wind Force	Precip*	Visibility (km)
24/04/2017	DJC	1415	1630	2.25	5	1000	W	5	nil	6
24/04/2017	DJC	1955	2025	0.50	1	1000	W	5	nil	6
25/04/2017	DJC	1330	1630	3.00	4	800	WNW	5	nil	6
27/04/2017	DJC	0945	1045	1.00	7	800	NNW	4	ILR	6
09/05/2017	JH	1030	1230	2.00	3	1000	SW	2	nil	10
09/05/2017	DJC	1710	1915	2.08	1	1000	W	4	nil	6
10/05/2017	DJC	0910	1225	3.25	6	800	W	3	nil	6
10/05/2017	DJC	1305	1407	1.03	4	1000	W	3	nil	6
12/05/2017	DJC	0735	0935	2.00	5	800	E	3	nil	6
24/05/2017	DJC	0855	1658	8.05	7	700	SW	3	nil	6
25/05/2017	JH	1230	1330	1.00	1	-	S	3	nil	10
25/05/2017	JH	1530	1730	2.00	1	-	S	3	nil	10
25/05/2017	BU	0930	1130	2.00	10	400	SE	1	nil	15
25/05/2017	BU	1200	1400	2.00	6	1000	SSE	3	nil	20
25/05/2017	DJC	0955	1619	6.40	9	300	SW	3	ILF	3
26/05/2017	JH	0600	0900	3.00	0	-	SE	3	nil	10
26/05/2017	DJC	0630	0930	3.00	8	800	SW	3	nil	3
27/06/2017	DJC	1002	1615	6.22	10	400	NE	3	CLR	2
28/06/2017	DJC	1806	1852	0.77	10	800	NE	5	nil	6
29/06/2017	DJC	1245	1632	3.78	10	500	NNW	4	CLR	3
30/06/2017	DJC	0710	1000	2.83	10	500	NE	3	CLR	3
04/07/2017	DJC	1145	1725	5.67	10	500	SE	2	CLR	3
05/07/2017	DJC	1635	1752	1.28	7	700	E	3	nil	6
07/07/2017	DJC	1010	1025	0.25	10	500	SW	3	ILR	4
19/07/2017	DJC	0835	1445	6.17	10	700	E	5	nil	6
20/07/2017	DJC	0830	1115	2.75	8	700	SE	3	nil	6
20/07/2017	DJC	1315	1730	4.25	9	700	SE	3	nil	6
Total				**149.11**						

*Precipitation codes: Continuous/Intermittent + Light/Heavy + Rain/Snow/Hail/Fog

Table 4. Details of Barn Owl Surveys, 2013 and 2017

Date	Obs	Start	Finish	Duration	Weather					
					Cloud 10ths	Cloud Base	Wind Direction	Wind Force	Precip*	Visibility (km)
15/07/2013	MH	0830	0835	0.08	7	600	W	2	nil	10
15/07/2013	MH	1045	1100	0.25	10	600	W	3	nil	10
15/07/2013	MH	1415	1430	0.25	10	600	W	3	nil	10
27/04/2017	DJC	1935	2010	0.58	3	700	NW	5	nil	6
19/07/2017	DJC	1445	1635	1.83	10	600	E	5	nil	6
20/07/2017	DJC	1115	1315	2.00	6	700	SE	3	nil	6
Total				**5.00**						

*Precipitation codes: Continuous/Intermittent + Light/Heavy + Rain/Snow/Hail/Fog

Table 5. Details of Moorland Breeding Bird Survey, 2013 and 2017

Date	Obs	Start	Finish	Duration	Weather					
					Cloud 10ths	Cloud Base	Wind Direction	Wind Force	Precip*	Visibility (km)
23/04/2013	MH	1330	1445	1.25	10	800	W	4	nil	10
23/04/2013	MH	1530	1600	0.50	10	800	W	4	nil	10
23/04/2013	JAC	1430	1600	1.50	9	800	SW	3	nil	10
27/04/2013	KC	1300	1500	2.00	6	700	W	2	nil	3
04/05/2013	KC	0930	1300	3.50	5	800	SW	3	nil	3
15/05/2013	MH	0815	0945	1.50	2	600	N	3	nil	10
21/05/2013	MH	1600	1715	1.25	7	800	NW	3	nil	10
21/05/2013	MH	1730	1745	0.25	6	800	NW	3	nil	10
27/05/2013	KC	1400	1730	3.50	8	700	SW	2	nil	3
03/06/2013	MH	1400	1530	1.50	10	600	nil	0	nil	10
20/04/2017	DJC	0840	1359	5.32	10	500	W	3	ILR	4
11/05/2017	DJC	0800	1345	5.75	0	-	SE	3	nil	6
23/05/2017	DJC	0740	1410	6.50	6	800	SW	3	nil	6
25/05/2017	JH	0900	1200	3.00	1	-	S	3	nil	10
25/05/2017	JH	1330	1530	2.00	1	-	S	3	nil	10
07/06/2017	DJC	0731	1323	5.87	5	700	WNW	5	nil	6
26/06/2017	JH	0630	1130	5.00	10	800	W	2	nil	10
05/07/2017	DJC	1125	1635	5.17	8	700	E	3	nil	6
Total				**55.35**						

*Precipitation codes: Continuous/Intermittent + Light/Heavy + Rain/Snow/Hail/Fog

Table 6. Details of Winter Walked Transects, 2012/13.

Date	Obs	Start	Finish	Duration	Weather					
					Cloud 10^{ths}	Cloud Base	Wind Direction	Wind Force	Precip*	Visibility (km)
16/10/2012	GC	1130	1330	2.00	10	500	N	2	ILR	3
24/10/2012	GC	0830	1030	2.00	8	900	NE	2	nil	5
02/11/2012	GC	1140	1240	1.00	9	600	W	3	IHR	4
21/11/2012	GC	0730	0800	0.50	10	500	nil	0	nil	2
21/11/2012	GC	1100	1230	1.50	8	500	S	1	IHF	3
28/11/2012	KC	1100	1300	2.00	1	1000	NE	1	nil	5
07/12/2012	GC	0800	0830	0.50	4	600	NW	3	nil	4
07/12/2012	GC	1215	1245	0.50	4	700	NW	4	nil	5
12/12/2012	GC	1130	1230	1.00	10	300	nil	0	nil	2
18/12/2012	GC	1130	1300	1.50	3	1000	NE	1	nil	5
10/01/2013	GC	1130	1300	1.50	4	900	W	1	nil	5
16/01/2013	GC	1130	1300	1.50	10	700	SE	1	nil	5
22/01/2013	GC	0800	0830	0.50	10	500	E	2	nil	3
22/01/2013	GC	1130	1300	1.50	8	600	E	2	nil	5
12/02/2013	RAS	1230	1330	1.00	9	800	SE	3	nil	5
12/02/2013	GC	1300	1400	1.00	nr	nr	nr	nr	nr	nr
14/02/2013	RAS	1245	1345	1.00	8	700	W	3	IHR	5
14/02/2013	GC	1245	1345	1.00	8	600	W	2	IHR	4
13/03/2013	GC	1145	1300	1.25	2	900	N	3	nil	5
28/03/2013	GC	1150	1320	1.50	7	800	E	3	nil	5
Total				**24.25**						

*Precipitation codes: Continuous/Intermittent + Light/Heavy + Rain/Snow/Hail/Fog nr = not recorded

Table 7. Details of Black Grouse Lek Surveys, 2013 and 2017.

Date	Obs	Start	Finish	Duration	Weather					
					Cloud 10^{ths}	Cloud Base	Wind Direction	Wind Force	Precip*	Visibility (km)
24/04/2013	JAC	0500	0630	1.50	10	400	SW	1	CLR	2
26/04/2013	MH	0500	0700	2.00	0	-	W	1	nil	10
04/05/2013	KC	0500	0615	1.25	3	800	SW	4	nil	3
09/05/2013	MH	0415	0615	2.00	10	300	S	3	nil	6
11/05/2013	KC	0500	0615	1.25	10	500	W	2	IHR	2
15/05/2013	MH	0415	0615	2.00	1	600	N	2	nil	10
18/04/2017	DJC	0500	0845	3.75	0	-	nil	0	nil	3
19/04/2017	DJC	0805	0905	1.00	10	700	S	2	nil	6
26/04/2017	DJC	0455	0710	2.25	0	-	NW	3	nil	6
27/04/2017	DJC	0445	0645	2.00	0	-	NNW	2	nil	3
28/04/2017	DJC	0455	0645	1.83	10	600	W	1	nil	6
03/05/2017	JH	2000	2030	0.50	0	-	NE	5	nil	10
04/05/2017	JH	0430	0700	2.50	1	-	NE	5	nil	10
04/05/2017	JH	2030	2100	0.50	0	-	NE	4	nil	10
05/05/2017	JH	0430	0630	2.00	0	-	NE	2	nil	10
09/05/2017	JH	0415	0645	2.50	0	-	NE	1	nil	10
10/05/2017	DJC	0415	0600	1.75	0	-	W	1	nil	2
12/05/2017	DJC	0415	0700	2.75	4	800	E	3	nil	2
Total				**33.33**						

*Precipitation codes: Continuous/Intermittent + Light/Heavy + Rain/Snow/Hail/Fog

Table 8. Results of Scarce Breeding Bird Surveys, 2013 and 2017.

Date	Species	No.	Behaviour	Signs	Additional Information
24/04/2013	Raven	2	Territorial		Pair seen regularly flying to and from trees in area shown, presumed nesting within area.
26/04/2013				Kill/prey	Remains of woodcock (fresh). Raptor kill
09/05/2013	Osprey	1	Hunt/feed		Hunting around fish farm.
21/05/2013	Osprey	1	Hunt/feed		Same bird as seen earlier, still at same place at 1230.
21/05/2013	Osprey	1	Territorial		Possibly territorial.
21/05/2013	Osprey				Possible nest in mature Sitka.
16/07/2013	Osprey	1	Hunt/feed		On tree in clearfell eating a fish.
17/04/2017	Raven	1	Agitated/alarm	Nest with young	
17/04/2017	Osprey	1	Hunt/feed		
17/04/2017	Osprey	1	Flying, Hunt/feed		Interacting with KT

Table 8. Results of Scarce Breeding Bird Surveys, 2013 and 2017.

Date	Species	No.	Behaviour	Signs	Additional Information
17/04/2017	Red kite	1	Flying		interacting with GI
18/04/2017	Osprey	2	Flying, Hunt/feed		Male seeing female off area & resumed fishing
18/04/2017	Osprey	1	Hunt/feed		Caught prey and circled high then off
18/04/2017	Osprey	1	Hunt/feed		
20/04/2017	Red kite	1	Territorial	Nest with eggs	Mobbed by 2 RN
20/04/2017	Barn owl			Faeces, Pellets	Corrugated farm shed with nest box being used
25/04/2017	Red kite	1	Flying, Hunt/feed		
25/04/2017	Osprey	1	Hunt/feed		
25/04/2017	Osprey	1	Hunt/feed		
25/04/2017	Osprey	1	Hunt/feed		After circling lost to view
25/04/2017	Osprey	1	Flying		Might be same bird as above
27/04/2017	Buzzard	2	Agitated/alarm	Nest with young	Conifer wood block
09/05/2017	?			Old nest (prev. yr)	No recent signs, in small stand of larch. Male GI seen entering wood earlier
09/05/2017	?			Old nest (prev. yr)	Possible GI/BZ nest?
10/05/2017	Red kite	2	Flying		territorial pair?
12/05/2017	Red kite	1	Flying		Patagial tag Green/Purple (or Black) 5 min in vicinity
12/05/2017	Osprey	1	Flying		
24/05/2017	Red kite	1	Flying		
24/05/2017	Osprey	1	Flying		
24/05/2017	Red kite	2	Territorial	Nest with young	Pair in larch wood (Green/Purple & untag)
24/05/2017	Red kite	1	Flying		Perched - disturbed by obs
24/05/2017	Red kite	1	Flying		Circling with BZ
24/05/2017	Red kite	0		Used nest (this yr)	White-wash present. No adults alarming & no chicks
25/05/2017	Curlew	1	Vocalise/Feed		Culmark Moss
25/05/2017	Curlew	1	Vocalise/Feed		Culmark Moss
25/05/2017	Red kite	1	Flying		
25/05/2017	?			Old nest (prev. yr)	GI/BZ ? nest in larch
26/05/2017	Sparrowhawk	1	Agitated/alarm	Nest with young	Mobbing 2 MG
26/05/2017	Red kite	1	Flying		
26/05/2017	Red kite	1	Flying		
27/06/2017				Kill/prey	Jay carcass on moss in narrow ride, raptor kill
27/06/2017	Osprey	1	Flying		
27/06/2017	Osprey	1	Flying		
29/06/2017	Red kite	1	Hunt/feed, Flying		In moult
29/06/2017	Osprey	1	Hunt/feed		
29/06/2017	Osprey	1	Hunt/feed		
29/06/2017	Osprey	1	Hunt/feed		
29/06/2017	Osprey	3	Hunt/feed		
29/06/2017	Osprey	3	Flying		All 3 OP interacting
30/06/2017	Osprey	3	Hunt/feed		1 male at 0715; 2 males at 0719; + female at 0722
30/06/2017	Osprey	1	Flying, Perch		Carrying fish low over wood

Table 8. Results of Scarce Breeding Bird Surveys, 2013 and 2017.					
Date	**Species**	**No.**	**Behaviour**	**Signs**	**Additional Information**
30/06/2017	Red kite	1	Hunt/feed		Lifted something then landed on dyke
30/06/2017	Osprey	1	Hunt/feed		Lost behind conifers
07/07/2017	Red kite			Nest failed	
19/07/2017	Buzzard	2	Vocalise, Agitated/alarm,	Nest with young	
19/07/2017	Red kite	1	Flying		Mobbed by BZ
20/07/2017	Osprey	1	Flying, Hunt/feed		
20/07/2017	Osprey	1	Flying, Hunt/feed		Into woods near mast
20/07/2017	Osprey	1	Flying, Hunt/feed		
20/07/2017	Red kite	1	Flying		
20/07/2017	Red kite	1	Flying		
20/07/2017	Red kite	1	Flying		

Table 9. Results of Barn Owl Surveys, 2013 and 2017					
Date	**Species**	**No.**	**Behaviour**	**Signs**	**Additional Information**
15/07/2013	Barn owl			Faeces, Pellets	Very old signs (Roost). Nothing fresh in disused tin shed.
15/07/2013	Barn owl			No signs	No signs-spoke to occupants of house. No sightings.
15/07/2013	Barn owl			Faeces, Pellets	Very old signs. Probably roost, nothing fresh in farm buildings.
27/04/2017	Barn owl			Faeces, Pellets	Nest box East side of grey barn being used
19/07/2017	Barn owl			No signs	Search of Furmiston Farm barns & trees
19/07/2017	Osprey	1	Hunt/feed, Flying		Hovering
19/07/2017	Barn owl	2		Used nest (this yr), Pellets, Feathers	Nest box new since last visit
20/07/2017	Barn owl			No signs	Search Marbrack farm & woods

Table 10. Results of Moorland Breeding Bird Survey, 2013 and 2017					
Date	**Species**	**No.**	**Behaviour**	**Signs**	**Additional Information**
27/04/2013	Merlin	1	Flying		Disturbed ML on post. No evidence of plucking prey.
20/04/2017	Raven	2	Agitated/alarm	Nest with young	
20/04/2017	Peregrine	1	Hunt/feed, Flying		

Table 10. Results of Moorland Breeding Bird Survey, 2013 and 2017					
Date	**Species**	**No.**	**Behaviour**	**Signs**	**Additional Information**
23/05/2017	Red kite	1	Flying		
05/07/2017	Red kite	1	Flying, Hunt/feed		

Table 11. Results of Winter Walked Transects, 2012/13					
Date	**Species**	**No.**	**Behaviour**	**Signs**	**Additional Information**
16/10/2012	Crossbill	1	Flying		
	Buzzard	1			Perched
	Raven	1	Flying		
	Crossbill	4	Flying		
24/10/2012	Woodcock	1	Hunt/feed		Flushed
	Bullfinch		Vocalise		
	Buzzard	1	Flying		
02/11/2012	Goosander	2	Flying		
	Crossbill	2	Flying		
21/11/2012	Redpoll	1	Flying		
	Buzzard	1	Flying		
	Buzzard	1			Perched
	Raven	2			Perched
07/12/2012	Buzzard	1	Flying		
12/12/2012	Bullfinch	4	Hunt/feed		
	Dunnock	1	Hunt/feed		
	Dunnock	1	Hunt/feed		
18/12/2012	Goosander	1	Flying		
	Buzzard	1	Hunt/feed		
10/01/2013	Crossbill	1	Flying		
16/01/2013	Woodcock	1	Flying		Flushed
	Bullfinch		Vocalise		
22/01/2013	Sparrowhawk	1	Hunt/feed		
	Raven	1	Flying		
12/02/2013	See comments			Kill/prey	Fresh WK & B on plucking post
	Bullfinch	4	Flying		
14/02/2013	Raven	2	Flying		
13/03/2013	Crossbill	1	Sing		

Table 12. Results of Black Grouse Lek Surveys, 2013 and 2017					
Date	**Species**	**No.**	**Behaviour**	**Signs**	**Additional info**
24/04/2013	Black grouse	0		No signs	Searched and scanned area (nil result)
26/04/2013	Black grouse	0		No signs	Searched and scanned area (nil result)
04/05/2013	Black grouse	0		No signs	Searched and scanned area (nil result)
09/05/2013	Black grouse	0		No signs	Searched and scanned area (nil result)
11/05/2013	Black grouse	0		No signs	Searched and scanned area (nil result)
15/05/2013	Black grouse	2	Display		2 males' lekking.
18/04/2017	Black grouse	1	Vocalise		Only single male heard faintly. No visual
	Black grouse	1	Vocalise		Only single male heard faintly. No visual
	Goshawk	2	Vocalise, Territorial		Visual on female. Male heard only
	Raven	1	Vocalise, Agitated/alarm		
	Black grouse	1	Vocalise		No visual/ heard distantly
19/04/2017	Black grouse	1	Hunt/feed		Feeding at forest edge
26/04/2017	Black grouse	1	Vocalise	Lek site?	Heard in distance suspect in Moorbrock Estate
27/04/2017	Black grouse	1	Vocalise	Lek site?	Heard only. East of VP2. Outside 1.5km buffer
28/04/2017	Black grouse	0		No signs	Searched and scanned area (nil result)
03/05/2017	Black grouse	0		No signs	Searched and scanned area (nil result)
04/05/2017	Black grouse	0		No signs	Searched and scanned area (nil result)
05/05/2017	Black grouse	0		No signs	Searched and scanned area (nil result)
09/05/2017	Black grouse	1	Display	Lek site	East of VP2. Outside 1.5km buffer
10/05/2017	Black grouse	1	Display	Lek site	Very distant >1.5km in Moorbrock Estate
12/05/2017	Black grouse	0		No signs	Searched and scanned area (nil result)
	Greylag goose	5	Flying		
	Greylag goose	2	Flying		

Table 13. Flight durations of all *target species* observed from Vantage Points, 2012/13 and 2017/18*.

Species	Season	Year	VP	No. Flights	No. Birds	Total fly time (s)	Time in height category (s)					
							<10m	10-30m	30-50m	50-100m	100-150m	>150m
Barnacle goose	Sep-Mar	2017	6	1	160					✓		
Goshawk	Apr-Aug	2013	4	1	1	7		7				
		2017	2	5	5	751	2	35	33	75	61	545
			3	1	1	51		17	17	17		
			4	3	3	23	9	14				
	Sep-Mar		2	2	2	421		31	109	140	141	
			3	1	1	43	43					
Greylag goose	Apr-Aug	2017	2	4	10		✓	✓	✓	✓		
			3	7	14			✓	✓	✓		
			6	2	27					✓		
	Sep-Mar	2013	3	1	4					✓		
		2017	2	2	7					✓		
Hen harrier	Apr-Aug	2017	3	1	1	79	16		16	47		
			6	1	1	46	46					
	Sep-Mar	2012	4	1	1	49		16	33			
		2017	6	2	2	512	375	137				
Hobby	Apr-Aug	2017	3	1	1	43		43				
Red kite	Apr-Aug	2013	3	7	7	948	98	296	315	239		
		2017	2	6	6	833		94	280	291	92	76
			3	10	11	2562	16	326	528	998	355	339

Table 13. Flight durations of all *target species* observed from Vantage Points, 2012/13 and 2017/18*.

Species	Season	Year	VP	No. Flights	No. Birds	Total fly time (s)	Time in height category (s)					
							<10m	10-30m	30-50m	50-100m	100-150m	>150m
			6	7	7	981	120	200	206	318	137	
	Sep-Mar		3	2	2	326		93	123	110		
			4	1	1	47		47				
			6	6	6	1270	433	837				
Merlin	Apr-Aug	2013	1	1	1	44			44			
Osprey	Apr-Aug	2013	3	9	12	1077	200	389	120	197	62	109
		2017	2	2	2	271			15	225	31	
			3	3	3	387		73	93	221		
Pink-footed goose	Sep-Mar	2017	3	1	35					✓		
			6	1	5						✓	✓
Whooper swan	Sep-Mar	2012	1	1	2	174					47	127
			4	1	10	900					900	
Goose sp.	Sep-Mar	2012	2	1	13						✓	✓

* Observed flight activity, timings and heights refer to all flights observed from VPs. It should be noted that flight activity and timings could reduce, due to clipping flights to the 500 m flight activity buffer and viewshed, from that recorded in the field when it comes to analysing these data in a CRM (see Table 14).

Table 14. Flight durations recorded within VP viewsheds and clipped to 500 m survey buffer. Part, or all, of these flights at a height of 30 – 150 m agl places them at risk of a collision with the turbine blades (shaded columns).

Species	Season	VP	Flight ID	No. Flights	No. of Birds	Total fly time (s)	Time in height category (s)					
							<10m	10-30m	30-50m	50-100m	100-150m	>150m
Goshawk	Apr-Aug	VP2	SHR_170504_002_B001	1	1	50		17	33			
			SHR_170505_001_B001	1	1	101					15	86
			SHR_170505_001_B002	1	1	467				75	45	347
			SHR_170509_002_B001	1	1	2	2					
		VP4	SHR_130429_001_B001	1	1	7		7				
			SHR_170425_001_B001	1	1	14		14				
			SHR_170606_001_B001	1	1	1	1					
			SHR_170607_001_B001	1	1	3	3					
	Total			**8**	**8**	**645**	**6**	**38**	**33**	**75**	**60**	**433**
	Sep-Mar	VP2	SHR_180321_001_B001	1	1	140		31	31	78		
		VP3	SHR_171103_003_B001	1	1	22	22					
	Total			**2**	**2**	**162**	**22**	**31**	**31**	**78**		
Total				**10**	**10**	**807**	**28**	**69**	**64**	**153**	**60**	**433**
Hen harrier	Apr-Aug	VP3	SHR_170822_003_B002	1	1	16				16		
	Total			**1**	**1**	**16**				**16**		
	Sep-Mar	VP4	SHR_121127_003_B001	1	1	41		16	25			
		VP6	SHR_170904_001_B001	1	1	16	16					
			SHR_171009_003_B001	1	1	198	183	15				
	Total			**3**	**3**	**255**	**199**	**31**	**25**			
Total				**4**	**4**	**271**	**199**	**31**	**25**	**16**		

Table 14. Flight durations recorded within VP viewsheds and clipped to 500 m survey buffer. Part, or all, of these flights at a height of 10 – 150 m agl places them at risk of a collision with the turbine blades (shaded columns).

Species	Season	VP	Flight ID	No. Flights	No. of Birds	Total fly time (s)	Time in height category (s)					
							<10m	10-30m	30-50m	50-100m	100-150m	>150m
Red kite	Apr-Aug	VP2	SHR_170427_002_B002	1	1	88			88			
			SHR_170628_001_B003	1	1	186			30	140	16	
			SHR_170718_001_B001	1	1	123				123		
		VP3	SHR_130715_005_B001	1	1	30			15	15		
			SHR_170505_003_B006	1	1	230						230
			SHR_170605_001_B001	1	1	185			31	108	46	
			SHR_170628_002_B002	1	1	141		30	48	63		
		VP6	SHR_170510_002_B002	1	1	45				45		
	Total			**8**	**8**	**1028**		**30**	**212**	**494**	**62**	**230**
	Sep-Mar	VP4	SHR_180108_001_B001	1	1	47		47				
		VP6	SHR_170926_003_B001	1	1	77		77				
			SHR_180109_003_B001	1	1	47		47				
	Total			**3**	**3**	**171**		**171**				
Total				**11**	**11**	**1199**		**201**	**212**	**494**	**62**	**230**
Merlin	Apr-Aug	VP1	SHR_130423_001_B001	1	1	29			29			
	Total			**1**	**1**	**29**			**29**			
Total				**1**	**1**	**29**			**29**			

Table 14. Flight durations recorded within VP viewsheds and clipped to 500 m survey buffer. Part, or all, of these flights at a height of 10 – 150 m agl places them at risk of a collision with the turbine blades (shaded columns).

Species	Season	VP	Flight ID	No. Flights	No. of Birds	Total fly time (s)	Time in height category (s)					
							<10m	10-30m	30-50m	50-100m	100-150m	>150m
Osprey	Apr-Aug	VP2	SHR_130716_005_B001	1	1	105			15	90		
			SHR_170628_001_B001	1	1	136			15	120		
		VP3	SHR_130603_002_B001	1	1	35	18	18				
			SHR_130716_003_B002	1	1	20		20				
			SHR_130716_004_B002	1	1	93		93				
			SHR_170504_003_B002	1	1	63			47	16		
	Total			**6**	**6**	**452**	**18**	**131**	**77**	**226**		
Total				**6**	**6**	**452**	**18**	**131**	**77**	**226**		
Whooper swan	Sep-Mar	VP1	SHR_121121_001_B001	1	2	158					95	63
		VP4	SHR_121127_004_B001	1	10	378					378	
	Total			**2**	**12**	**536**					**473**	**63**
Total				**2**	**12**	**536**					**473**	**63**

Table 15. The percentage of five-minute recording periods in which each species was encountered during watches from all VPs in 2012-2013 and 2017-2018.

Species	No. of 5-minute periods recorded	Encounter rate* (%)
Buzzard	352	4.85
Raven	275	3.79
Kestrel	58	0.8
Red kite	48	0.66
Grey heron	21	0.29
Sparrowhawk	20	0.28
Greylag goose	19	0.26
Goshawk	16	0.22
Osprey	16	0.22
Oystercatcher	10	0.14
Hen harrier	8	0.11
Redwing	4	0.06
Fieldfare	4	0.06
Cuckoo	4	0.06
Whooper swan	3	0.04
Goose sp.	3	0.04
Common sandpiper	2	0.03
Pink-footed goose	2	0.03
Merlin	1	0.01
Hobby	1	0.01
Barnacle goose	1	0.01

Birds listed in Annex 1 of the Birds Directive or Schedule 1 of the WCA are shown in bold.

* Total number of 5-minute recording intervals was 7254.

Table 16. Incidental records, 2012/13 and 2017/18

Date	Species	No.	Behaviour	Signs	Additional info
21/01/2013	Peregrine	1	Flying		
12/02/2013	Goshawk	2	Territorial		Possibly 2 females
25/05/2017	Red kite	1	Flying		
28/06/2017	Osprey	1	Flying		
28/06/2017	Osprey	1	Hunt/feed		
28/06/2017	Osprey	1	Flying		Followed river and flew SW of Carsphairn village

Table 16. Incidental records, 2012/13 and 2017/18					
Date	**Species**	**No.**	**Behaviour**	**Signs**	**Additional info**
17/08/2017	Hen harrier		Roost	Feathers, Faeces, Pellets,	Adult male moulted feathers
17/08/2017	Hen harrier	1	Roost		Observed from VP6
29/08/2017	Hen harrier	1			Flushed from perch
29/08/2017	Hen harrier	1			Flushed from perch behind VP6 during VP watch
05/10/2017	Red kite	2	Hunt/feed		
03/11/2017	Black grouse	1	Flushed		Flushed on route to VP2
03/11/2017	Hen harrier	1	Hunt/feed		male foraging

Appendix 1: Recording periods used in the diurnal stratification of VP watches

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Early VPs finish / middle VPs begin	09:30	09:00	08:30†	08:30	07:45	07:30	08:00	08:30	09:00	09:30*	09:00	09:30
Middle VPs finish / late VPs begin	15:00	16:00	16:30†	18:00	19:00	19:00	19:00	18:30	17:30	16:30*	15:00	14:30
	GMT	GMT	GMT	BST	BST	BST	BST	BST	BST	BST	GMT	GMT

† This time is GMT. When clocks changed time was kept in line with this, within month.

* This time is BST. When clocks changed time was kept in line with this, within month.

Appendix 2: Vantage Point information 2012-2013 and 2017-2018

Date	Obs	VP	Start	Finish	Duration	Watch ID*
16/10/2012	GC	1	0830	0930	1.00	SHR_121016_001
24/10/2012	GC	1	1230	1530	3.00	SHR_121024_001
16/10/2012	GC	1	0930	1130	2.00	SHR_121016_002
24/10/2012	GC	1	1630	1730	1.00	SHR_121024_002
26/10/2012	GC	2	0830	0930	1.00	SHR_121026_001
26/10/2012	GC	2	1000	1300	3.00	SHR_121026_002
24/10/2012	KC	2	1240	1540	3.00	SHR_121024_003
24/10/2012	KC	2	1630	1730	1.00	SHR_121024_004
16/10/2012	GC	3	1430	1630	2.00	SHR_121016_003
24/10/2012	KC	3	0830	0930	1.00	SHR_121024_005
24/10/2012	KC	3	0930	1130	2.00	SHR_121024_006
26/10/2012	GC	3	1400	1700	3.00	SHR_121026_003
16/10/2012	GC	3	1630	1730	1.00	SHR_121016_004
21/11/2012	GC	1	0800	0900	1.00	SHR_121121_001
27/11/2012	GC	1	1300	1500	2.00	SHR_121127_001
21/11/2012	GC	1	0900	1100	2.00	SHR_121121_002
27/11/2012	GC	1	1500	1600	1.00	SHR_121127_002
02/11/2012	GC	2	0800	0900	1.00	SHR_121102_001
02/11/2012	GC	2	0900	1130	2.50	SHR_121102_002
28/11/2012	KC	2	1300	1500	2.00	SHR_121128_001
28/11/2012	KC	2	1500	1600	1.00	SHR_121128_002
28/11/2012	KC	3	0800	0900	1.00	SHR_121128_003
28/11/2012	KC	3	0900	1100	2.00	SHR_121128_004
02/11/2012	GC	3	1240	1510	2.50	SHR_121102_003
02/11/2012	GC	3	1530	1630	1.00	SHR_121102_004
27/11/2012	GC	4	0800	0900	1.00	SHR_121127_003
27/11/2012	GC	4	0915	1215	3.00	SHR_121127_004
21/11/2012	GC	4	1230	1500	2.50	SHR_121121_003
21/11/2012	GC	4	1500	1600	1.00	SHR_121121_004
12/12/2012	GC	1	0830	0930	1.00	SHR_121212_001
12/12/2012	GC	1	0930	1130	2.00	SHR_121212_002
18/12/2012	GC	1	1300	1430	1.50	SHR_121218_001
18/12/2012	GC	1	1430	1530	1.00	SHR_121218_002
18/12/2012	GC	2	0830	0930	1.00	SHR_121218_003
18/12/2012	GC	2	0930	1130	2.00	SHR_121218_004
12/12/2012	KC	2	1230	1430	2.00	SHR_121212_003
12/12/2012	KC	2	1430	1530	1.00	SHR_121212_004
12/12/2012	KC	3	0830	0930	1.00	SHR_121212_005
12/12/2012	KC	3	0930	1130	2.00	SHR_121212_006
07/12/2012	GC	3	1245	1430	1.75	SHR_121207_001
07/12/2012	GC	3	1430	1530	1.00	SHR_121207_002
07/12/2012	GC	4	0830	0930	1.00	SHR_121207_003

Date	Obs	VP	Start	Finish	Duration	Watch ID*
07/12/2012	GC	4	0930	1200	2.50	SHR_121207_004
12/12/2012	GC	4	1230	1430	2.00	SHR_121212_007
12/12/2012	GC	4	1430	1530	1.00	SHR_121212_008
16/01/2013	GC	1	0830	0930	1.00	SHR_130116_001
16/01/2013	GC	1	0930	1130	2.00	SHR_130116_002
22/01/2013	GC	1	1300	1500	2.00	SHR_130122_001
22/01/2013	GC	1	1500	1600	1.00	SHR_130122_002
21/01/2013	GC	2	0830	0930	1.00	SHR_130121_001
21/01/2013	GC	2	0930	1130	2.00	SHR_130121_002
10/01/2013	GC	2	1300	1500	2.00	SHR_130110_001
10/01/2013	GC	2	1500	1600	1.00	SHR_130110_002
10/01/2013	GC	3	0830	0930	1.00	SHR_130110_003
21/01/2013	GC	3	1300	1500	2.00	SHR_130121_003
10/01/2013	GC	3	0930	1130	2.00	SHR_130110_004
21/01/2013	GC	3	1500	1600	1.00	SHR_130121_004
22/01/2013	GC	4	0830	0930	1.00	SHR_130122_003
22/01/2013	GC	4	0930	1130	2.00	SHR_130122_004
16/01/2013	GC	4	1300	1500	2.00	SHR_130116_003
16/01/2013	GC	4	1500	1600	1.00	SHR_130116_004
14/02/2013	RAS	1	0800	0900	1.00	SHR_130214_001
14/02/2013	RAS	1	0900	1100	2.00	SHR_130214_002
12/02/2013	RAS	2	1400	1600	2.00	SHR_130212_001
12/02/2013	RAS	2	1600	1700	1.00	SHR_130212_002
12/02/2013	RAS	3	0800	0900	1.00	SHR_130212_003
12/02/2013	RAS	3	0900	1100	2.00	SHR_130212_004
14/02/2013	RAS	4	1400	1600	2.00	SHR_130214_003
14/02/2013	RAS	4	1600	1700	1.00	SHR_130214_004
12/02/2013	GC	1	1600	1700	1.00	SHR_130212_006
12/02/2013	GC	1	1400	1600	2.00	SHR_130212_007
14/02/2013	GC	2	0800	0900	1.00	SHR_130214_006
14/02/2013	GC	2	0900	1100	2.00	SHR_130214_007
14/02/2013	GC	3	1400	1600	2.00	SHR_130214_008
14/02/2013	GC	3	1600	1700	1.00	SHR_130214_009
12/02/2013	GC	4	0800	0900	1.00	SHR_130212_008
12/02/2013	GC	4	0900	1100	2.00	SHR_130212_009
26/03/2013	GC	1	0700	0830	1.50	SHR_130326_001
28/03/2013	GC	1	1350	1620	2.50	SHR_130328_001
26/03/2013	GC	1	0830	1100	2.50	SHR_130326_002
13/03/2013	GC	2	0700	0830	1.50	SHR_130313_001
13/03/2013	GC	2	0845	1145	3.00	SHR_130313_002
13/03/2013	GC	3	1300	1600	3.00	SHR_130313_003
13/03/2013	GC	3	1630	1800	1.50	SHR_130313_004
28/03/2013	GC	4	0700	0830	1.50	SHR_130328_002

Date	Obs	VP	Start	Finish	Duration	Watch ID*
14/03/2013	GC	4	1215	1515	3.00	SHR_130314_001
26/03/2013	GC	4	1200	1500	3.00	SHR_130326_003
28/03/2013	GC	4	0830	1130	3.00	SHR_130328_003
24/04/2013	JAC	1	0700	0830	1.50	SHR_130424_001
27/04/2013	KC	1	1515	1815	3.00	SHR_130427_001
23/04/2013	JAC	1	1630	1800	1.50	SHR_130423_001
23/04/2013	JAC	1	1800	1930	1.50	SHR_130423_002
27/04/2013	KC	2	0700	0830	1.50	SHR_130427_002
27/04/2013	KC	2	0930	1230	3.00	SHR_130427_003
22/04/2013	JAC	2	1630	1800	1.50	SHR_130422_001
22/04/2013	JAC	2	1800	1930	1.50	SHR_130422_002
30/04/2013	MH	3	0700	0830	1.50	SHR_130430_001
25/04/2013	MH	3	1600	1730	1.50	SHR_130425_001
23/04/2013	MH	3	1630	1800	1.50	SHR_130423_003
23/04/2013	MH	3	1800	1930	1.50	SHR_130423_004
26/04/2013	MH	4	0700	0830	1.50	SHR_130426_001
25/04/2013	MH	4	1045	1345	3.00	SHR_130425_002
24/04/2013	JAC	4	1230	1400	1.50	SHR_130424_002
29/04/2013	MH	4	1800	1930	1.50	SHR_130429_001
04/05/2013	KC	1	0615	0745	1.50	SHR_130504_001
04/05/2013	KC	1	0745	0915	1.50	SHR_130504_002
11/05/2013	KC	1	1300	1530	2.50	SHR_130511_001
27/05/2013	KC	1	1900	2030	1.50	SHR_130527_001
11/05/2013	KC	2	0615	0745	1.50	SHR_130511_002
11/05/2013	KC	2	0745	0915	1.50	SHR_130511_003
04/05/2013	KC	2	1330	1530	2.00	SHR_130504_003
27/05/2013	KC	2	2045	2215	1.50	SHR_130527_002
20/05/2013	MH	2	1730	1830	1.00	SHR_130520_001
15/05/2013	MH	3	0615	0745	1.50	SHR_130515_001
06/05/2013	MH	3	0915	1215	3.00	SHR_130506_001
21/05/2013	MH	3	0945	1145	2.00	SHR_130521_001
20/05/2013	MH	3	1900	2030	1.50	SHR_130520_002
09/05/2013	MH	4	0615	0745	1.50	SHR_130509_001
09/05/2013	MH	4	0745	0915	1.50	SHR_130509_002
21/05/2013	MH	4	1430	1600	1.50	SHR_130521_002
15/05/2013	MH	4	1030	1230	2.00	SHR_130515_002
21/05/2013	MH	4	1900	2030	1.50	SHR_130521_003
15/07/2013	MH	1	0630	0800	1.50	SHR_130715_001
11/07/2013	MH	1	0630	0800	1.50	SHR_130711_001
09/06/2013	KC	1	1130	1400	2.50	SHR_130609_001
09/06/2013	KC	2	0600	0730	1.50	SHR_130609_002
09/06/2013	KC	2	0800	1030	2.50	SHR_130609_003
08/07/2013	MH	1	1130	1330	2.00	SHR_130708_001

Date	Obs	VP	Start	Finish	Duration	Watch ID*
11/07/2013	MH	1	0800	0930	1.50	SHR_130711_002
11/07/2013	MH	1	1730	1900	1.50	SHR_130711_003
11/07/2013	MH	1	1900	2030	1.50	SHR_130711_004
11/07/2013	MH	2	0430	0600	1.50	SHR_130711_005
15/07/2013	MH	2	1730	1900	1.50	SHR_130715_002
15/07/2013	MH	2	0845	1015	1.50	SHR_130715_003
15/07/2013	MH	2	1900	2030	1.50	SHR_130715_004
16/07/2013	MH	2	1900	2030	1.50	SHR_130716_001
16/07/2013	MH	3	0630	0800	1.50	SHR_130716_002
16/07/2013	MH	3	1700	1830	1.50	SHR_130716_003
16/07/2013	MH	3	0800	0930	1.50	SHR_130716_004
15/07/2013	MH	3	1130	1330	2.00	SHR_130715_005
16/07/2013	MH	2	1330	1530	2.00	SHR_130716_005
15/07/2013	MH	3	2045	2215	1.50	SHR_130715_006
08/07/2013	MH	4	0630	0800	1.50	SHR_130708_002
11/07/2013	MH	4	1115	1315	2.00	SHR_130711_006
08/07/2013	MH	4	0800	0930	1.50	SHR_130708_003
08/07/2013	MH	4	1715	1845	1.50	SHR_130708_004
08/07/2013	MH	4	1900	2030	1.50	SHR_130708_005
20/06/2013	MH	1	1430	1600	1.50	SHR_130620_001
19/06/2013	MH	1	1800	1900	1.00	SHR_130619_001
19/06/2013	MH	1	1900	2030	1.50	SHR_130619_002
20/06/2013	MH	2	1200	1300	1.00	SHR_130620_002
19/06/2013	MH	2	1515	1645	1.50	SHR_130619_003
03/06/2013	MH	3	0600	0730	1.50	SHR_130603_001
03/06/2013	MH	3	0730	0900	1.50	SHR_130603_002
10/06/2013	MH	3	1530	1830	3.00	SHR_130610_001
12/06/2013	MH	3	1330	1430	1.00	SHR_130612_001
20/06/2013	MH	3	1030	1130	1.00	SHR_130620_003
20/06/2013	MH	3	2045	2215	1.50	SHR_130620_004
10/06/2013	MH	4	0600	0730	1.50	SHR_130610_002
03/06/2013	MH	4	1530	1730	2.00	SHR_130603_003
10/06/2013	MH	4	0730	0900	1.50	SHR_130610_003
11/06/2013	MH	4	1600	1730	1.50	SHR_130611_001
20/06/2013	MH	4	1900	2030	1.50	SHR_130620_005
13/08/2013	MH	1	0700	0830	1.50	SHR_130813_001
13/08/2013	MH	1	0830	1000	1.50	SHR_130813_002
14/08/2013	MH	1	1230	1530	3.00	SHR_130814_001
19/08/2013	MH	1	1830	2000	1.50	SHR_130819_001
20/08/2013	MH	2	0700	0830	1.50	SHR_130820_001
13/08/2013	MH	2	1230	1530	3.00	SHR_130813_003
20/08/2013	MH	2	0830	1000	1.50	SHR_130820_002
14/08/2013	MH	2	1830	2000	1.50	SHR_130814_002

Date	Obs	VP	Start	Finish	Duration	Watch ID*
14/08/2013	MH	3	0700	0830	1.50	SHR_130814_003
14/08/2013	MH	3	0830	1000	1.50	SHR_130814_004
19/08/2013	MH	3	1230	1530	3.00	SHR_130819_002
20/08/2013	MH	3	1830	2000	1.50	SHR_130820_003
19/08/2013	MH	4	0700	0830	1.50	SHR_130819_003
20/08/2013	MH	4	1300	1600	3.00	SHR_130820_004
19/08/2013	MH	4	0830	1000	1.50	SHR_130819_004
13/08/2013	MH	4	1830	2000	1.50	SHR_130813_004
27/04/2017	DJC	2	0815	0945	1.50	SHR_170427_001
27/04/2017	DJC	2	0645	0815	1.50	SHR_170427_002
26/04/2017	DJC	3	1145	1445	3.00	SHR_170426_001
27/04/2017	DJC	3	1050	1250	2.00	SHR_170427_003
27/04/2017	DJC	3	1750	1920	1.50	SHR_170427_004
21/04/2017	DJC	4	0825	1025	2.00	SHR_170421_001
25/04/2017	DJC	4	0840	1140	3.00	SHR_170425_001
21/04/2017	RAS	6	1300	1500	2.00	SHR_170421_002
24/04/2017	DJC	6	1630	1800	1.50	SHR_170424_001
24/04/2017	DJC	6	1800	1930	1.50	SHR_170424_002
26/04/2017	DJC	6	0710	0840	1.50	SHR_170426_002
26/04/2017	DJC	6	0840	1010	1.50	SHR_170426_003
04/05/2017	JH	2	0700	0900	2.00	SHR_170504_001
04/05/2017	JH	2	0930	1230	3.00	SHR_170504_002
05/05/2017	JH	2	1030	1330	3.00	SHR_170505_001
08/05/2017	JH	2	1900	2030	1.50	SHR_170508_001
09/05/2017	JH	2	0645	0815	1.50	SHR_170509_001
09/05/2017	JH	2	0815	1015	2.00	SHR_170509_002
04/05/2017	JH	3	1315	1615	3.00	SHR_170504_003
05/05/2017	JH	3	0630	0800	1.50	SHR_170505_002
05/05/2017	JH	3	0800	1000	2.00	SHR_170505_003
08/05/2017	JH	3	1530	1700	1.50	SHR_170508_002
08/05/2017	JH	3	1715	1845	1.50	SHR_170508_003
09/05/2017	DJC	4	1410	1710	3.00	SHR_170509_003
22/05/2017	DJC	4	1740	1910	1.50	SHR_170522_001
22/05/2017	DJC	4	1910	2040	1.50	SHR_170522_002
23/05/2017	DJC	4	0610	0740	1.50	SHR_170523_001
23/05/2017	DJC	4	1410	1540	1.50	SHR_170523_002
25/05/2017	JH	4	1730	1900	1.50	SHR_170525_001
10/05/2017	DJC	6	0600	0730	1.50	SHR_170510_001
10/05/2017	DJC	6	0730	0905	1.58	SHR_170510_002
11/05/2017	DJC	6	1410	1710	3.00	SHR_170511_001
25/05/2017	DJC	6	1620	1750	1.50	SHR_170525_002
25/05/2017	DJC	6	1750	1920	1.50	SHR_170525_003
08/06/2017	DJC	2	1700	1830	1.50	SHR_170608_001

Date	Obs	VP	Start	Finish	Duration	Watch ID*
08/06/2017	DJC	2	1830	2000	1.50	SHR_170608_002
26/06/2017	DJC	2	1445	1745	3.00	SHR_170626_001
28/06/2017	DJC	2	1020	1220	2.00	SHR_170628_001
05/06/2017	DJC	3	1810	1840	0.50	SHR_170605_001
05/06/2017	DJC	3	1840	2010	1.50	SHR_170605_002
09/06/2017	DJC	3	0555	0725	1.50	SHR_170609_001
09/06/2017	DJC	3	0725	0855	1.50	SHR_170609_002
28/06/2017	DJC	3	1255	1555	3.00	SHR_170628_002
05/06/2017	DJC	4	1250	1550	3.00	SHR_170605_003
06/06/2017	DJC	4	1310	1510	2.00	SHR_170606_001
07/06/2017	DJC	4	0600	0730	1.50	SHR_170607_001
28/06/2017	DJC	4	1635	1805	1.50	SHR_170628_003
06/06/2017	DJC	6	1700	1830	1.50	SHR_170606_002
06/06/2017	DJC	6	1830	2000	1.50	SHR_170606_003
08/06/2017	DJC	6	0600	0730	1.50	SHR_170608_003
08/06/2017	DJC	6	0730	0900	1.50	SHR_170608_004
26/06/2017	JH	6	1130	1330	2.00	SHR_170626_002
03/07/2017	DJC	2	1715	1845	1.50	SHR_170703_001
03/07/2017	DJC	2	1845	2015	1.50	SHR_170703_002
18/07/2017	DJC	2	1310	1610	3.00	SHR_170718_001
03/07/2017	DJC	3	1325	1625	3.00	SHR_170703_003
04/07/2017	DJC	3	1725	1855	1.50	SHR_170704_001
04/07/2017	DJC	3	1855	2025	1.50	SHR_170704_002
03/07/2017	DJC	4	1145	1245	1.00	SHR_170703_004
05/07/2017	DJC	4	0925	1125	2.00	SHR_170705_001
18/07/2017	DJC	4	0855	1025	1.50	SHR_170718_002
18/07/2017	DJC	4	1025	1155	1.50	SHR_170718_003
07/07/2017	DJC	6	0545	0715	1.50	SHR_170707_001
07/07/2017	DJC	6	0715	0845	1.50	SHR_170707_002
17/07/2017	DJC	6	1255	1555	3.00	SHR_170717_001
15/08/2017	RAS	2	1035	1335	3.00	SHR_170815_001
22/08/2017	RAS	2	0700	0830	1.50	SHR_170822_001
22/08/2017	RAS	2	0830	1000	1.50	SHR_170822_002
15/08/2017	RAS	3	0700	0830	1.50	SHR_170815_002
15/08/2017	RAS	3	0830	1000	1.50	SHR_170815_003
22/08/2017	RAS	3	1100	1400	3.00	SHR_170822_003
17/08/2017	RAS	4	1700	1830	1.50	SHR_170817_001
17/08/2017	RAS	4	1830	2000	1.50	SHR_170817_002
29/08/2017	RAS	4	1300	1600	3.00	SHR_170829_001
17/08/2017	RAS	6	1330	1630	3.00	SHR_170817_003
29/08/2017	RAS	6	1700	1830	1.50	SHR_170829_002
29/08/2017	RAS	6	1830	2000	1.50	SHR_170829_003
11/09/2017	RAS	2	1600	1730	1.50	SHR_170911_001

Date	Obs	VP	Start	Finish	Duration	Watch ID*
11/09/2017	RAS	2	1730	1900	1.50	SHR_170911_002
27/09/2017	RAS	2	1220	1530	3.17	SHR_170927_001
11/09/2017	RAS	3	1230	1530	3.00	SHR_170911_003
27/09/2017	RAS	3	1600	1730	1.50	SHR_170927_002
27/09/2017	RAS	3	1730	1900	1.50	SHR_170927_003
05/09/2017	RAS	4	1420	1720	3.00	SHR_170905_001
26/09/2017	RAS	4	0730	0900	1.50	SHR_170926_001
26/09/2017	RAS	4	0900	1030	1.50	SHR_170926_002
04/09/2017	RAS	6	0730	0900	1.50	SHR_170904_001
04/09/2017	RAS	6	0900	1030	1.50	SHR_170904_002
26/09/2017	RAS	6	1130	1430	3.00	SHR_170926_003
03/11/2017	RAS	2	0930	1230	3.00	SHR_171103_001
20/11/2017	RAS	2	1130	1430	3.00	SHR_171120_001
03/11/2017	RAS	3	1300	1500	2.00	SHR_171103_002
03/11/2017	RAS	3	1500	1600	1.00	SHR_171103_003
20/11/2017	RAS	3	0800	0900	1.00	SHR_171120_002
20/11/2017	RAS	3	0900	1100	2.00	SHR_171120_003
21/11/2017	RAS	4	1020	1250	2.50	SHR_171121_001
28/11/2017	RAS	4	1330	1500	1.50	SHR_171128_001
28/11/2017	RAS	4	1500	1600	1.00	SHR_171128_002
21/11/2017	RAS	6	1330	1500	1.50	SHR_171121_002
21/11/2017	RAS	6	1500	1600	1.00	SHR_171121_003
28/11/2017	RAS	6	1000	1230	2.50	SHR_171128_003
10/10/2017	RAS	2	0830	0930	1.00	SHR_171010_001
10/10/2017	RAS	2	0930	1130	2.00	SHR_171010_002
16/10/2017	RAS	2	1200	1500	3.00	SHR_171016_001
10/10/2017	RAS	3	1200	1500	3.00	SHR_171010_003
16/10/2017	RAS	3	0830	0930	1.00	SHR_171016_002
16/10/2017	RAS	3	0930	1130	2.00	SHR_171016_003
05/10/2017	RAS	4	1000	1300	3.00	SHR_171005_001
09/10/2017	RAS	4	1430	1630	2.00	SHR_171009_001
09/10/2017	RAS	4	1630	1730	1.00	SHR_171009_002
05/10/2017	RAS	6	1400	1630	2.50	SHR_171005_002
05/10/2017	RAS	6	1630	1700	0.50	SHR_171005_003
09/10/2017	RAS	6	1030	1330	3.00	SHR_171009_003
05/12/2017	RAS	2	1330	1430	1.00	SHR_171205_001
05/12/2017	RAS	2	1430	1530	1.00	SHR_171205_002
07/12/2017	RAS	2	1100	1300	2.00	SHR_171207_001
05/12/2017	RAS	3	1100	1300	2.00	SHR_171205_003
07/12/2017	RAS	3	1330	1430	1.00	SHR_171207_002
07/12/2017	RAS	3	1430	1530	1.00	SHR_171207_003
18/12/2017	RAS	4	1135	1335	2.00	SHR_171218_001
22/12/2017	RAS	4	0830	0930	1.00	SHR_171222_001

Date	Obs	VP	Start	Finish	Duration	Watch ID*
22/12/2017	RAS	4	0930	1030	1.00	SHR_171222_002
18/12/2017	RAS	6	0830	0930	1.00	SHR_171218_002
18/12/2017	RAS	6	0930	1030	1.00	SHR_171218_003
22/12/2017	RAS	6	1130	1330	2.00	SHR_171222_003
22/01/2018	RAS	2	1100	1300	2.00	SHR_180122_001
26/01/2018	RAS	2	0830	0930	1.00	SHR_180126_001
26/01/2018	RAS	2	0930	1030	1.00	SHR_180126_002
22/01/2018	RAS	3	0830	0930	1.00	SHR_180122_002
22/01/2018	RAS	3	0930	1030	1.00	SHR_180122_003
26/01/2018	RAS	3	1100	1300	2.00	SHR_180126_003
08/01/2018	RAS	4	0950	1220	2.50	SHR_180108_001
09/01/2018	RAS	4	1400	1500	1.00	SHR_180109_001
09/01/2018	RAS	4	1500	1600	1.00	SHR_180109_002
08/01/2018	RAS	6	1330	1500	1.50	SHR_180108_002
08/01/2018	RAS	6	1500	1600	1.00	SHR_180108_003
09/01/2018	RAS	6	1100	1300	2.00	SHR_180109_003
05/02/2018	RAS	2	1430	1600	1.50	SHR_180205_001
05/02/2018	RAS	2	1600	1700	1.00	SHR_180205_002
22/02/2018	RAS	2	1130	1400	2.50	SHR_180222_001
05/02/2018	RAS	3	1130	1400	2.50	SHR_180205_003
22/02/2018	RAS	3	1430	1600	1.50	SHR_180222_002
22/02/2018	RAS	3	1600	1700	1.00	SHR_180222_003
06/02/2018	RAS	4	0800	0900	1.00	SHR_180206_001
06/02/2018	RAS	4	0900	1030	1.50	SHR_180206_002
23/02/2018	RAS	4	1130	1400	2.50	SHR_180223_001
23/02/2018	RAS	6	0800	0900	1.00	SHR_180223_002
06/02/2018	RAS	6	1130	1400	2.50	SHR_180206_003
23/02/2018	RAS	6	0900	1030	1.50	SHR_180223_003
20/02/2018	JH	2	1230	1530	3.00	SHR_180220_001
21/03/2018	JH	2	0830	1000	1.50	SHR_180321_001
21/03/2018	JH	2	0645	0815	1.50	SHR_180321_002
21/03/2018	JH	3	1030	1330	3.00	SHR_180321_003
20/03/2018	JH	3	1630	1800	1.50	SHR_180320_001
21/03/2018	JH	3	1400	1530	1.50	SHR_180321_004
07/03/2018	RAS	4	1100	1400	3.00	SHR_180307_001
19/03/2018	RAS	4	1500	1630	1.50	SHR_180319_001
19/03/2018	RAS	4	1630	1800	1.50	SHR_180319_002
07/03/2018	RAS	6	1500	1630	1.50	SHR_180307_002
07/03/2018	RAS	6	1630	1800	1.50	SHR_180307_003
19/03/2018	RAS	6	1100	1400	3.00	SHR_180319_003
Total					**594.5**	
*Watch ID relates to Appendix 4 for weather data						

Appendix 3: Bird species to be recorded during surveys

SPECIES RECORDED FOR ASSESSMENT OF FLIGHT ACTIVITY			Additional species (e.g. breeding and/or wintering
Target A species	**Target B species**	**Secondary species**	
Diver species	Greylag goose	Cormorant	Tree pipit
Common Scoter	Barnacle goose	Grey heron	Dunnock
White-tailed eagle	White-fronted goose	Kestrel	Song thrush
Golden eagle	Pink-footed goose	Buzzard	Grasshopper warbler
Hen harrier	Brent goose	Sparrowhawk	Wood warbler
Goshawk	Bean goose	Red grouse	Spotted flycatcher
Red kite	Golden plover	Grey partridge	Marsh tit
Osprey	Dunlin	Lapwing	Willow tit
Merlin	Greenshank	Redshank	Crested tit
Peregrine	Whimbrel	Common sandpiper	Starling
Hobby	Curlew	Oystercatcher	House sparrow
Barn owl	Wood sandpiper	Snipe	Tree sparrow
Short-eared owl	Tern species	Woodcock	Linnet
Black grouse	Arctic skua	Herring gull	Twite
Capercaillie	Great skua	Cuckoo	Lesser redpoll
Nightjar		Ring ouzel	Crossbill species
Chough		Raven	Bullfinch
Whooper swan		(Any flocks >30)	Hawfinch
(Other rare raptors)			Yellow hammer
			Reed bunting
			Corn bunting
			Mute swan
			Mallard
			Goosander
			Teal

Appendix 4: VP weather data

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_121016_001	0	10	500	N	3	CLR	2
SHR_121016_001	1	10	500	N	2	CLR	2
SHR_121016_002	0	10	500	N	2	ILR	2
SHR_121016_002	1	10	500	N	2	IHR	2
SHR_121016_002	2	10	500	N	2	ILR	2
SHR_121016_003	0	8	600	N	3	nil	5
SHR_121016_003	1	6	700	N	3	nil	5
SHR_121016_003	2	7	800	W	2	nil	5
SHR_121016_004	0	6	800	W	2	nil	5
SHR_121016_004	1	7	800	W	1	nil	4
SHR_121024_001	0	6	900	NE	2	nil	5
SHR_121024_001	1	9	900	NE	2	nil	5
SHR_121024_001	2	10	700	NE	2	nil	5
SHR_121024_001	3	10	700	NE	2	nil	5
SHR_121024_002	0	10	600	NE	2	nil	5
SHR_121024_002	1	10	600	NE	2	nil	5
SHR_121024_003	0	8	600	NE	2	nil	5
SHR_121024_003	1	10	600	NE	2	nil	5
SHR_121024_003	2	10	600	NE	2	nil	5
SHR_121024_003	3	10	500	N	2	nil	5
SHR_121024_004	0	10	500	NE	3	nil	5
SHR_121024_004	1	10	400	NE	2	nil	5
SHR_121024_005	0	9	500	WNW	1	nil	5
SHR_121024_005	1	9	500	NW	2	nil	5
SHR_121024_006	0	9	500	NW	2	nil	5
SHR_121024_006	1	4	700	NW	2	nil	5
SHR_121024_006	2	5	700	NW	1	nil	5
SHR_121026_001	0	8	1000	NE	2	nil	5
SHR_121026_001	1	9	1000	NE	2	nil	5
SHR_121026_002	0	10	1000	NE	2	nil	5
SHR_121026_002	1	10	1000	NE	3	nil	5
SHR_121026_002	2	9	1000	NE	3	nil	5
SHR_121026_002	3	7	1000	NE	4	nil	5
SHR_121026_003	0	5	1000	NE	3	nil	5
SHR_121026_003	1	4	1000	NE	3	nil	5
SHR_121026_003	2	3	1000	N	3	nil	5
SHR_121026_003	3	4	1000	N	3	nil	5
SHR_121102_001	0	10	700	SW	3	nil	4
SHR_121102_001	1	10	800	SW	3	nil	5
SHR_121102_002	0	10	800	SW	3	nil	5
SHR_121102_002	1	10	700	SW	3	CLR	4
SHR_121102_002	2	10	600	SW	3	CLR	3
SHR_121102_003	0	9	600	W	3	IHR	3
SHR_121102_003	1	7	700	WNW	3	IHR	4

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_121102_003	2	7	700	W	2	nil	5
SHR_121102_004	0	7	700	W	2	nil	5
SHR_121102_004	1	5	700	W	1	nil	5
SHR_121121_001	0	10	500	nil	0	nil	4
SHR_121121_001	1	10	500	nil	0	nil	4
SHR_121121_002	0	10	500	nil	0	nil	4
SHR_121121_002	1	10	500	SW	1	nil	4
SHR_121121_002	2	10	500	SW	1	nil	4
SHR_121121_003	0	10	400	S	2	IHF	2
SHR_121121_003	1	9	400	S	2	ILF	3
SHR_121121_003	2	7	500	S	3	nil	5
SHR_121121_004	0	6	700	S	3	nil	5
SHR_121121_004	1	3	700	S	2	nil	4
SHR_121127_001	0	5	900	N	4	nil	5
SHR_121127_001	1	5	900	N	4	nil	5
SHR_121127_001	2	4	900	N	3	nil	5
SHR_121127_002	0	4	900	N	3	nil	5
SHR_121127_002	1	2	900	N	3	nil	5
SHR_121127_003	0	5	800	N	4	nil	5
SHR_121127_003	1	3	800	N	5	nil	5
SHR_121127_004	0	3	800	N	5	nil	5
SHR_121127_004	1	5	800	N	5	nil	5
SHR_121127_004	2	5	800	N	4	nil	5
SHR_121127_004	3	5	800	N	4	nil	5
SHR_121128_001	0	0		NE	2	nil	5
SHR_121128_001	1	0		NE	2	nil	5
SHR_121128_001	2	0		NE	2	nil	5
SHR_121128_002	0	0		NE	1	nil	5
SHR_121128_002	1	0		NE	1	nil	5
SHR_121128_003	0	1	800	NE	1	nil	5
SHR_121128_003	1	1	800	NE	1	nil	5
SHR_121128_004	0	1	800	NE	1	nil	5
SHR_121128_004	1	1	800	NE	1	nil	5
SHR_121207_001	0	3	800	NW	3	nil	5
SHR_121207_001	1	2	800	NW	4	nil	5
SHR_121207_002	0	2	800	NW	4	nil	5
SHR_121207_002	1	2	800	NW	3	nil	5
SHR_121207_003	0	3	600	NW	4	nil	5
SHR_121207_003	1	3	600	NW	4	nil	5
SHR_121207_004	0	3	600	NW	4	nil	5
SHR_121207_004	1	4	700	NW	5	nil	5
SHR_121207_004	2	4	700	NW	6	nil	5
SHR_121212_001	0	10	300	nil	0	CLS	1
SHR_121212_001	1	10	300	nil	0	ILS	1
SHR_121212_002	0	10	300	nil	0	CLS	1

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_121212_002	1	10	300	nil	0	ILS	2
SHR_121212_002	2	10	300	nil	0	nil	1
SHR_121212_003	0	10	300	nil	0	CLF	1
SHR_121212_003	1	10	300	nil	0	CLF	1
SHR_121212_003	2	10	400	SE	1	CLF	2
SHR_121212_004	0	10	400	SE	1	CLF	2
SHR_121212_004	1	10	400	SE	1	CLF	2
SHR_121212_005	0	10	300			CLS	1
SHR_121212_005	1	10	300			CLS	1
SHR_121212_006	0	10	300		0	CLS	1
SHR_121212_006	1	10	300		0	CLS	2
SHR_121212_006	2	10	300		0	nil	2
SHR_121212_007	0	10	300			CLF	1
SHR_121212_007	1	10	300			CLF	1
SHR_121212_007	2	10	300	S	1	ILF	2
SHR_121212_008	0	10	400	S	1	nil	2
SHR_121212_008	1	10	400			ILF	2
SHR_121218_001	0	5	800	NE	1	nil	5
SHR_121218_001	1	7	800	NE	1	nil	5
SHR_121218_002	0	9	800	NE	1	nil	5
SHR_121218_002	1	9	800	NE	1	nil	5
SHR_121218_003	0	4	1000	NE	1	nil	3
SHR_121218_003	1	5	700	NE	1	nil	5
SHR_121218_004	0	6	700	NE	1	nil	5
SHR_121218_004	1	8	700	NE	1	nil	5
SHR_121218_004	2	5	800	NE	1	nil	5
SHR_130110_001	0	2	900	W	1	nil	5
SHR_130110_001	1	3	900	W	1	nil	5
SHR_130110_001	2	3	900	W	1	nil	5
SHR_130110_002	0	3	900	W	1	nil	5
SHR_130110_002	1	3	900	W	1	nil	4
SHR_130110_003	0	6	800	NE	1	nil	4
SHR_130110_003	1	5	900	NE	2	nil	5
SHR_130110_004	0	5	900	NE	2	nil	5
SHR_130110_004	1	3	900	W	1	nil	5
SHR_130110_004	2	3	900	W	1	nil	5
SHR_130116_001	0	10	700	ESE	1	nil	3
SHR_130116_001	1	10	700	SE	1	nil	5
SHR_130116_002	0	9	700	SE	1	nil	5
SHR_130116_002	1	9	700	SE	1	nil	5
SHR_130116_002	2	10	700	SE	1	nil	5
SHR_130116_003	0	10	700	SE	1	nil	5
SHR_130116_003	1	10	600	SE	1	ILR	4
SHR_130116_003	2	10	600	SE	1	nil	4
SHR_130116_004	0	10	600	SE	1	nil	4

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_130116_004	1	10	600	SE	1	nil	3
SHR_130121_001	0	10	500	NE	1	ILS	2
SHR_130121_001	1	10	400	NE	2	IHS	1
SHR_130121_002	0	10	400	E	2	IHS	1
SHR_130121_002	1	10	400	E	2	CLS	1
SHR_130121_002	2	10	400	E	2	CLS	1
SHR_130121_003	0	10	400	E	3	CLS	1
SHR_130121_003	1	10	400	E	3	CLS	1
SHR_130121_003	2	10	400	E	3	CLS	1
SHR_130121_004	0	10	400	E	3	ILS	2
SHR_130121_004	1	10	400	E	3	CLS	1
SHR_130122_001	0	7	700	E	2	nil	5
SHR_130122_001	1	5	700	E	2	nil	5
SHR_130122_001	2	6	700	E	1	nil	5
SHR_130122_002	0	6	700	E	1	nil	5
SHR_130122_002	1	6	700	E	1	nil	5
SHR_130122_003	0	10	500	E	2	nil	4
SHR_130122_003	1	10	500	E	3	nil	5
SHR_130122_004	0	10	500	E	3	nil	5
SHR_130122_004	1	10	600	E	3	nil	5
SHR_130122_004	2	9	600	E	3	nil	5
SHR_130212_001	0	9	800	SE	3	nil	5
SHR_130212_001	1	9	800	SE	3	nil	4
SHR_130212_001	2	10	800	SE	3	nil	4
SHR_130212_002	0	10	800	SE	2	nil	3
SHR_130212_002	1	10	800	SE	1	nil	3
SHR_130212_003	0	9	700	nil	0	nil	3
SHR_130212_003	1	9	700	SE	1	nil	4
SHR_130212_004	0	9	700	SE	2	nil	4
SHR_130212_004	1	9	700	SE	2	nil	4
SHR_130212_004	2	10	700	SE	3	nil	4
SHR_130212_006	0	10	700	SE	2	nil	4
SHR_130212_006	1	10	700	SE	2	nil	3
SHR_130212_007	0	8	700	SE	2	nil	5
SHR_130212_007	1	10	700	SE	2	nil	4
SHR_130212_007	2	10	700	SE	2	nil	4
SHR_130212_008	0	10	600	NE	2	nil	4
SHR_130212_008	1	9	700	NE	2	nil	5
SHR_130212_009	0	9	700	NE	2	nil	5
SHR_130212_009	1	9	700	E	2	nil	5
SHR_130212_009	2	10	700	ESE	2	nil	5
SHR_130214_001	0	10	600	N	1	nil	3
SHR_130214_001	1	10	500	N	1	ILR	3
SHR_130214_002	0	10	500	N	1	ILR	4
SHR_130214_002	1	10	500	W	3	ILR	5

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_130214_002	2	9	600	W	3	nil	5
SHR_130214_003	0	8	700	NW	4	nil	5
SHR_130214_003	1	7	700	NW	4	IHR	5
SHR_130214_003	2	6	700	NW	4	nil	5
SHR_130214_004	0	7	700	NW	4	nil	5
SHR_130214_004	1	7	700	NW	4	nil	5
SHR_130214_006	0	10	500	N	1	ILR	2
SHR_130214_006	1	10	500	N	1	ILR	3
SHR_130214_007	0	9	500	N	1	nil	4
SHR_130214_007	1	9	600	SW	2	ILR	4
SHR_130214_007	2	9	500	WSW	1	nil	4
SHR_130214_008	0	7	600	W	3	ILR	5
SHR_130214_008	1	8	600	W	4	IHR	4
SHR_130214_008	2	7	600	W	4	nil	5
SHR_130214_009	0	6	600	W	4	nil	5
SHR_130214_009	1	8	600	W	4	ILR	5
SHR_130313_001	0	2	900			nil	5
SHR_130313_001	1	2	900			nil	5
SHR_130313_002	0	1	900	N	2	nil	5
SHR_130313_002	1	2	900	N	3	nil	5
SHR_130313_002	2	3	900	N	3	nil	5
SHR_130313_002	3	3	900	N	3	nil	5
SHR_130313_003	0	3	900	N	4	nil	5
SHR_130313_003	1	4	900	N	4	nil	5
SHR_130313_003	2	4	900	N	4	nil	5
SHR_130313_003	3	4	900	N	3	nil	5
SHR_130313_004	0	4	900	N	2	nil	5
SHR_130313_004	1	4	900	N	2	nil	5
SHR_130314_001	0	10	400	S	2	CLR	2
SHR_130314_001	1	10	400	S	2	CLR	2
SHR_130314_001	2	10	500	S	2	ILR	3
SHR_130314_001	3	10	500	S	2	ILR	3
SHR_130326_001	0	8	700	NE	2	nil	5
SHR_130326_001	1	9	700	NE	3	ILS	5
SHR_130326_002	0	10	700	NE	3	ILS	5
SHR_130326_002	1	10	700	E	3	IHS	4
SHR_130326_002	2	10	700	E	3	CLS	3
SHR_130326_003	0	10	700	E	3	CLS	3
SHR_130326_003	1	9	700	E	3	ILS	4
SHR_130326_003	2	10	700	E	3	CLS	3
SHR_130326_003	3	10	700	E	3	CLS	3
SHR_130328_001	0	8	800	E	3	nil	5
SHR_130328_001	1	7	800	E	3	nil	5
SHR_130328_001	2	7	800	E	2	nil	5
SHR_130328_002	0	4	800	E	2	nil	5

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_130328_002	1	4	800	E	2	nil	5
SHR_130328_003	0	4	800	E	2	nil	5
SHR_130328_003	1	7	800	E	3	nil	5
SHR_130328_003	2	7	800	E	3	nil	5
SHR_130328_003	3	6	800	E	3	nil	5
SHR_130422_001	0	10	600	SW	4	ILR	8
SHR_130422_001	1	9	700	SW	5	nil	8
SHR_130422_002	0	9	700	SW	4	nil	8
SHR_130422_002	1	8	800	SW	4	nil	10
SHR_130423_001	0	10	800	SW	5	nil	10
SHR_130423_001	1	9	800	SW	4	nil	10
SHR_130423_002	0	8	800	SW	4	nil	10
SHR_130423_002	1	9	700	SW	3	nil	10
SHR_130423_003	0	10	800	W	4	nil	10
SHR_130423_003	1	10	800	W	4	nil	10
SHR_130423_004	0	10	800	W	3	nil	10
SHR_130423_004	1	10	800	W	3	nil	10
SHR_130423_004	2	10	800	W	3	nil	10
SHR_130424_001	0	10	400	SW	2	CLR	1.5
SHR_130424_001	1	10	400	SW	2	CLR	1.5
SHR_130424_002	0	10	600	W	3	nil	5
SHR_130424_002	1	10	600	W	3	ILR	5
SHR_130425_001	0	9	600	W	3	nil	10
SHR_130425_001	1	6	800	W	3	nil	10
SHR_130425_001	2	6	800	W	3	nil	10
SHR_130425_002	0	10	400	nil	0	CLR	8
SHR_130425_002	1	10	400	nil	0	ILR	8
SHR_130425_002	2	10	400	W	2	nil	10
SHR_130425_002	3	10	600	W	2	nil	10
SHR_130426_001	0	2	400	W	2	nil	10
SHR_130426_001	1	1	400	W	3	nil	10
SHR_130426_001	2	2	600	W	3	nil	10
SHR_130427_001	0	7	700	W	2	nil	3
SHR_130427_001	1	7	700	W	2	nil	3
SHR_130427_001	2	8	600	W	2	nil	3
SHR_130427_001	3	9	600	W	2	nil	3
SHR_130427_002	0	4	800	W	2	nil	3
SHR_130427_002	1	5	800	W	2	nil	3
SHR_130427_003	0	3	800	W	2	nil	3
SHR_130427_003	1	3	800	W	1	nil	3
SHR_130427_003	2	4	800	W	1	nil	3
SHR_130427_003	3	5	800	W	1	nil	3
SHR_130429_001	0	5	800	NW	5	nil	10
SHR_130429_001	1	5	800	NW	5	nil	10
SHR_130429_001	2	5	800	NW	5	nil	10

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_130430_001	0	0		nil	0	nil	10
SHR_130430_001	1	0		nil	0	nil	10
SHR_130430_001	2	0		nil	0	nil	10
SHR_130504_001	0	4	800	SW	4	nil	3
SHR_130504_001	1	6	800	SW	4	nil	3
SHR_130504_002	0	6	800	SW	4	nil	3
SHR_130504_002	1	5	800	SW	3	nil	3
SHR_130504_003	0	8	700	SW	2	nil	3
SHR_130504_003	1	9	700	SW	2	nil	3
SHR_130504_003	2	9	700	SW	2	nil	3
SHR_130506_001	0	10	300	SW	2	nil	3
SHR_130506_001	1	10	300	SW	2	ILR	2
SHR_130506_001	2	10	300	SW	2	ILR	2
SHR_130506_001	3	10	300	SW	2	ILR	2
SHR_130509_001	0	10	300	S	3	ILR	6
SHR_130509_001	1	10	300	S	3	ILR	6
SHR_130509_001	2	10	300	S	3	nil	8
SHR_130509_002	0	10	300	S	3	nil	8
SHR_130509_002	1	10	400	S	4	nil	10
SHR_130509_002	2	10	400	S	4	nil	10
SHR_130511_001	0	10	600	W	2	CLR	3
SHR_130511_001	1	10	600	W	2	CLR	3
SHR_130511_001	2	10	600	W	2	CLR	2
SHR_130511_002	0	10	500	W	2	CHR	2
SHR_130511_002	1	10	500	W	2	CHR	2
SHR_130511_003	0	10	500	W	2	ILR	2
SHR_130511_003	1	10	500	W	2	CHR	2
SHR_130515_001	0	2	600	N	2	nil	10
SHR_130515_001	1	2	600	N	2	nil	10
SHR_130515_001	2	3	600	N	3	nil	10
SHR_130515_002	0	9	600	N	4	nil	10
SHR_130515_002	1	8	600	N	4	nil	10
SHR_130515_002	2	8	600	N	4	nil	10
SHR_130520_001	0	10	800	NE	2	nil	10
SHR_130520_001	1	7	800	NE	2	nil	10
SHR_130520_002	0	2	800	N	2	nil	10
SHR_130520_002	1	2	800	N	3	nil	10
SHR_130521_001	0	8	600	NW	4	nil	10
SHR_130521_001	1	6	600	NW	4	nil	10
SHR_130521_001	2	6	600	NW	4	nil	10
SHR_130521_002	0	8	800	NW	4	nil	10
SHR_130521_002	1	7	800	NW	4	nil	10
SHR_130521_002	2	7	800	NW	3	nil	10
SHR_130521_003	0	2	800	NW	4	nil	10
SHR_130521_003	1	0		NW	4	nil	10

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_130521_003	2	0		NW	4	nil	10
SHR_130527_001	0	8	700	SW	3	nil	3
SHR_130527_001	1	7	700	SW	3	nil	3
SHR_130527_002	0	6	700	SW	2	nil	3
SHR_130527_002	1	8	700	SW	2	nil	3
SHR_130603_001	0	10	400		0	nil	4
SHR_130603_001	1	10	400		0	ILR	4
SHR_130603_001	2	10	400		0	ILR	4
SHR_130603_002	0	10	400		0	nil	5
SHR_130603_002	1	10	400		0	nil	5
SHR_130603_002	2	10	400		0	nil	8
SHR_130603_003	0	10	600		0	ILR	10
SHR_130603_003	1	10	600		0	nil	10
SHR_130603_003	2	10	600		0	nil	10
SHR_130609_001	0	2	1000	W	2	nil	3
SHR_130609_001	1	1	1000	W	1	nil	3
SHR_130609_001	2	1	1000	W	1	nil	3
SHR_130609_002	0	2	800	W	2	nil	3
SHR_130609_002	1	2	800	W	1	nil	3
SHR_130609_003	0	2	800	W	2	nil	3
SHR_130609_003	1	3	800	W	1	nil	3
SHR_130609_003	2	3	800	W	2	nil	3
SHR_130610_001	0	10	500	SE	2	nil	8
SHR_130610_001	1	10	500	SE	2	nil	4
SHR_130610_001	2	10	500	SE	1	nil	4
SHR_130610_001	3	10	500	SE	1	nil	6
SHR_130610_002	0	10	500		0	nil	4
SHR_130610_002	1	10	500		0	nil	4
SHR_130610_002	2	10	500		0	nil	4
SHR_130610_003	0	10	500		0	nil	4
SHR_130610_003	1	10	500		0	nil	5
SHR_130610_003	2	10	500		0	nil	5
SHR_130611_001	0	10	400	SW	2	CLR	2
SHR_130611_001	1	10	400	SW	2	CLR	2
SHR_130611_001	2	10	400	SW	2	CLR	2
SHR_130612_001	0	7	600	W	2	nil	10
SHR_130612_001	1	7	600	W	2	nil	10
SHR_130619_001	0	3	800	W	3	nil	10
SHR_130619_001	1	3	800	W	3	nil	10
SHR_130619_002	0	3	800	W	3	nil	10
SHR_130619_002	1	5	800	W	3	nil	10
SHR_130619_002	2	5	800	W	2	nil	10
SHR_130619_003	0	0		W	2	nil	10
SHR_130619_003	1	0		W	2	nil	10
SHR_130619_003	2	0		W	2	nil	10

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_130620_001	0	7	600	SE	3	nil	10
SHR_130620_001	1	8	600	SE	3	nil	10
SHR_130620_001	2	8	600	SE	3	nil	10
SHR_130620_002	0	7	600	SE	2	nil	10
SHR_130620_003	0	9	600	SE	2	nil	10
SHR_130620_003	1	9	600	SE	2	nil	10
SHR_130620_004	0	9	600	SE	1	nil	10
SHR_130620_005	0	9	600	S	2	nil	10
SHR_130620_005	1	9	600	S	1	nil	10
SHR_130620_005	2	9	600	S	1	nil	10
SHR_130708_001	0	0		W	1	nil	10
SHR_130708_001	1	0		W	1	nil	10
SHR_130708_001	2	0		W	1	nil	10
SHR_130708_002	0	0			0	nil	10
SHR_130708_002	1	0			0	nil	10
SHR_130708_002	2	0			0	nil	10
SHR_130708_003	0	0		nil	0	nil	10
SHR_130708_003	1	0		W	1	nil	10
SHR_130708_003	2	0		W	1	nil	10
SHR_130708_004	0	9	800		0	nil	10
SHR_130708_004	1	9	800		0	nil	10
SHR_130708_004	2	9	800		0	nil	10
SHR_130708_005	0	8	800		0	nil	10
SHR_130708_005	1	7	800		0	nil	10
SHR_130708_005	2	6	800		0	nil	10
SHR_130711_001	0	9	600		0	nil	10
SHR_130711_001	1	10	600		0	nil	10
SHR_130711_001	2	10	600		0	nil	10
SHR_130711_002	0	10	600		0	nil	10
SHR_130711_002	1	10	600		0	nil	10
SHR_130711_002	2	10	600		0	nil	10
SHR_130711_003	0	6	800		0	nil	10
SHR_130711_003	1	6	800		0	nil	10
SHR_130711_003	2	6	800		0	nil	10
SHR_130711_004	0	6	800		0	nil	10
SHR_130711_004	1	0			0	nil	10
SHR_130711_004	2	0			0	nil	10
SHR_130711_005	0	10	600		0	nil	10
SHR_130711_005	1	10	600		0	nil	10
SHR_130711_005	2	10	600		0	nil	10
SHR_130711_006	0	10	600		0	nil	10
SHR_130711_006	1	10	600		0	nil	10
SHR_130711_006	2	9	600		0	nil	10
SHR_130715_001	0	9	600	W	2	nil	10
SHR_130715_001	1	9	600	W	2	nil	10

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_130715_001	2	9	600	W	3	nil	10
SHR_130715_002	0	10	600	W	2	nil	10
SHR_130715_002	1	7	600	W	2	nil	10
SHR_130715_002	2	0		W	2	nil	10
SHR_130715_003	0	7	600	W	2	nil	10
SHR_130715_003	1	7	600	W	2	nil	10
SHR_130715_003	2	9	600	W	2	nil	10
SHR_130715_004	0			W	2	nil	10
SHR_130715_004	0			W	2	nil	10
SHR_130715_004	0			W	2	nil	10
SHR_130715_005	0	10	600	W	3	nil	10
SHR_130715_005	1	8	600	W	3	nil	10
SHR_130715_005	2	10	600	W	3	nil	10
SHR_130715_006	0	0		W	2	nil	10
SHR_130715_006	1	0		W	2	nil	10
SHR_130715_006	2	0		W	2	nil	10
SHR_130716_001	0	8	600	W	1	nil	10
SHR_130716_001	1	6	600	W	1	nil	10
SHR_130716_001	2	6	600	W	1	nil	10
SHR_130716_002	0	10	500		0	nil	10
SHR_130716_002	1	10	500		0	nil	10
SHR_130716_002	2	10	500		0	nil	10
SHR_130716_003	0	10	600	W	1	nil	10
SHR_130716_003	1	9	600	W	1	nil	10
SHR_130716_003	2	8	600	W	1	nil	10
SHR_130716_004	0	10	500	W	1	nil	10
SHR_130716_004	1	10	500	W	1	nil	10
SHR_130716_004	2	10	500	W	1	nil	10
SHR_130716_005	0	10	600	W	1	nil	10
SHR_130716_005	1	10	600	W	1	nil	10
SHR_130716_005	2	10	600	W	2	nil	10
SHR_130813_001	0	8	600	W	3	nil	10
SHR_130813_001	1	8	600	W	3	nil	10
SHR_130813_001	2	8	600	W	3	nil	10
SHR_130813_002	0	8	600	W	3	nil	10
SHR_130813_002	1	6	800	W	3	nil	10
SHR_130813_002	2	9	800	W	3	nil	10
SHR_130813_003	0	8	800	W	3	nil	10
SHR_130813_003	1	6	800	W	3	nil	10
SHR_130813_003	2	8	800	W	3	nil	10
SHR_130813_003	3	6	800	W	3	nil	10
SHR_130813_004	0	10	800	W	4	nil	10
SHR_130813_004	1	10	800	W	3	nil	10
SHR_130813_004	2	10	800	W	3	nil	10
SHR_130814_001	0	10	800	SW	3	nil	10

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_130814_001	1	10	800	SW	3	nil	10
SHR_130814_001	2	10	600	SW	3	ILR	6
SHR_130814_001	3	10	500	SW	3	ILR	6
SHR_130814_002	0	10	500	SW	2	ILR	4
SHR_130814_002	1	10	400	SW	2	CLR	4
SHR_130814_002	2	10	400	SW	2	CLR	4
SHR_130814_003	0	10	400	SW	2	nil	8
SHR_130814_003	1	10	400	SW	2	nil	8
SHR_130814_003	2	10	400	SW	2	nil	8
SHR_130814_004	0	10	400	SW	2	nil	8
SHR_130814_004	1	9	500	SW	2	nil	10
SHR_130814_004	2	9	500	SW	2	nil	10
SHR_130819_001	0	10	800	W	3	nil	10
SHR_130819_001	1	8	800	W	3	nil	10
SHR_130819_001	2	8	800	W	2	nil	10
SHR_130819_002	0	10	600	W	2	nil	10
SHR_130819_002	1	10	600	W	3	nil	10
SHR_130819_002	2	9	800	W	3	nil	10
SHR_130819_002	3	9	800	W	4	nil	10
SHR_130819_003	0	10	500	W	1	nil	10
SHR_130819_003	1	10	500	W	1	nil	10
SHR_130819_003	2	10	500	W	1	nil	10
SHR_130819_004	0	10	500	W	1	nil	10
SHR_130819_004	1	10	500	W	2	nil	10
SHR_130819_004	2	10	500	W	2	nil	10
SHR_130820_001	0	10	600		0	nil	10
SHR_130820_001	1	10	600		0	nil	10
SHR_130820_001	2	10	600		0	nil	10
SHR_130820_002	0	10	600		0	nil	10
SHR_130820_002	1	10	600	SW	1	nil	10
SHR_130820_002	2	10	600	SW	2	nil	10
SHR_130820_003	0	10	800	SW	3	nil	10
SHR_130820_003	1	10	800	SW	2	nil	10
SHR_130820_003	2	10	800	SW	2	nil	10
SHR_130820_004	0	10	600	SW	2	nil	10
SHR_130820_004	1	9	800	SW	2	nil	10
SHR_130820_004	2	9	800	SW	3	nil	10
SHR_130820_004	3	10	800	SW	3	nil	10
SHR_170421_001	0	10	600	SW	5	ILR	3
SHR_170421_001	1	10	600	SW	5	ILR	3
SHR_170421_001	2	10	600	SW	5	nil	3
SHR_170421_002	0	10	600	W	5	nil	5
SHR_170421_002	1	10	400	W	5	CLR	2
SHR_170421_002	2	10	600	W	5	nil	5
SHR_170424_001	0	5	900	W	5	ILS	6

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_170424_001	1	4	900	W	5	ILH	6
SHR_170424_002	0	1	900	W	5	nil	6
SHR_170424_002	1	1	900	W	5	nil	6
SHR_170425_001	0	1	800	NW	6	nil	6
SHR_170425_001	1	1	800	NW	6	nil	6
SHR_170425_001	2	2	800	NW	6	nil	6
SHR_170425_001	3	4	800	NW	6	nil	6
SHR_170426_001	0	8	1000	NW	3	nil	6
SHR_170426_001	1	9	1000	NW	3	nil	6
SHR_170426_001	2	10	900	NNW	4	nil	6
SHR_170426_001	3	9	900	NNW	3	nil	6
SHR_170426_002	0	4	1000	NW	3	nil	6
SHR_170426_002	1	6	1000	NW	3	nil	6
SHR_170426_002	2	6	1000	NW	3	nil	6
SHR_170426_002	3	6	1000	NW	3	nil	6
SHR_170426_003	0	6	1000	NW	3	nil	6
SHR_170426_003	1	6	1000	NW	3	nil	6
SHR_170427_001	0	5	600	NNW	3	nil	6
SHR_170427_001	1	7	800	NNW	4	ILR	6
SHR_170427_002	0	7	500	NNW	3	ILR	3
SHR_170427_002	1	8	500	NNW	4	ILR	4
SHR_170427_003	0	6	900	NW	5	nil	6
SHR_170427_003	1	7	900	NW	5	nil	6
SHR_170427_003	2	6	900	NW	5	nil	6
SHR_170427_004	0	4	800	WNW	5	nil	6
SHR_170427_004	1	4	800	WNW	5	nil	6
SHR_170504_001	0	1		NE	5	nil	10
SHR_170504_001	1	1		NE	5	nil	10
SHR_170504_001	2	1		NE	5	nil	10
SHR_170504_002	0	2	1000	NE	5	nil	10
SHR_170504_002	1	3	1000	NE	5	nil	10
SHR_170504_002	2	4	1000	NE	5	nil	10
SHR_170504_002	3	5	1000	NE	5	nil	10
SHR_170504_003	0	2	1000	NE	5	nil	10
SHR_170504_003	1	1		NE	5	nil	10
SHR_170504_003	2	1		NE	5	nil	10
SHR_170504_003	3	1		NE	5	nil	10
SHR_170505_001	0	0		NE	5	nil	10
SHR_170505_001	1	0		NE	5	nil	10
SHR_170505_001	2	0		NE	5	nil	10
SHR_170505_001	3	0		NE	5	nil	10
SHR_170505_002	0	0		NE	3	nil	10
SHR_170505_002	1	0		NE	3	nil	10
SHR_170505_003	0	0		NE	3	nil	10
SHR_170505_003	1	0		NE	3	nil	10

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_170505_003	2	0		NE	3	nil	10
SHR_170508_001	0	0		NE	4	nil	10
SHR_170508_001	1	0		NE	4	nil	10
SHR_170508_002	0	0		NE	5	nil	10
SHR_170508_002	1	0		NE	5	nil	10
SHR_170508_003	0	0		NE	5	nil	10
SHR_170508_003	1	0		NE	4	nil	10
SHR_170509_001	0	0		NE	1	nil	10
SHR_170509_001	1	0		NE	1	nil	10
SHR_170509_002	0	1	1000	NE	1	nil	10
SHR_170509_002	1	2	1000	SW	2	nil	10
SHR_170509_002	2	1		SW	2	nil	10
SHR_170509_002	0	1	1000	NE	1	nil	10
SHR_170509_002	1	2	1000	SW	2	nil	10
SHR_170509_002	2	1		SW	2	nil	10
SHR_170509_003	0	1	1000	WSW	3	nil	6
SHR_170509_003	1	1	1000	WSW	3	nil	6
SHR_170509_003	2	1	1000	WSW	3	nil	6
SHR_170509_003	3	1	1000	W	4	nil	6
SHR_170510_001	0	4	800	W	3	nil	3
SHR_170510_002	0	4	800	W	2	nil	5
SHR_170510_002	1	7	800	W	2	nil	4
SHR_170511_001	0	5	1000	SE	3	nil	6
SHR_170511_001	1	5	1000	SSE	4	nil	6
SHR_170511_001	2	3	1000	SE	3	nil	6
SHR_170511_001	3	4	1000	SE	3	nil	6
SHR_170522_001	0	9	600	SW	3	nil	2
SHR_170522_001	1	6	700	SW	3	nil	4
SHR_170522_002	0	9	700	SW	3	nil	3
SHR_170522_002	1	10	400	SW	3	CLR	1
SHR_170523_001	0	3	800	SW	1	nil	6
SHR_170523_001	1	3	800	SW	1	nil	6
SHR_170523_002	0	10	800	SW	3	nil	6
SHR_170523_002	1	10	800	SW	3	nil	6
SHR_170525_001	0	0		S	3	nil	10
SHR_170525_001	1	0		S	3	nil	10
SHR_170525_002	0	1	1000	SW	3	nil	6
SHR_170525_002	1	1	1000	SW	3	nil	6
SHR_170525_003	0	1	1000	SW	3	nil	6
SHR_170525_003	1	0		SW	3	nil	6
SHR_170605_001	0	10	800	S	4	nil	6
SHR_170605_002	0	10	800	S	4	nil	6
SHR_170605_002	1	10	700	S	4	ILR	6
SHR_170605_003	0	8	800	SW	4	nil	6
SHR_170605_003	1	7	800	SW	3	nil	6

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_170605_003	2	5	800	SW	3	nil	6
SHR_170605_003	3	7	800	SW	3	nil	6
SHR_170606_001	0	10	700	WNW	5	CLR	3
SHR_170606_001	1	10	800	WNW	6	CLR	3
SHR_170606_001	2	10	700	WNW	6	ILR	3
SHR_170606_002	0	10	700	NW	5	CHR	3
SHR_170606_002	1	10	700	NW	5	CLR	3
SHR_170606_003	0	10	700	NNW	5	CLR	3
SHR_170606_003	1	10	700	NNW	5	CLR	3
SHR_170607_001	0	7	800	WNW	6	nil	4
SHR_170607_001	1	7	800	WNW	6	nil	4
SHR_170608_001	0	10	500	SW	3	nil	4
SHR_170608_001	1	10	500	SW	4	nil	4
SHR_170608_002	0	10	400	SW	3	IHR	3
SHR_170608_002	1	10	400	SW	4	IHR	3
SHR_170608_003	0	10	300	NNW	2	CLF	1.5
SHR_170608_003	1	10	500	N	3	ILR	1.5
SHR_170608_004	0	10	500	N	3	CHR	2
SHR_170608_004	1	10	500	N	3	CHR	3
SHR_170609_001	0	10	300	S	3	nil	3
SHR_170609_001	1	10	300	S	3	IHR	3
SHR_170609_002	0	10	600	S	3	ILF	4
SHR_170609_002	1	9	600	S	3	nil	4
SHR_170626_001	0	10	800	SW	3	nil	6
SHR_170626_001	1	10	800	SW	3	nil	6
SHR_170626_001	2	10	800	SW	3	nil	6
SHR_170626_001	3	10	800	SSW	3	nil	6
SHR_170626_002	0	10	800	W	2	nil	10
SHR_170626_002	1	10	800	W	2	nil	10
SHR_170626_002	2	10	800	W	2	nil	10
SHR_170628_001	0	10	600	NNE	3	nil	6
SHR_170628_001	1	10	800	NE	3	nil	6
SHR_170628_001	2	10	800	NE	3	nil	6
SHR_170628_002	0	10	800	ENE	3	nil	6
SHR_170628_002	1	10	800	ENE	3	nil	6
SHR_170628_002	2	10	800	ENE	3	nil	6
SHR_170628_002	3	10	800	NE	4	nil	6
SHR_170628_003	0	10	800	NNE	4	nil	6
SHR_170628_003	1	10	800	NNE	5	nil	6
SHR_170703_001	0	7	800	NW	4	nil	6
SHR_170703_001	1	5	800	NW	4	nil	6
SHR_170703_002	0	9	1000	NW	4	nil	6
SHR_170703_002	1	9	1000	NNW	3	nil	6
SHR_170703_003	0	10	800	NW	4	nil	6
SHR_170703_003	1	10	800	NW	5	nil	6

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_170703_003	2	9	800	NW	5	nil	6
SHR_170703_003	3	8	800	NW	4	nil	6
SHR_170703_004	0	10	800	NW	4	nil	6
SHR_170703_004	1	10	700	NW	4	ILR	3
SHR_170704_001	0	10	400	SE	3	CLR	2
SHR_170704_001	1	10	500	SE	2	ILR	2
SHR_170704_002	0	10	500	SE	2	nil	3
SHR_170704_002	1	10	600	NE	2	ILR	3
SHR_170705_001	0	10	600	NE	1	nil	3
SHR_170705_001	1	10	700	SE	2	nil	4
SHR_170705_001	2	10	700	SE	3	nil	4
SHR_170707_001	0	10	500	SW	2	nil	3
SHR_170707_001	1	10	400	SW	2	ILR	0.5
SHR_170707_002	0	10	400	SW	2	CLR	0.5
SHR_170707_002	1	10	500	SW	3	ILR	2
SHR_170717_001	0	0		SW	4	nil	6
SHR_170717_001	1	0		SW	4	nil	6
SHR_170717_001	2	0		SW	4	nil	6
SHR_170717_001	3	0		SW	4	nil	6
SHR_170718_001	0	1	1000	SSE	4	nil	6
SHR_170718_001	1	1	1000	SSE	4	nil	6
SHR_170718_001	2	3	900	SSE	4	nil	6
SHR_170718_001	3	5	900	SSE	4	nil	6
SHR_170718_002	0	1	1000	SE	4	nil	6
SHR_170718_002	1	1	1000	SSE	4	nil	6
SHR_170718_003	0	1	1000	SSE	4	nil	6
SHR_170718_003	1	1	1000	SSE	4	nil	6
SHR_170815_001	0	7	900	SW	3	nil	5
SHR_170815_001	1	8	900	SW	3	IHR	5
SHR_170815_001	2	8	900	SW	3	nil	5
SHR_170815_001	3	7	900	SW	3	nil	5
SHR_170815_002	0	8	500	NW	3	nil	5
SHR_170815_002	1	8	600	NW	3	nil	5
SHR_170815_003	0	7	600	W	3	nil	5
SHR_170815_003	1	8	600	W	2	nil	5
SHR_170817_001	0	8	800	SW	4	nil	5
SHR_170817_001	1	7	800	SW	4	nil	5
SHR_170817_002	0	8	600	SW	3	nil	5
SHR_170817_002	1	7	600	SW	4	nil	5
SHR_170817_003	0	5	900	SW	4	nil	5
SHR_170817_003	1	6	900	SW	4	nil	5
SHR_170817_003	2	7	800	SW	4	nil	5
SHR_170817_003	3	8	700	SW	4	ILR	5
SHR_170822_001	0	10	300	SE	1	CLF	1
SHR_170822_001	1	10	300	SE	1	CLF	1

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_170822_002	0	10	300	SSE	2	CLF	2
SHR_170822_002	1	10	200	SSE	2	CLF	0.5
SHR_170822_003	0	10	400	SE	3	ILF	3
SHR_170822_003	1	10	400	SE	3	ILF	3
SHR_170822_003	2	10	400	SE	3	ILF	3
SHR_170822_003	3	10	400	SE	3	ILF	3
SHR_170829_001	0	10	900	WSW	2	nil	5
SHR_170829_001	1	10	900	WSW	2	nil	5
SHR_170829_001	2	10	900	WSW	2	nil	5
SHR_170829_001	3	9	900	WSW	3	nil	5
SHR_170829_002	0	9	900	W	3	nil	5
SHR_170829_002	1	9	900	W	3	nil	5
SHR_170829_003	0	9	900	W	3	nil	5
SHR_170829_003	1	10	600	WNW	2	CHR	1
SHR_170904_001	0	10	300	SE	1	CLR	1
SHR_170904_001	1	10	200	SE	1	CLR	1
SHR_170904_002	0	10	300	SE	1	nil	2
SHR_170904_002	1	10	300	SE	1	ILR	2
SHR_170905_001	0	8	800	W	3	nil	5
SHR_170905_001	1	6	800	W	4	nil	5
SHR_170905_001	2	7	900	W	4	nil	5
SHR_170905_001	3	7	900	W	3	nil	5
SHR_170911_001	0	8	900	NW	5	nil	5
SHR_170911_001	1	8	900	NW	5	ILR	5
SHR_170911_002	0	9	700	WNW	5	ILR	5
SHR_170911_002	1	8	800	W	5	nil	5
SHR_170911_003	0	10	700	NW	6	ILR	5
SHR_170911_003	1	9	800	NW	6	ILR	5
SHR_170911_003	2	8	900	NW	6	nil	5
SHR_170911_003	3	8	900	NW	6	nil	5
SHR_170926_001	0	10	200	nil	0	CLF	0.2
SHR_170926_001	1	10	200	nil	0	CLF	0.2
SHR_170926_002	0	10	200	W	2	CLF	0.3
SHR_170926_002	1	10	200	W	2	CLF	0.3
SHR_170926_003	0	10	300	WSW	2	CLF	0.5
SHR_170926_003	1	10	300	SW	3	CLF	0.5
SHR_170926_003	2	10	400	S	3	CLF	1
SHR_170926_003	3	10	400	S	3	CLF	2
SHR_170927_001	0	10	500	SE	4	CLF	2
SHR_170927_001	1	10	500	SE	4	CLF	2
SHR_170927_001	2	10	700	SE	4	CLF	3
SHR_170927_001	3	10	700	SE	4	CLF	3
SHR_170927_002	0	10	700	SE	4	CLF	3
SHR_170927_002	1	10	600	SE	4	ILR	3
SHR_170927_003	0	10	600	SE	4	nil	3

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_170927_003	1	10	500	SE	4	IHR	2
SHR_171103_001	0	10	800	SW	2	nil	5
SHR_171103_001	1	10	900	SW	3	nil	5
SHR_171103_001	2	10	900	SW	3	nil	5
SHR_171103_001	3	10	900	SW	3	nil	5
SHR_171103_002	0	10	900	SW	3	nil	5
SHR_171103_002	1	10	800	SW	3	nil	5
SHR_171103_002	2	10	800	SW	3	nil	5
SHR_171103_003	0	10	800	SW	2	nil	5
SHR_171103_003	1	10	800	SW	2	nil	5
SHR_171120_001	0	10	500	WSW	3	ILF	3
SHR_171120_001	1	10	500	WSW	3	ILR	3
SHR_171120_001	2	10	400	WSW	3	CLR	2
SHR_171120_001	3	10	500	WSW	3	nil	3
SHR_171120_002	0	10	300	nil	0	CLR	2
SHR_171120_002	1	10	300	nil	0	CLR	2
SHR_171120_003	0	10	300	nil	0	CLR	2
SHR_171120_003	1	10	400	SW	1	CLR	2
SHR_171120_003	2	10	500	SW	2	ILR	3
SHR_171121_001	0	10	300	nil	0	CLF	0.2
SHR_171121_001	1	10	300	nil	0	CLF	1
SHR_171121_001	2	10	300	SW	3	CLF	1
SHR_171121_002	0	10	300	SW	4	CLF	2
SHR_171121_002	1	10	300	SW	3	ILR	1
SHR_171121_003	0	10	200	SW	3	CLR	0.5
SHR_171121_003	1	10	200	SW	3	CLR	0.5
SHR_171128_001	0	2	900	N	4	nil	5
SHR_171128_001	1	2	900	N	4	nil	5
SHR_171128_002	0	3	900	N	3	nil	5
SHR_171128_002	1	3	900	N	3	nil	5
SHR_171128_003	0	4	900	N	5	nil	5
SHR_171128_003	1	4	1000	N	5	nil	5
SHR_171128_003	2	3	1000	N	4	nil	5
SHR_171205_001	0	10	600	SW	3	nil	5
SHR_171205_001	1	10	600	SW	3	nil	5
SHR_171205_002	0	10	600	SW	3	nil	5
SHR_171205_002	1	10	600	SW	4	nil	5
SHR_171205_003	0	10	500	SW	2	ILR	4
SHR_171205_003	1	10	600	SW	3	nil	5
SHR_171205_003	2	9	500	SW	3	nil	5
SHR_171207_001	0	10	900	WNW	5	nil	5
SHR_171207_001	1	10	900	WNW	5	IHS	5
SHR_171207_001	2	9	900	WNW	5	nil	5
SHR_171207_002	0	9	800	WNW	4	nil	5
SHR_171207_002	1	10	800	NW	5	IHH	3

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_171207_003	0	10	700	NW	4	nil	4
SHR_171207_003	1	10	600	W	3	IHS	2
SHR_171218_001	0	5	1000	NW	1	nil	5
SHR_171218_001	1	4	1000	NW	1	ILF	4
SHR_171218_001	2	4	1000	SE	2	IHF	2
SHR_171218_002	0	9	600	NW	1	nil	1
SHR_171218_002	1	9	600	NW	1	nil	4
SHR_171218_003	0	9	600	NW	1	nil	5
SHR_171218_003	1	8	600	NW	1	ILF	4
SHR_171222_001	0	10	300	nil	0	CLF	0.5
SHR_171222_001	1	10	300	nil	0	CLF	0.5
SHR_171222_002	0	10	300	nil	0	CLF	0.5
SHR_171222_002	1	10	300	S	1	CLF	0.3
SHR_171222_003	0	7	900	SW	2	ILF	3
SHR_171222_003	1	9	900	SW	1	ILF	1
SHR_171222_003	2	10	300	SW	1	CLF	0.3
SHR_180108_001	0	1	1000	SE	3	nil	5
SHR_180108_001	1	1	1000	SE	3	nil	5
SHR_180108_001	2	1	1000	SE	4	nil	5
SHR_180108_002	0	0		E	4	nil	5
SHR_180108_002	1	0		E	4	nil	5
SHR_180108_003	0	1	900	E	4	nil	5
SHR_180108_003	1	1	900	E	4	nil	5
SHR_180109_001	0	10	400	E	3	CLF	1
SHR_180109_001	1	10	400	E	3	CLF	1
SHR_180109_002	0	10	400	E	3	CLF	1
SHR_180109_002	1	10	400	E	3	CLF	1
SHR_180109_003	0	10	400	E	3	CLF	2
SHR_180109_003	1	10	400	E	3	CLF	2
SHR_180109_003	2	10	400	E	3	CLF	2
SHR_180122_001	0	10	500	SW	2	nil	5
SHR_180122_001	1	10	500	SW	3	CLR	3
SHR_180122_001	2	10	500	SW	4	nil	4
SHR_180122_002	0	9	500	W	2	nil	4
SHR_180122_002	1	10	500	W	2	ILR	4
SHR_180122_003	0	10	500	W	2	nil	5
SHR_180122_003	1	10	500	SW	2	ILR	5
SHR_180126_001	0	1	1500	E	1	nil	5
SHR_180126_001	1	0		E	2	nil	5
SHR_180126_002	0	0		E	2	nil	5
SHR_180126_002	1	0		E	1	nil	5
SHR_180126_003	0	0		SE	1	nil	5
SHR_180126_003	1	1	900	SE	1	nil	5
SHR_180126_003	2	2	900	SE	1	nil	5
SHR_180205_001	0	10	900	S	2	nil	5

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_180205_001	1	10	900	S	2	nil	5
SHR_180205_002	0	10	900	S	1	nil	5
SHR_180205_002	1	10	900	S	1	nil	5
SHR_180205_003	0	10	1000	SW	1	nil	5
SHR_180205_003	1	10	1000	SW	1	nil	5
SHR_180205_003	2	10	1000	S	2	nil	5
SHR_180206_001	0	10	800	NW	2	ILS	4
SHR_180206_001	1	9	800	N	3	nil	5
SHR_180206_002	0	8	900	W	3	nil	5
SHR_180206_002	1	8	900	W	4	nil	5
SHR_180206_003	0	6	900	NW	5	nil	5
SHR_180206_003	1	6	900	NW	5	nil	5
SHR_180206_003	2	5	900	NW	5	nil	5
SHR_180220_001	0	1		NW	3	nil	10
SHR_180220_001	1	1		NW	3	nil	10
SHR_180220_001	2	1		W	3	nil	10
SHR_180220_001	3	1		W	3	nil	10
SHR_180222_001	0	9	600	S	3	nil	5
SHR_180222_001	1	9	700	S	3	nil	5
SHR_180222_001	2	10	800	S	3	nil	5
SHR_180222_002	0	10	700	S	3	nil	5
SHR_180222_002	1	10	700	S	4	nil	4
SHR_180222_003	0	10	700	S	4	nil	4
SHR_180222_003	1	9	700	S	3	nil	4
SHR_180223_001	0	7	700	S	3	nil	5
SHR_180223_001	1	7	900	S	4	nil	5
SHR_180223_001	2	8	900	S	4	nil	5
SHR_180223_002	0	10	500	S	3	CLF	2
SHR_180223_002	1	10	500	S	3	CLF	2
SHR_180223_003	0	10	500	S	3	CLF	2
SHR_180223_003	1	9	600	S	3	nil	3
SHR_180307_001	0	9	600	SSW	2	nil	5
SHR_180307_001	1	10	600	SW	3	ILR	3
SHR_180307_001	2	10	600	SW	3	ILR	3
SHR_180307_001	3	10	500	SW	3	ILR	4
SHR_180307_002	0	10	500	SW	3	nil	4
SHR_180307_002	1	9	500	SW	3	ILR	4
SHR_180307_003	0	10	500	SW	3	nil	5
SHR_180307_003	1	10	400	SW	2	CHS	2
SHR_180319_001	0	3	900	NE	4	nil	5
SHR_180319_001	1	2	900	NE	4	nil	5
SHR_180319_002	0	2	900	NE	4	nil	5
SHR_180319_002	1	1	900	NE	3	nil	5
SHR_180319_003	0	5	900	NE	4	nil	5
SHR_180319_003	1	4	900	NE	4	nil	5

Session ID	Period	Cloud 10^{ths}	Cloud base	Wind Direction	Wind Force	Precipitation	Visibility (km)
SHR_180319_003	2	3	900	NE	4	nil	5
SHR_180319_003	3	3	900	NE	4	nil	5
SHR_180320_001	0	1		W	4	nil	10
SHR_180320_001	1	1		W	4	nil	10
SHR_180321_001	0	6	1000	SW	2	nil	10
SHR_180321_001	1	9	1000	SW	3	nil	10
SHR_180321_002	0	8	1000	S	1	nil	10
SHR_180321_002	1	7	1000	S	1	nil	10
SHR_180321_003	0	10	1000	SW	3	nil	10
SHR_180321_003	1	10	900	SW	4	nil	10
SHR_180321_003	2	10	800	SW	4	nil	10
SHR_180321_003	3	10	500	SW	4	ILR	5
SHR_180321_004	0	10	500	SW	3	CLR	3
SHR_180321_004	1	10	500	SW	3	CLR	3